Test Report issued under the responsibility of:

SGS Fimko Ltd

TEST REPORT
IEC 62031
LED modules for general lighting – Safety specifications

Report Number. ..... :	GZES190401599901
Date of issue ..... :	2019-06-11
Total number of pages ..... :	21
Name of Testing Laboratory preparing the Report ..... :	SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch
Applicant's name ..... :	Blueview Elec-optic Tech Co., Ltd.
Address ..... :	1000, Section 2, 2nd Konggang Road, Southwest Aviation Industrial Development Zone, Chengdu, Sichuan, China
Test specification:	
Standard ..... :	IEC 62031:2018
Test procedure ..... :	CB Scheme
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	IEC62031F
Test Report Form(s) Originator .... :	Intertek Semko AB
Master TRF ..... :	2018-06-14

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
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Test item description ..... :	Built-in LED module
Trade Mark ..... :	Blueview
Manufacturer ..... :	Same as applicant
Model/Type reference ..... :	See “General product information”
Ratings ..... :	See “General product information”

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**CB Testing Laboratory:**	SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch	
Testing location/ address.....:		198 Kezhu Road, Science City, Economic & Technology Development Area, Guangzhou, Guangdong, China	
Tested by (name, function, signature).....:		Ivan Zhang / Project Engineer	
Approved by (name, function, signature)...:		Wells Fang / Reviewer	
☐	**Testing procedure: CTF Stage 1:**	N/A	
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 2:**	N/A	
Testing location/ address.....:			
Tested by (name + signature).....:			
Witnessed by (name, function, signature) .:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 3:**	N/A	
☐	**Testing procedure: CTF Stage 4:**	N/A	
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Witnessed by (name, function, signature) .:			
Approved by (name, function, signature)...:			
Supervised by (name, function, signature) :			

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

Attachment 1: Photo documentations (Total: 11 pages)

Summary of testing:

1. The submitted samples were found to be in compliance with the standard IEC 62031: 2018.
2. Photobiological hazard measurements have been tested according to Technical report IEC/TR 62778: 2014 (Ed 2). According to the test results, Blue light hazard of the product belongs to RG1 and therefore no markings are required on the product or in the instructions.

3.After review, the model PF5-24-RGBW was selected to perform the full test, as the maximum consumption wattage. The models FN-H2835-416-24-X, CN-H5730-128-X-24-X, DN-5050-60-12-RGBW, FN-5050-120-12-X, H150 RGBW, TN-S5050-60-24-RGB, TN-W-120-12-X were selected to perform the clause 12 and clause 21 of IEC 62031.beasue they are used difference LED package size and consumption wattage. Other models were performed construction check.

Tests performed (name of test and test clause):	**Testing location:**
6 Marking 7. Terminals 10 Moisture resistance and insulation 11 Electric strength 12 Fault conditions 14 Construction 16 Screws, current-carrying parts and connections 17 Resistance to heat, fire and tracking 21 Photobiological safety	198 Kezhu Road, Science City, Economic & Technology Development Area, Guangzhou, Guangdong, China

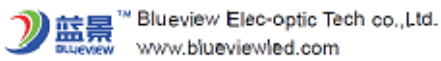
Summary of compliance with National Differences:

N/A

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Representative:



Product name: LED Flex Strip
Model number: LN-2835-120-24-W
LED/M: 120 pcs SMD2835
Input voltage: DC24V
Wattage: 14.4W/M
Input current: Max 0.6A/M
Non-replaceable LEDs

CB

Remark:

1. The height of letters and numbers are not less than 2 mm.
2. The height of graphical symbols is not less than 5 mm.
3. According to the standard, warning and text required by the standard should be written in the official language(s) of the country in which the appliance is to be sold. The applicant should ensure that the samples in future production fulfill the requirement;
4. The rating label was attached on the input wire.

Test item particulars.....:	
Classification of installation and use.....:	Fixed
Supply Connection.....:	DC connector or non-detachable wire
Mass of the equipment.....:	N/A
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 .....:	2019-05-06
Date (s) of performance of tests.....:	2019-05-08 to 2019-06-11

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 ☒ comma / ☐ point is used as the decimal separator.

Clause numbers between brackets refer to clauses in IEC 61347-1

When determining for test conclusion, measurement uncertainty of tests has been considered.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) .....:	Same as applicant

General product information:

Model	Wattage (W/m)	Voltage (DC V)
H25-X	23,04 W/m	12 V
H150-X	25,92 W/m	24 V
PF5-24-X	46 W/m	24 V
LN-2835-Y-24-X	14,4 W/m	24 V
LN-H2835-Y-24-X	5,2 W/m	24 V
CN-H5730-Y-24-X	23,04 W/m	24 V
CN-H2835-Y-24-X	21,6 W/m	24 V
CN-2016-Y-24-X	12,96 W/m	24 V
FN-H2835-Y-24-X	37,44 W/m	24 V
TN-T3528-Y-Z-X	19,2 W/m	12 V or 24 V
TN-F5050-Y-Z-X	19,2 W/m	12 V or 24 V
TN-S5050-Y-Z-X	12 W/m	12 V or 24 V
SN-S5050-Y-Z-X	15,36 W/m	12 V or 24 V
FN-F2835-Y-Z-X	21,6 W/m	12 V or 24 V
TN-W-Y-Z-X	28,8 W/m	12 V or 24 V
FN-W-Y-Z-X	28,8 W/m	12 V or 24 V
MN-W-Y-Z-X	24 W/m	12 V or 24 V
VTM-W-Y-Z-X	24 W/m	12 V or 24 V
PTM-W-Y-Z-X	24 W/m	12 V or 24 V
SN-W-Y-Z-X	10,08 W/m	12 V or 24 V
DN-W-Y-Z-X	19,2 W/m	5 V or 12 or 24 V
“X”: CCT or light color, “Y”: LED quantity per meter, “Z”: voltage, “W”: LED package size.		

