

Construction Evaluation Sheet
UL588 Standard for
Seasonal and Holiday Decorative Products

Project No. _____ KTQ105285064

Date of Perform. _____ May 28, 2021

Performed by (name + signature) ... Eli Wang *Eli Wang*

Reviewed by (name + signature) _____ Store Chu *Store Chu*



TAIZHOU TAILI LIGHTING CO., LTD.

Applicant _____ Unit 2, Building 11, Caideng Pioneer Park, Dongcheng Town, Taizhou, Zhejiang, China

Model/Type reference _____ DC, AX, BAT, BT, C, CL, D, W, WT, GJ, SD, SR, SOR, LX, TL, USB

Product Description _____ LED holiday light

Ratings _____ Adapter input 120V~ac, 50/60Hz, 0.3A
Output 29Vdc, 0.124A, 3.6W
LED light input 29Vdc, 0.124A, 3.6W

Condition of the Item Tested _____ Prototype / Production Sample / Retail Purchase

CR No. _____ UL 588_B

Test Specification

Standard _____ UL 588 (10th ed., Rev. Jan. 9, 2018)

Test procedure _____ : Type test

Remark: if necessary, fill in some specified product information, such as model difference, special construction, etc.

Note: **Verdict:** **P** = Complied;
 F = Did Not Comply;
 N = Not Applicable

Testing location:	Shenzhen KADU Testing Technology Co., Ltd Room 316, 3rd Floor, Building A, Jinbolong Industrial Park, Longhua Street, Longhua District, Shenzhen
Manufacturer:	TAIZHOU TAILI LIGHTING CO.,LTD Unit 2, Building 11, Caideng Pioneer Park, Dongcheng Town, Taizhou, Zhejiang, China
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..... :	2021-05-24
Date (s) of performance of tests..... :	2021-05-24 to 2021-05-28
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies)..... :	TAIZHOU TAILI LIGHTING CO.,LTD Unit 2, Building 11, Caideng Pioneer Park, Dongcheng Town, Taizhou, Zhejiang, China
GENERAL PRODUCT INFORMATION:	
1. The equipment disconnect device is considered to be: Appliance Coupler 2. The product is intended for use on the following power systems: TN 3. The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual 4. The product was submitted and evaluated for use at the maximum ambient temperature (T _{ma}) permitted by the manufacturer's specification of: 25°C 5. All models are identical to each other except the model name, enclosure colour.	

Copy of marking plate(s): LED holiday light Model: DC Rating:29Vdc, 0.124A, 3.6W Date code:XXXX TAIZHOU TAILI LIGHTING CO.,LTD Made in china

UL 588			
Clause	Requirement - Test	Result - Remark	Verdict
INTRODUCTION			
1	Scope		Info
2	Glossary		Info
3	Components		P
4	Units of Measurement		Info
5	References		Info
CONSTRUCTION – All Products			
6	General		P
7	Overcurrent Protection		P
8	Materials		P
9	Mechanical Assembly		P
10	Enclosures		P
10.1	General		P
10.2	Metallic enclosures		N/A
10.3	Polymeric enclosures		P
11	Enclosure openings		N/A
12	Accessibility of Live Parts		N/A
13	Supply Connections		P
13.1	General		P
13.2	Cords		P
13.3	Wiring devices		N/A
13.4	Polarization		N/A
13.5	Grounding		N/A
15	Strain Relief		N/A
16	Spacings		N/A
17	Splices		P
18	Class 2 Circuits		P
19	Switches		N/A
20	Printed Wiring Boards		P
21	Bushings		P
22	Lampholders		N/A
22.1	General		N/A
22.2	Series-connected		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
22.3	Parallel-connected		N/A
23	Lamps		P
24	Lamping		N/A
25	Fuseholders and Fused Attachment Plugs		N/A
26	Devices Employing Insulation-Piercing Terminals		N/A
27	Outdoor-Use Products		P
SERIES-CONNECTED STRINGS			
28	General		N/A
28.1	A series-connected string shall accommodate only one type of lamp with a minimum of 8 miniature-base lamps or 10 push-in or midget-base lamps. Type is defined as the same voltage, current rating, and connection.		N/A
28.2	The maximum current draw for a series-connected string shall be 0.60 A.		N/A
28.3	Series-connected string intended for use with individual-flashing lamps that operate by means of a self-contained thermostatically-operated shunting device.		N/A
28.4	Current-limiting ballast lamps is to be rated for at least 60 V and the two in series, alone, are to limit the current to less than or equal to 0.60 A.		N/A
28.5	Series-connected strings employing miniature screw-base lamps are limited to indoor-use only and shall be marked in accordance with 125.1.3.		N/A
28.6	Series-connected strings intended for installation on the ribs or internal mechanism of a patio umbrella shall additionally comply with the cycling test.		N/A
PARALLEL-CONNECTED STRINGS			
29	General		N/A
29.1	Employ only intermediate- or candelabra-screw lampholders.		N/A
	At least 7 lampholders		N/A
	With cord connector: total wattage ≤ 216 W(1.8 A)		N/A
	Without cord connector: total wattage ≤ 432 W(3.6 A)		N/A
29.2	Each lampholder in a parallel-connected string shall be switchless.		N/A
29.3	A lamp have maximum rating of 7 watts (0.068 A at 120 V).		N/A
29.4	Enclosure		N/A
DECORATIVE LIGHTING HARNESES			
30	General		P

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Clause	Requirement - Test	Result - Remark	Verdict
30.1	Maximum 6 lampholders		P
	Medium screw lampholders		N/A
30.2	Provided with lamps, lampholders, an attachment means, wire and overcurrent protection.		N/A
	May also be provided with a switch, a load fitting, or both.		P
30.3	Not exceed 1.75 A		P
30.4	Enclosure		P
DECORATIVE OUTFITS			
31	General		P
31.1	Comply with all the requirements applicable to series-connected strings.		P
	Comply with all the requirements applicable to parallel strings.		N/A
31.2	Decorative outfit employ medium base lamp		N/A
31.3	Mechanical assembly		N/A
31.4	A decorative outfit with one or more switched lampholders shall accommodate only candelabra-base or larger lamps and shall be for indoor use only.		N/A
31.5	A medium screw lampholder shall only be used in a decorative outfit employing parallel-connected lampholders.		N/A
	maximum 6 medium screw lampholders.		N/A
	not exceed 1.75 A		P
31.6	Enclosure		N/A
31.7	Maximum 3 inches (76.2 mm) of cord between each secured lampholder or wire.		N/A
	Space between the suspended wire and the frame shall not exceed 1/2 inch (12.7 mm).		N/A
32	Motorized Devices		P
32.1	Be rated at 120 V or less		P
32.2	Receptacle outlets provided on the rotating portion of a tree stand shall be mark according to 125.8.3		N/A
32.3	There shall not be more than three dedicated outlets provided to furnish power to strings or other seasonal products that can be attached to the motorized device.		N/A
32.4	The motor comply with UL 2111		N/A
32.5	The flexible cord employed to supply the load fitting shall be the same type and size as that required for the supply connections as specified in Table 6.2.		N/A
33	Light Sculptures		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
33.1	Frame of a light sculpture		N/A
33.2	Sufficient free length of wire		N/A
33.3	Suitable user assembly instructions are included in the instruction manual		N/A
DIRECT PLUG-IN UNITS			
34	General		P
ORNAMENTS			
35	General		P
BATTERY OPERATED PRODUCTS			
36	General		N/A
PERFORMANCE			
ALL PRODUCTS EXCEPT ORNAMENTS			
40	Leakage Current Test		N/A
41	Leakage Current Following Humidity Conditioning		N/A
42	Input Test		N/A
43	Temperature Test		N/A
44	Mounting Position Test		N/A
45	Dielectric Voltage-Withstand Test		N/A
46	Strain Relief Test		N/A
47	Wire Push-Back Relief Test		N/A
48	Abnormal Operation Test		N/A
49	Component Power Measurement Test		N/A
50	Downward Burning Rate Test		N/A
51	Conductivity of Decorative Parts Test		N/A
52	Routine Flexing Test		N/A
53	Slip-Ring Endurance Test		N/A
54	Temperature Tests for Devices Employing Insulation-Piercing Terminals		—
54.1	General		N/A
54.2	Temperature Test		N/A
54.3	Thermal cycling		N/A
54.4	Strain relief/terminal temperatures		N/A
55	Abnormal Tests for Controllers		—
55.1	General		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
55.2	Abnormal operation test		N/A
55.3	Overload test		N/A
56	Tests for Permanence of Cord Tag		N/A