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

4	**GENERAL REQUIREMENTS**		
4.2	Classification		
	Built-in module ..... :	Yes ☒ No ☐	—
	Independent module..... :	Yes ☐ No ☒	—
	Integral module ..... :	Yes ☐ No ☒	—
4.6	Independent modules comply with requirements in IEC 60598-1:2014/AMD1:2017		N/A
4.8	Modules with integrated controlgear providing SELV comply with requirements according to IEC 61347-1:2015/AMD1:2017 clause L.5 to L.11.	(see Annex 1)	N/A

6	**MARKING**		
6.2	**Contents of marking for built-in and for independent LED modules**		**P**
	a) mark of origin		P
	b) model number, type reference		P
	c1) constant voltage module; rated supply voltage and supply frequency		N/A
	c2) constant current module; rated supply current and supply frequency		N/A
	d) rated power		N/A
	e) indication of connections, wiring diagram		N/A
	f) value of t_c and place on the module		N/A
	g) Ethr if required		N/A
	h) symbol for built-in modules		N/A
	i) heat transfer temperature t_d		N/A
	j) power for heat-conduction P_d		N/A
	k) working voltage for insulation		N/A
6.3	**Location of marking for built-in LED modules**		**P**
	- marking of a) and b) in 6.2 on the modules		P
	- marking of other applicable items in 6.2 on the modules or in data sheet, leaflet or website		P
6.4	**Location of marking for independent LED modules**		**N/A**
	- marking of a), b), c) and f) in 6.2 on the modules		N/A
	- marking of other applicable items in 6.2 on the modules or in data sheet, leaflet or website		N/A
6.5	**Marking of integral LED modules**		**N/A**

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Clause	Requirement + Test	Result - Remark	Verdict
	- information in 6.2 a) to g) in data sheet, leaflet or website		N/A
6.6	**Durable and legibility of marking**		**P**
	- marking on the LED module legible after test with water		P
	- marking not on the LED module legible		P
7	**TERMINALS**		
7.1	**Integral terminals**		**N/A**
	Screw terminals comply with section 14 of IEC 60598-1		N/A
	Screwless terminals comply with section 15 of IEC 60598-1		N/A
7.2	**Terminals other than integral terminals**		**N/A**
	Separately approved; component list		N/A
	Ratings suit the conditions		N/A
	Satisfy additional relevant requirements of this standard		N/A
8 (9)	**EARTHING**		
- (9.1)	**Provisions for protective earthing**		**N/A**
	Terminal complying with clause 8		N/A
	Locked against loosening and not possible to loosen by hand		N/A
	Not possible to loosen clamping means unintentionally on screwless terminals		N/A
	Earthing via means of fixing		N/A
	Earthing terminal only used for the earthing of the control gear		N/A
	All parts of material minimizing the danger of electrolytic corrosion		N/A
	Made of brass or equivalent material		N/A
	Contact surface bare metal		N/A
	Test according 7.2.3 of IEC 60598-1		N/A
- (9.2)	**Provision for functional earthing**		**N/A**
	Comply with clause 8 and 9.1		N/A
	Functional earth insulated from live parts by double or reinforced insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
- (9.3)	**Lamp controlgear with conductors for protective earthing by tracks on printed circuit board**		**N/A**
	Test with a current of 25 A between earthing terminal and each of the accessible metal parts; measured resistance (Ω) at ≥ 10 A according 7.2.3 of IEC 60598-1: < 0,5 Ω .....:		N/A
- (9.4)	**Earthing of built-in lamp controlgear**		**N/A**
	Earth by means of fixing to earthed metal of luminaire in compliance of 7.2 of IEC 60598-1		N/A
	Earthing terminal only for earthing the built-in controlgear		N/A
- (9.5)	**Earthing via independent controlgear**		**N/A**
- (9.5.1)	Earth connection to other equipment		N/A
	Looping or through connection, conductor min. 1,5 mm² and of copper or equivalent		N/A
	Protective earthing wires in line with 5.3.1.1 and clause 7		N/A
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear		N/A
	Test with a current of 25 A between input and output earth terminals; measured resistance (Ω) between earthing terminal and each of the accessible metal parts at ≥ 10 A according 7.2.3 of IEC 60598-1: < 0,5 Ω .....:		N/A
	Output earthing terminal marked as in 7.1 t) of IEC 61347-1		N/A

9 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		
- (10.1)	Controlgear protected against accidental contact with live parts		N/A
- (A2)	Voltage measured with 50 kΩ		N/A
- (A3)	Voltage > 35 V peak or > 60 V d.c. or protective impendance device		N/A
- (10.1)	Lacquer or enamel not used for protection or insulation		N/A
	Adequate mechanical strength on parts providing protection		N/A
- (10.2)	Capacitors > 0,5 μF: voltage after 1 min (V): < 50 V .....:		N/A
- (10.3)	Controlgear providing SELV		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		N/A
	No connection between output circuit and the body or protective earthing circuit		N/A
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		N/A
	SELV outputs separated from earth by at least basic insulation		N/A
	ELV conductive parts insulated as live parts		N/A
	Tests according Annex L of IEC 61347-1		N/A
- (10.4)	Accessible conductive parts in SELV circuits		N/A
	Output voltage under load ≤ 25 V r.m.s. or ≤ 60 V d.c.		N/A
	If output voltage > 25 V r.m.s. or > 60 V d.c.; No load output ≤ 35 V peak or ≤ 60 V d.c and touch current does not exceed 0,7 mA (peak) or 2 mA d.c. ..... :		N/A
	One conductive part is insulated if output voltage or current exceeding the values above and withstand test voltage 500 V		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
10 (11)	**MOISTURE RESISTANCE AND INSULATION**		
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ):		P
	For basic insulation ≥ 2 MΩ ..... :	> 20 MΩ	P
	For double or reinforced insulation ≥ 4 MΩ ..... :		N/A
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N/A
11 (12)	**ELECTRIC STRENGTH**		
	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Working voltage ≤ 50 V, test voltage 500 V		P
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		N/A
	Basic insulation, 2U + 1000 V		N/A
	Supplementary insulation, 2U + 1000 V		N/A
	Double or reinforced insulation, 4U + 2000 V		N/A
	No flashover or breakdown		P
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		N/A
12 (14)	**FAULT CONDITIONS**		
- (14.1)	When operated under fault conditions the controlgear:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		N/A
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected		N/A
- (14.2)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (after any reduction in 14.2 - 14.5)		N/A
- (14.3)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (14.4)	Short-circuit across insulation consisting of lacquer, enamel or textile		N/A
- (14.5)	Short-circuit across electrolytic capacitors		N/A
	Short-circuit or interruption of SPDs		N/A
- (14.6)	After the tests has been carried out on three samples:		P
	The insulation resistance ≥ 1 MΩ .....:	> 20 MΩ	P
	No flammable gases		P
	No accessible parts have become live		P
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
- (14.7)	Relevant fault condition tests with high-power a.c. supply and in turn to a d.c. supply		—
12.2	**Overpower condition**		**P**

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Clause	Requirement + Test	Result - Remark	Verdict
	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N/A
	No fire, smoke or flammable gas is produced		P
	Molten material does not ignite tissue paper, spread below the module		P
14 (15)	**CONSTRUCTION**		
- (15.1)	**Wood, cotton, silk, paper and similar fibrous material**		**P**
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
- (15.2)	**Printed circuits**		**P**
	Printed circuits used as internal connections complies with clause 14		P
15 (16)	**CREEPAGE DISTANCES AND CLEARANCES**		
- (16.1)	**General**		**N/A**
	Creepage distances and clearances according to 16.2 and 16.3		N/A
	Controlgears providing SELV comply with additional requirements in Annex L		N/A
	Insulating lining of metallic enclosures		N/A
	Controlgear protected against pollution comply with Annex P		N/A
- (16.2)	**Creepage distances**		**N/A**
- (16.2.2)	Minimum creepage distances for working voltages		N/A
	Creepage distances according to Table 7		N/A
- (16.2.3)	Creepage distances for working voltages with frequencies above 30 kHz		N/A
	Creepage distances according to Table 8		N/A
- (16.3)	**Clearances**		**N/A**
- (16.3.2)	Clearances for working voltages		N/A
	Clearances distances according to Table 9		N/A
- (16.3.3)	Clearances for ignition voltages and working voltages with higher frequencies		N/A
	Clearances distances for basic or supplementary insulation according to Table 10		N/A
	Clearances distances for reinforced insulation according to Table 11		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

16 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		—
(4.11)	**Electrical connections**		**P**
(4.11.1)	Contact pressure		P
(4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
(4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
(4.11.4)	Material of current-carrying parts		P
(4.11.5)	No contact to wood or mounting surface		P
(4.11.6)	Electro-mechanical contact systems		N/A
(4.12)	**Mechanical connections and glands**		**N/A**
(4.12.1)	Screws not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
(4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
(4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm) .....:		N/A
	- lampholder; torque (Nm) .....:		N/A
	- push-button switches; torque 0,8 Nm .....:		N/A
(4.12.5)	Screwed glands; force (Nm).....:		N/A

17 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		
- (18.1)	Ball-pressure test .....:	See Test Table 17 (18.1)	P
- (18.2)	Test of printed boards .....:		N/A
- (18.3)	Glow-wire test (650°C) .....:	See Test Table 17 (18.3)	P
- (18.4)	Needle-flame test (10 s) .....:	See Test Table 17 (18.4)	P
- (18.5)	Proof tracking test .....:		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
18	**RESISTANCE TO CORROSION**		
	Comply with requirements according 4.18 of IEC 60598-1		N/A
20	**HEAT MANAGEMENT**		
20.1	**General**		**N/A**
	Fulfil clause 20 if replaceable LED module and when heat conducting thermal interface is needed.		N/A
20.2	**Thermal interface material**		**N/A**
	Thermal interface material delivered with the module if necessary		N/A
20.3	**Heat protection**		**N/A**
	Not impair safety when operated under poor heat-conduction conditions according Annex D		N/A
22	**PHOTOBIOLOGICAL SAFETY**		
22.1	**UV radiation**		**N/A**
	Luminous radiation not exceed 2mW/klm		N/A
22.2	**Blue light hazard**		**P**
	Assessed according to IEC TR 62778	RG1	P
22.3	**Infrared radiation**		**N/A**
	Requirements for infrared radiation when required		N/A
A	**ANNEX A - TESTS**		
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		N/A

12 (14)	**TABLE: tests of fault conditions**	
Part	**Simulated fault**	**Hazard**
LED	Shorted-circuit	NO
LED	Opened-circuit	NO

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

15 (16)	**TABLE: clearance and creepage distance measurements (mm)**							**N/A**
Applicable part of IEC 61347-1 Table 7 – 11*								
Distances	**Insulation type ****	**Measured clearance**	**Required**		**Measured creepage**	**Required**		
			clearance	***Table**		**creepage**	***Table**	
Distance 1:								
Working voltage (V) ..... :								—
Frequency if applicable (kHz) ..... :								—
PTI..... :					< 600 ☐ ≥ 600 ☐			—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... :								—
Pulse voltage if applicable (kV) ..... :								—
Supplementary information:								
Distance 2:								
Working voltage (V) ..... :								—
Frequency if applicable (kHz) ..... :								—
PTI..... :					< 600 ☐ ≥ 600 ☐			—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... :								—
Pulse voltage if applicable (kV) ..... :								—
Supplementary information:								
Distance 3:								
Working voltage (V) ..... :								—
Frequency if applicable (kHz) ..... :								—
PTI..... :					< 600 ☐ ≥ 600 ☐			—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... :								—
Pulse voltage if applicable (kV) ..... :								—
Supplementary information:								

** Insulation type: B – Basic; S – Supplementary; R – Reinforced

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

17 (18.1)	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm) ..... :		2		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Terminal block	Blueview Elec-optic Tech Co., Ltd.	125	0,96	
Supplementary information: —				

17 (18.2)	TABLE: Test of printed boards				N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (s)	Ignition of specified layer Yes/No	Duration of burning (s)	Verdict
—	—	—	—	—	—
Supplementary information: —					

17 (18.3)	TABLE: Glow-wire test				P
Glow wire temperature ..... :		650°C			—
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Transparent tube	Blueview Elec-optic Tech Co., Ltd.	30	No	0	P
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No) ..... :					No
Supplementary information: —					

17 (18.4)	TABLE: Needle-flame test				P
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Terminal block	Blueview Elec-optic Tech Co., Ltd.	10	No	0	P
Supplementary information: —					

17 (18.5)	TABLE: Proof tracking test		N/A
Test voltage PTI ..... :		175 V	—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens	Verdict

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

—	—	—	—	—	—
Supplementary information: —					

(A)	**ANNEX A - TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK**	**N/A**

ANNEX 1	**LED MODULES WITH INTEGRAL CONTROLGEAR PROVIDING SELV**	**N/A**

ANNEX 2	**TABLE: Critical components information**					P
Object / part No.	**Code**	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
LED (for DN-W-Y-Z-X, TN-W-X-Y-Z, SN-S5050-Y-Z-X, TN-S5050-Y-Z-X, TN-F5050-Y-Z-X, PF5-24-X, H150-X)	B	Yuliang	YLL-T28RGB-CJ-01	I_{fRGB} = 3 x 20 mA; V_r = 5 V	IEC 62031	Tested with appliance
LED (for TN-W-Y-Z-X, FN-W-Y-Z-X, MN-W-Y-Z-X, VTM-W-Y-Z-X, PTM-W-Y-Z-X, SN-W-Y-Z-X, DN-W-Y-Z-X)	B	Yuliang	YLL-T30LW-90-AJ-26-01	I_f = 30 mA; V_r = 5 V	IEC 62031	Tested with appliance
LED (for TN-W-Y-Z-X, FN-W-Y-Z-X, MN-W-Y-Z-X, VTM-W-Y-Z-X, PTM-W-Y-Z-X, SN-W-Y-Z-X, DN-W-Y-Z-X)	B	Refond	RT-XXTK10DS-EC-F-Y	I_f = 30 mA; V_r = 5 V	IEC 62031	Tested with appliance
LED (for CN-H5730-Y-24-X)	B	Shenzhen Runlite Technology Co., Ltd.	T57301-W64SG1H0FB3B4-A100	I_f = 150 mA; V_f = 3 V	IEC 62031	Tested with appliance
LED (for TN-W-Y-Z-X, FN-W-Y-Z-X, MN-W-Y-Z-X, VTM-W-Y-Z-X, PTM-W-Y-Z-X, SN-W-Y-Z-X, DN-W-Y-Z-X)	B	Yuliang	YLL-50RBFW4-80-BJ-33-01	I_{fRGB} = 3 x 20 mA; V_r = 5 V	IEC 62031	Tested with appliance