PRODUCT EMPLOYING POLYMERIC ENCLOSURES			
57	General		N/A
58	Enclosure Mold Stress Relief Test		N/A
59	Drop Test		N/A
60	Impact Test		N/A
61	Cold Impact Test		N/A
62	Resistance to Crushing Test		N/A
63	Adhesive Test		N/A
PRODUCTS EMPLOYING OVERCURRENT PROTECTIVE DEVICES			
64	General		P
65	Calibration Test		P
66	Fault Current Test		P
67	Fuseholder Temperature Test		P
68	Fuseholder Crush Test		P
69	Fuseholder Cover Test		P
PRODUCTS EMPLOYING CORD-CONNECTED WIRING DEVICES OR POWER INLETS			
70	General		P
71	Strain Relief Test		P
72	Reliability of Conductor Connection Test		P
73	Security of Blades Test		P
74	Security of Input Contacts Test		P
75	Security of Insulation Test		P
76	Accessibility Test		P
PRODUCTS EMPLOYING SERIES-CONNECTED LAMPHOLDERS			
77	General		N/A
78	Oven Test		N/A
79	Lampholder Strain Relief Tests		N/A
80	Secureness Lampholder Contacts Test		N/A
81	Lampholder Millivolt Drop Test		N/A
82	Rope Strength Test		N/A
83	Crush Test		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
84	Cascade Lamp Burnout Simulation Test		N/A
85	Cascading Lamp Temperature Test		N/A
86	Cycling Test		N/A
87	Input Test		N/A
PRODUCTS INTENDED FOR OUTDOOR USE			
88	General		P
89	Rain Test		P
90	Rain Test For Series-Connected Lighting Strings		P
91	Standing Water Immersion Test		P
92	Gasket Test		P
93	Gasket Adhesion Test		P
94	Ultraviolet (UV) Light Exposure and Water Immersion Tests		P
DECORATIVE LIGHTING STRINGS			
95	Flexing Test		N/A
96	Decorative Lighting String Intended for Use on a Patio Umbrella		N/A
97	Temperature Test After Flexing		N/A
TREE STANDS			
98	General		N/A
99	Stability Test		N/A
100	Overflow Test		N/A
DIRECT PLUG-IN UNITS			
101	General		P
ELECTRONICALLY-OPERATED ORNAMENTS			
102	General		P
103	Leakage Current Test		P
104	Temperature Test at 200mA (Electronically-Operated)		P
105	Dielectric Voltage-Withstand Test		P
106	Enclosure Mold Stress Relief Test		P
107	Strain Relief Test		P
108	Drop Test		P
109	High Current Abnormal Test		P
110	High Current Inrush Test		P

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Clause	Requirement - Test	Result - Remark	Verdict
111	Series Cascade Burnout Test		P
112	Abnormal Operation Test		P
112	Voltage Drop Test		P
NON-ELECTRONICALLY-OPERATED ORNAMENTS			
114	General		N/A
115	Temperature Test 200mA (Non-Electronically-Operated)		N/A
116	Cascade Lamp Burnout Simulation Test		N/A
MANUFACTURING AND PRODUCTION TESTS			
117	Production-Line Dielectric Voltage-withstand Test		P
118	Lamping Test		P
119	Polarization Continuity Test		P
120	Grounding Continuity Test		P
RATINGS			
121	Details		—
121.1	Rated 120V, 60Hz		P
121.2	Product employing a non-polarized attachment plug shall not have a current rating that exceeds 0.60 A.		N/A
121.3	Product other than a lighting string employing a polarized attachment plug shall not have a current rating that exceeds 3.6 A.		P
121.4	Parallel-connected product without a load fitting and with a current rating that exceeds 1.75 A shall be marked in accordance with 125.5.1.		N/A
121.5	Series- or series-parallel-connected decorative lighting string or decorative outfit without a load fitting, employing a polarized attachment plug, and with a current rating that exceeds 0.6 A shall be marked in accordance with 125.5.2.		N/A
121.6	A decorative outfit accessory shall not have a current rating exceeding the maximum current rating shown in Table 13.1 for the size of the cord employed		P
MARKINGS			
122	General		—
122.1	a) Upper case letters shall not be less than 2.5mm in height		P