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

LED (for TN-W-Y-Z-X, FN-W-Y-Z-X, MN-W-Y-Z-X, VTM-W-Y-Z-X, PTM-W-Y-Z-X, SN-W-Y-Z-X, DN-W-Y-Z-X)	B	Shenzhen Runlite Technology Co., Ltd.	T20161-WXXSBXXXHBCO-0000	I_f = 60 mA; V_f = 5 V	IEC 62031	Tested with appliance
LED wire (H25-X, H150-X, PF5-24-X, LN-2835-Y-24-X, LN-H2835-Y-24-X, CN-H5730-Y-24-X, CN-H2835-Y-24-X, CN-2016-Y-24-X, FN-H2835-Y-24-X, TN-T3528-Y-Z-X, TN-F5050-Y-Z-X, TN-S5050-Y-Z-X, SN-S5050-Y-Z-X, FN-F2835-Y-Z-X, TN-W-Y-Z-X, FN-W-Y-Z-X, MN-W-Y-Z-X, VTM-W-Y-Z-X, PTM-W-Y-Z-X, SN-W-Y-Z-X, DN-W-Y-Z-X)	B	Shenzhen Shi Yihuaxing Electron Co., Ltd.	1007	22 AWG	IEC 62031	UL E318553 Tested with appliance

Supplementary information:

[1)] Provided evidence ensures the agreed level of compliance. See OD-CB2039.

The codes above have the following meaning:

A - The component is replaceable with another one, also certified, with equivalent characteristics

B - The component is replaceable if authorised by the test house

C - Integrated component tested together with the appliance

D - Alternative component

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 3	**Screw terminals (part of the luminaire)**		
(14)	**SCREW TERMINALS**		**N/A**
(14.2)	Type of terminal.....:		—
	Rated current (A).....:		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm²).....:		—
(14.3.3)	Conductor space (mm).....:		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread) .....:	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm) .....:		N/A
	Torque (Nm).....:		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N).....:		N/A
(14.4.8)	Without undue damage		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 4	**Screwless terminals (part of the luminaire)**		
(15)	**SCREWLESS TERMINALS**		**N/A**
(15.2)	Type of terminal.....:		—
	Rated current (A).....:		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5.1)	Terminals internal wiring		N/A
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples) .....:		N/A
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples) .....:		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples).....:		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples) .....:		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples) .....:		N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

(15.6.2)	Mechanical tests		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....:		N/A
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N) .....:		N/A
(15.6.3)	Electrical tests		N/A
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N/A

(15.6.3.1) (15.6.3.2)	**TABLE: Contact resistance test / Heating tests**									**N/A**
	Voltage drop (mV) after 1 h									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										N/A
	Voltage drop of two inseparable joints									
	Voltage drop after 10th alt. 25th cycle									
	Max. allowed voltage drop (mV) ..... :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										N/A
	Voltage drop after 50th alt. 100th cycle									
	Max. allowed voltage drop (mV) ..... :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										N/A
	Continued ageing: voltage drop after 10th alt. 25th cycle									
	Max. allowed voltage drop (mV) ..... :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										N/A
	Continued ageing: voltage drop after 50th alt. 100th cycle									
	Max. allowed voltage drop (mV) ..... :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										N/A
Supplementary information: —										

--- End of main report ---

Attachment 1: Photo documentations

Details of: General view for PF5-24-X

View:

[x] general

[ ] front

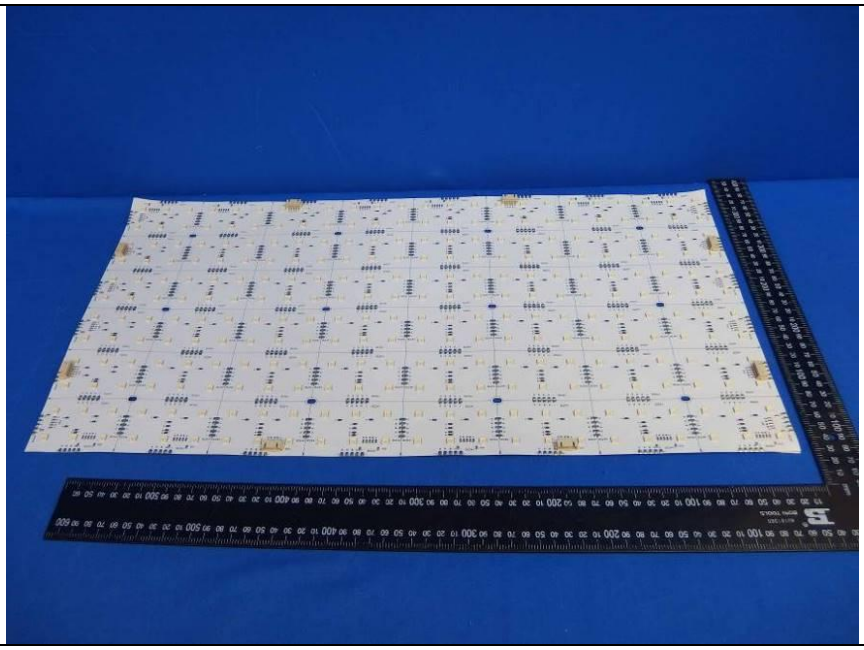
[ ] rear

[ ] right

[ ] left

[ ] top

[ ] bottom



Details of: LED for PF5-24-X

View:

[x] general

[ ] front

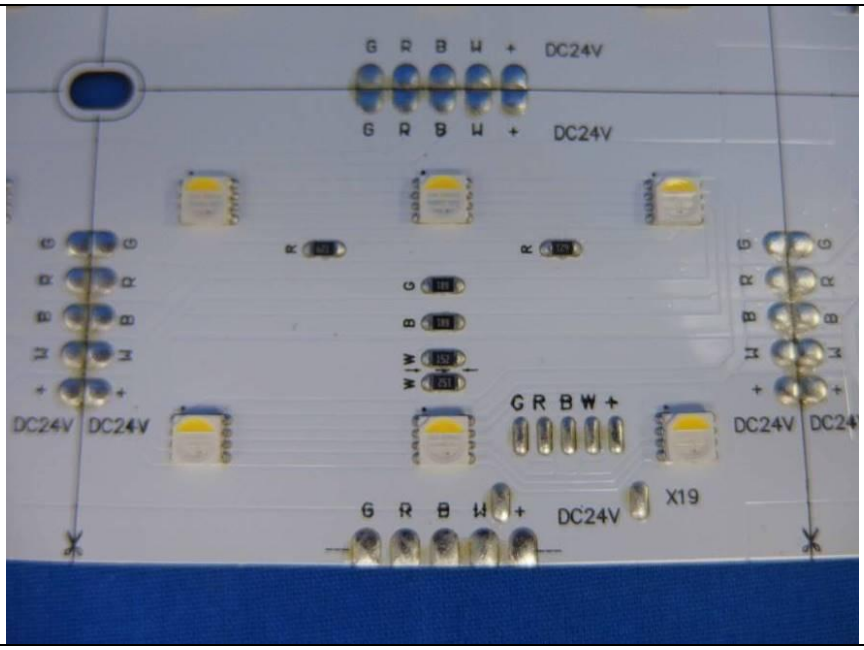
[ ] rear

[ ] right

[ ] left

[ ] top

[ ] bottom



Attachment 1: Photo documentations

Details of: General view for FN-H2835-Y-24-X

View:

[x] general

[ ] front

[ ] rear

[ ] right

[ ] left

[ ] top

[ ] bottom

Details of: LED view for FN-H2835-Y-24-X

View:

[x] general

[ ] front

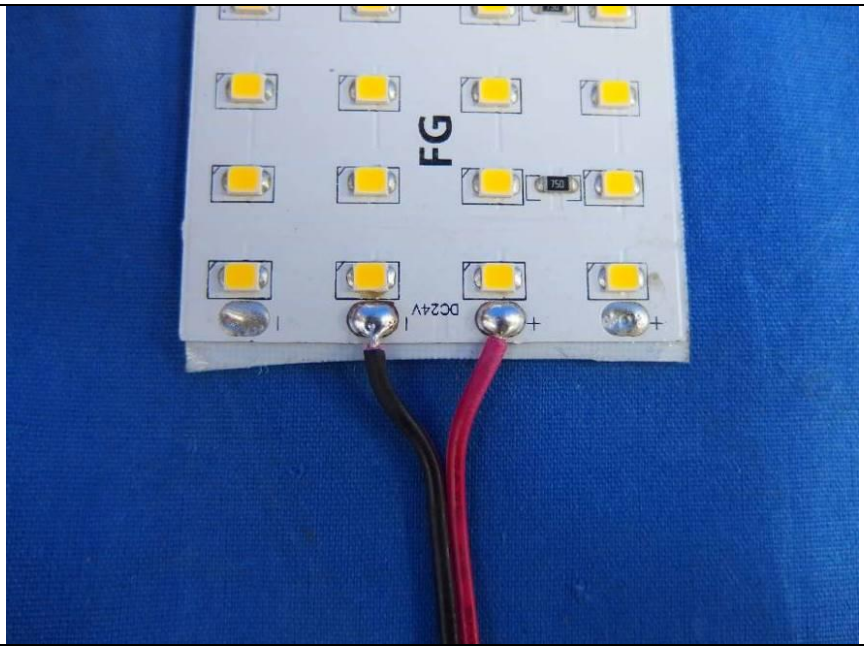
[ ] rear

[ ] right

[ ] left

[ ] top

[ ] bottom



Attachment 1: Photo documentations

Details of: General view for CN-H5730-Y-X-24-X

View:

[x] general

[ ] front

[ ] rear

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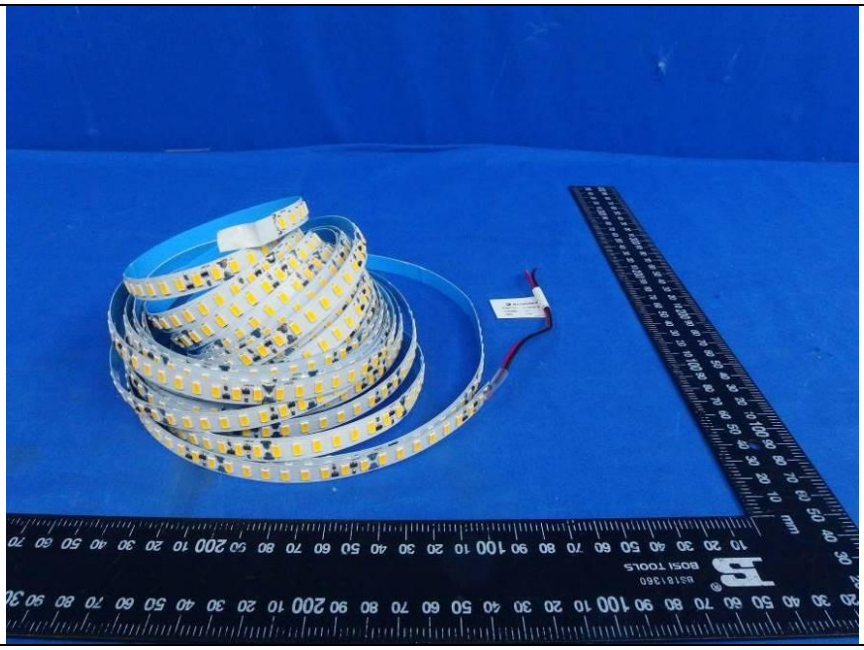

Details of: LED view for CN-H5730-Y-X-24-X

View:

[x] general

[ ] front

[ ] rear

[ ] right

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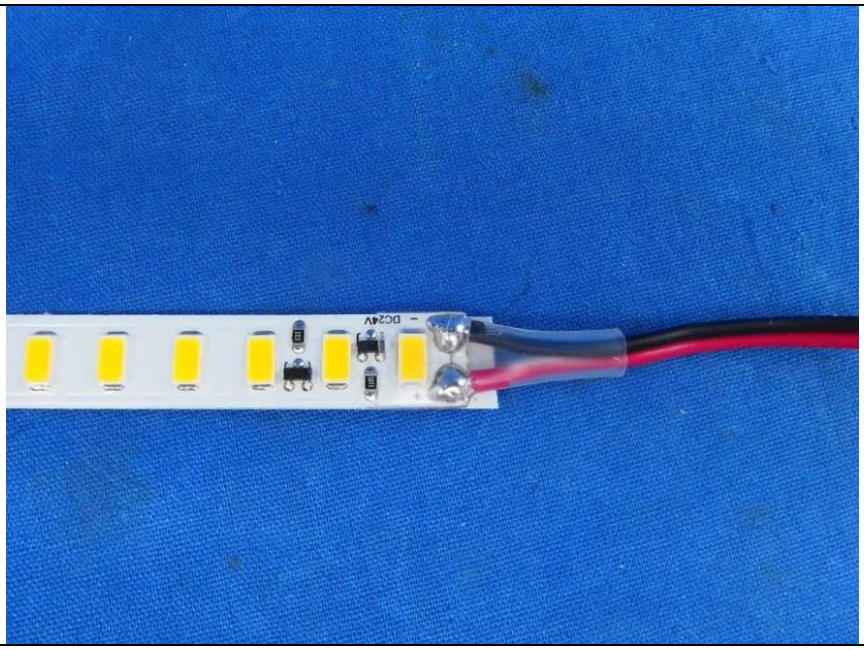

Attachment 1: Photo documentations

Details of: General view for DN-W-Y-Z-X

View:

[x] general

[ ] front

[ ] rear

[ ] right

[ ] left

[ ] top

[ ] bottom

Details of: LED view for DN-W-Y-Z-X

View:

[x] general

[ ] front

[ ] rear

[ ] right

[ ] left

[ ] top

[ ] bottom

Attachment 1: Photo documentations

Details of: General view for FN-W-Y-Z-X

View:

[x] general

[ ] front

[ ] rear

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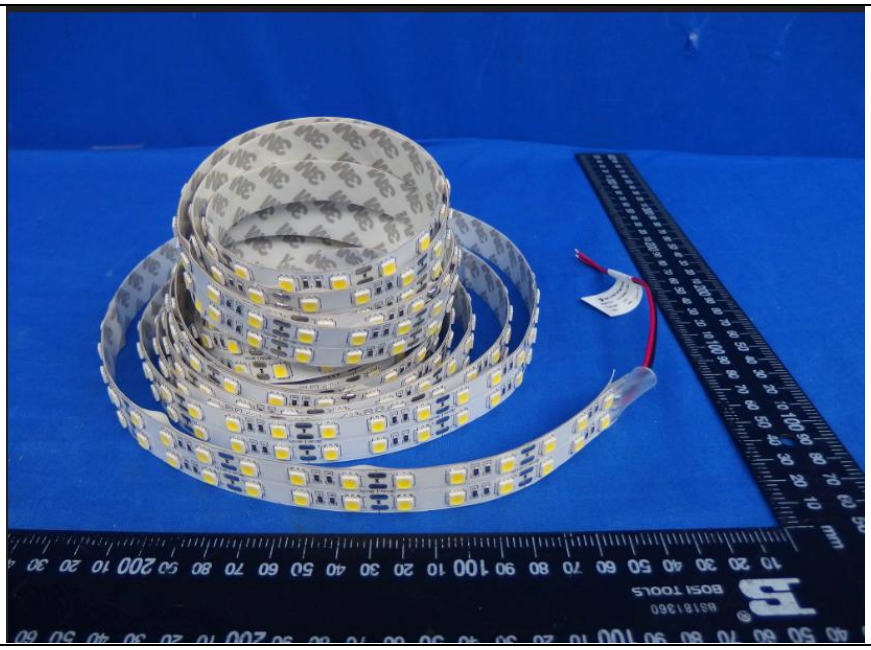
[ ] bottom



Details of: LED view for FN-W-Y-Z-X

View:

[x] general

[ ] front

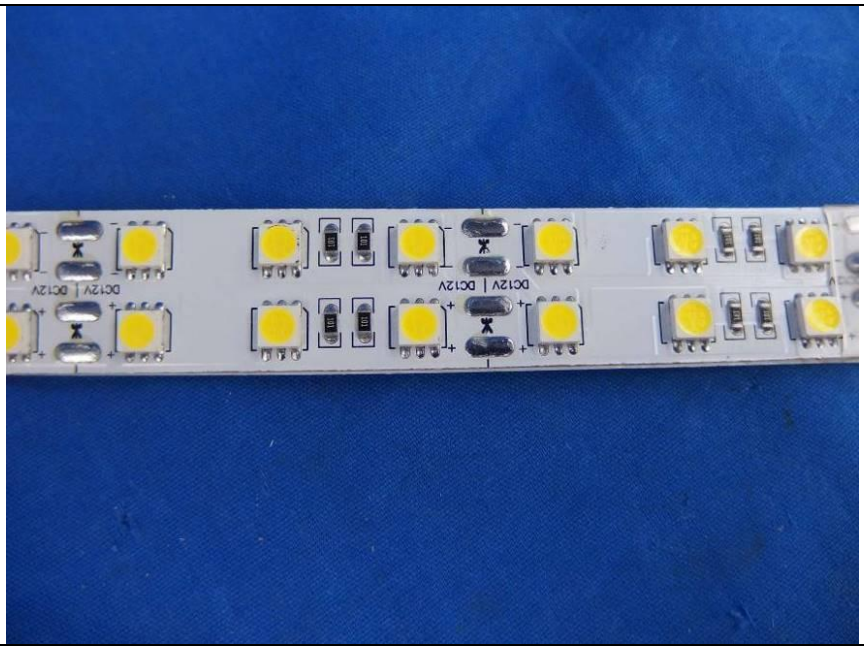
[ ] rear

[ ] right

[ ] left

[ ] top

[ ] bottom



Attachment 1: Photo documentations

Details of: General view for H150-X

View:

[x] general

[ ] front

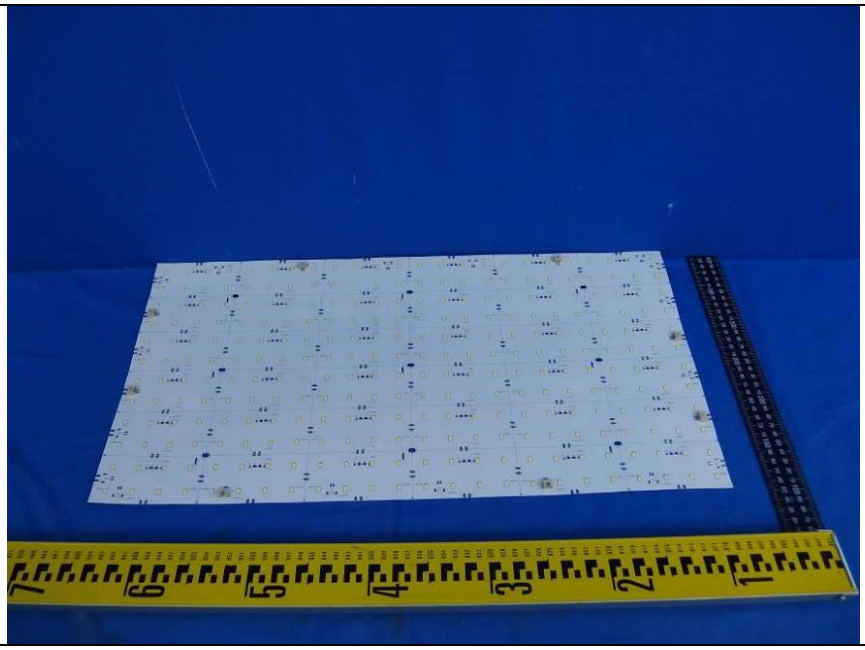
[ ] rear

[ ] right

[ ] left

[ ] top

[ ] bottom



Details of: LED view for H150-X

View:

[x] general

[ ] front

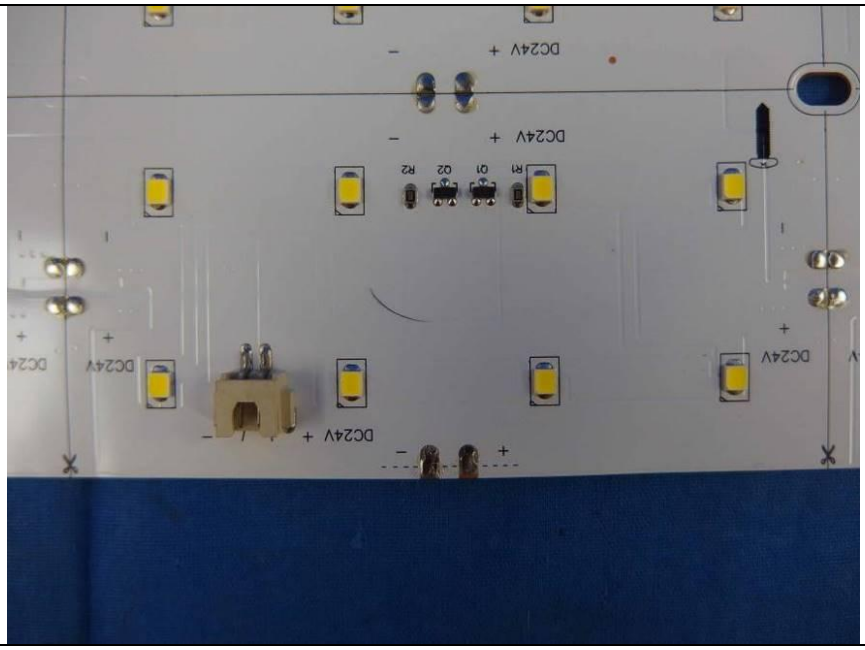
[ ] rear

[ ] right

[ ] left

[ ] top

[ ] bottom



Attachment 1: Photo documentations

Details of: General view for TN-S5050-Y-Z-X

View:

[x] general

[ ] front

[ ] rear

[ ] right

[ ] left

[ ] top

[ ] bottom

Details of: LED view for TN-S5050-Y-Z-X

View:

[x] general

[ ] front

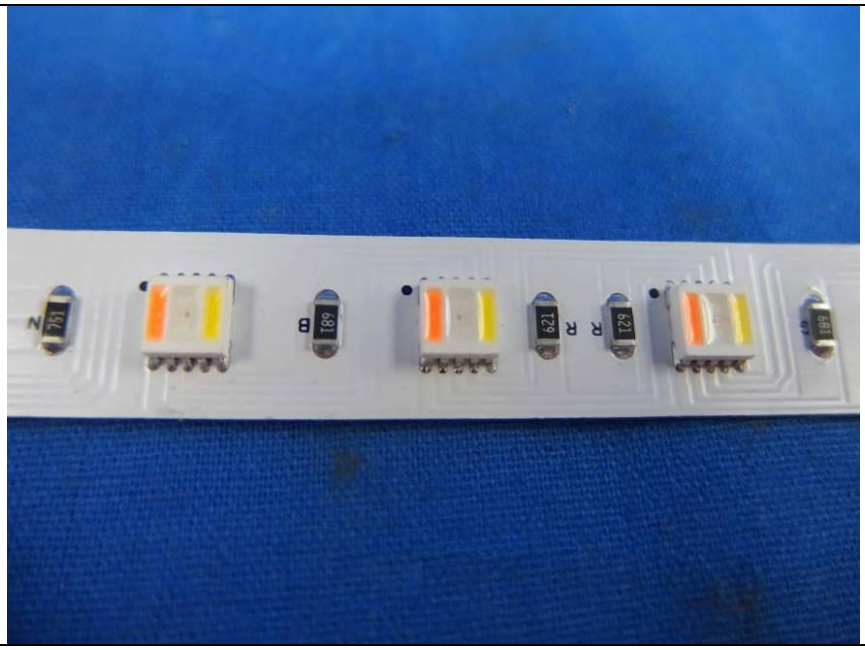
[ ] rear

[ ] right

[ ] left

[ ] top

[ ] bottom



Attachment 1: Photo documentations

Details of: General view for TN-W-Y-Z-X

View:

[x] general

[ ] front

[ ] rear

[ ] right

[ ] left

[ ] top

[ ] bottom

Details of: LED view for TN-W-Y-Z-X

View:

[x] general

[ ] front

[ ] rear

[ ] right

[ ] left

[ ] top

[ ] bottom

Attachment 1: Photo documentations

Details of: DC connector view for PF5-24-X, same as H150-X

View:

[x] general

[ ] front

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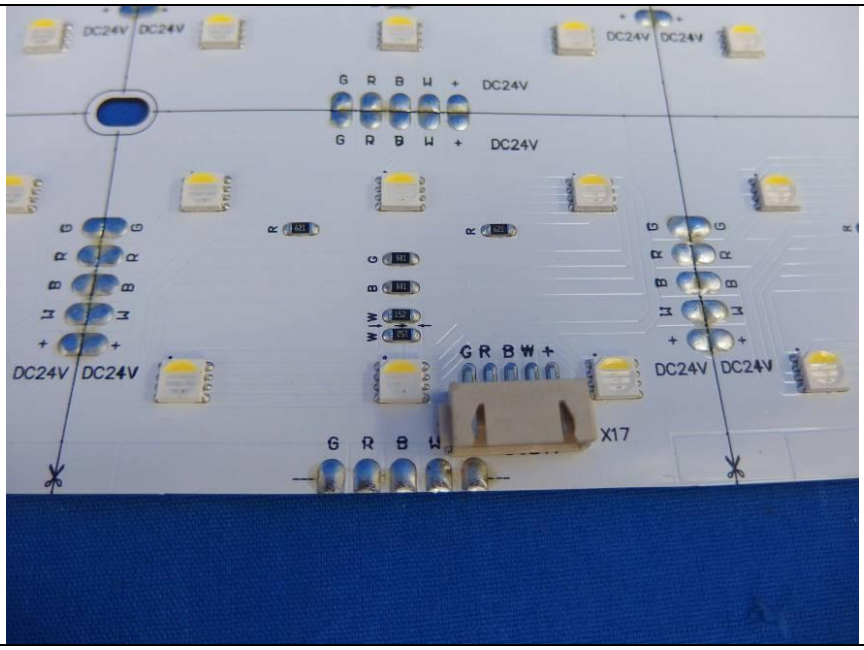


Details of: Rear view for PF5-24-X, same as H150-X

View:

[ ] general

[ ] front

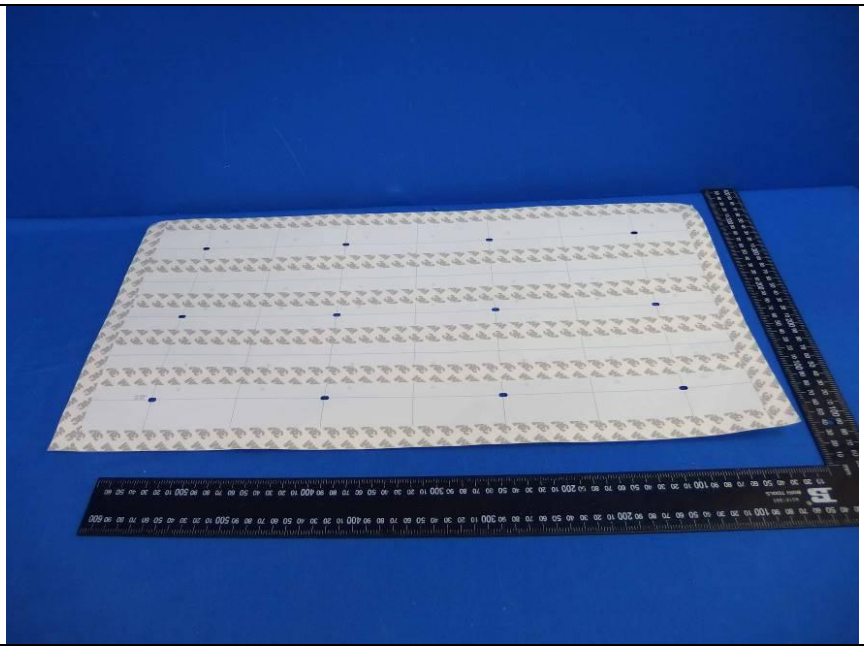
[x] rear

[ ] right

[ ] left

[ ] top

[ ] bottom



Attachment 1: Photo documentations

Details of: LED wire view for DN-W-Y-Z-X, same as other models

View:

[x] general

[ ] front

[ ] rear

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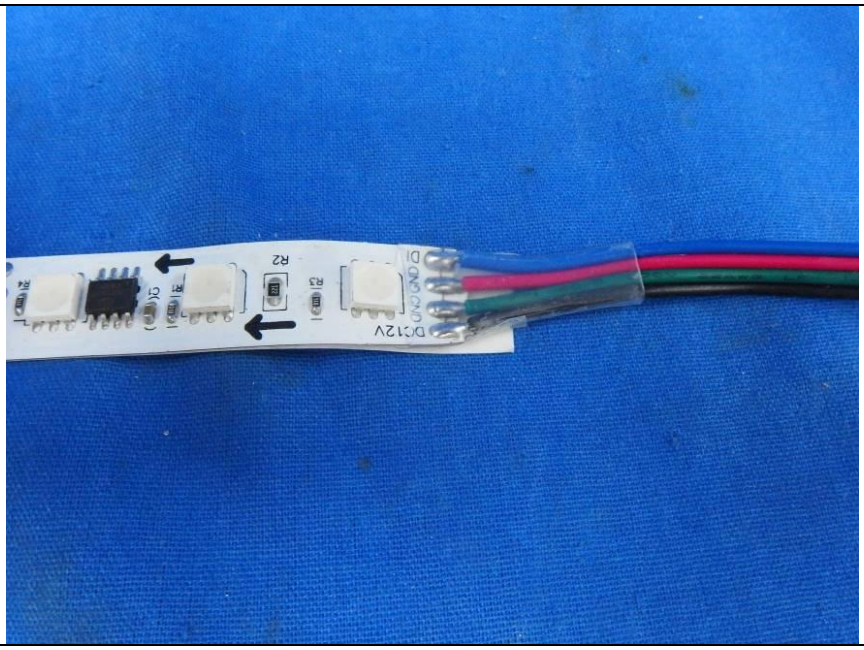

Details of: End terminal view for DN-W-Y-Z-X, same as other models

View:

[x] general

[ ] front

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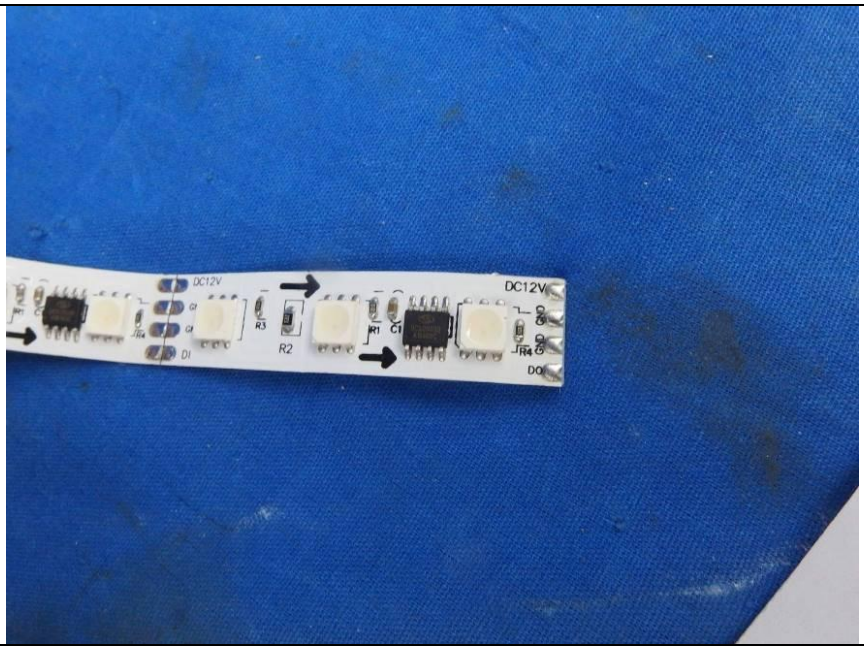

Attachment 1: Photo documentations

Details of: Rear view for DN-W-Y-Z-X, same as other models

View:

[ ] general

[ ] front

[x] rear

[ ] right

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[ ] top

[ ] bottom

- - - End of attachment 5 - - -