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	b) Lower case letters shall not be less than 1.6mm in height		P
	c) The words "CAUTION" and "WARNING" shall be in letters not less than 4.8 in height		P
122.2	The required shall be legible and		P
	a) For tags and labels, the letters shall be black on a white background.		P
	b) For other media, the letters shall be on a high contrast background. Colors such as black on red, black on green, yellow on green, the reverse of any of these combinations, and other low contrast markings are not permitted.		N/A
122.3	A required marking shall be durable, legible, and permanent. A marking shall be considered permanent if it is:		N/A
	a) Die-stamped into the unit,		N/A
	b) Molded as part of the unit, or		N/A
	c) Indelibly stamped or printed on a tag or pressure sensitive adhesive-backed label		N/A
	An adhesive-backed label shall comply with the requirements in the Standard for Marking		N/A
	and be for the temperature, type of surface, and environment, such as indoor or outdoor, for which it is intended.		N/A
122.4	If a required marking is located on a tag, the tag shall be a flag-type tag with an adhesive back.		N/A
	The tag is to be wrapped once tightly around and adhered to the power-supply cord. The ends of the tag are to adhere to each other and project as a flag		N/A
122.5	At the end of the markings on the first side of the tag, the tag shall be marked: "See other side." Before the remainder of the required markings on the second side of the tag, the tag shall be marked: "Continued from other side."		N/A
122.6	For markings located on a tag, the word "CAUTION" may appear only once at the beginning of the marking, followed by a numbered list of the remaining text of each required marking.		N/A
123	Product markings		—

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123.1	A fuseholder, fused attachment plug, fused current tap, or other device which contains a replaceable fuse or fuses, shall be permanently marked on the device with the following: "Use only 125-volt fuse, _____ amp. max."		NA
	The marking shall be visible during fuse replacement.		NA
124	Product/ Cord tag markings		—
124.1	General		—
124.1.1	The markings specified in this section shall be located on a tag attached to the product within 152.4 mm of the face of the attachment plug, current tap, direct plug-in unit, or power inlet, or on the product.		P
124.1.2	a) The manufacturer's name, trademark, or other descriptive marking by which the organization responsible for the product may be identified;		P
	b) A distinctive catalog number;		P
	c) The rated input voltage, either as "120 V" or "120 Volts";		P
	d) The rated input current in "A" or "Amps" and "Watts";		P
	e) The rated frequency in _____ Hz _____ or _____ Hertz; _____ and _____		P
	f) The month and year of manufacture		P
124.1.3	If a manufacturer produces or assembles a seasonal product at more than one factory, each finished product shall have a distinctive marking, which may be in code, by means of which it may be identified as the product of a particular factory.		P
125	Cord Tag Markings		—
125.1	General		—
125.1.1	The markings specified in this section shall be located on a tag attached to the product within 6 152.4 mm of the face of the attachment plug, current tap, direct plug-in unit, or power inlet.		NA
	For a product that employs two cords or input leads, the tag shall be located on both cords or input leads.		NA
	For a product that does not employ a cord or input leads, the markings in this section shall instead be located on the product		NA

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Clause	Requirement - Test	Result - Remark	Verdict
125.1.2	A seasonal product shall be marked "For temporary (90 days max) installation and use only" or "This seasonal product is not intended for permanent installation."		N/A
125.1.3	A seasonal product intended for indoor use only shall be marked "For indoor use only."		N/A
125.1.4	A seasonal product intended for both indoor and outdoor use shall be marked "For indoor and outdoor use."		P
125.1.5	A seasonal product which contains lamps accessible to the user shall be marked with the word "CAUTION" and the following or the equivalent: "To reduce the likelihood of excessive heat and possible damage, use only decorative lamp accessories packaged with this product."		N/A
125.1.6	A product rated at the maximum conductor current shown in Table 13.1 shall be marked with the following: "CAUTION – Do not connect to another lighting string, decorative outfit, or seasonal product."		N/A
125.2	Products employing replaceable fuses		—
125.2.1	A seasonal product which employs replaceable fuses shall be marked "Always unplug this product before installing or replacing fuses."		N/A
125.3	Products employing lamps		—
125.3.1	A seasonal product which employs replaceable lamps shall be marked "Always unplug this product before installing or replacing lamps."		N/A
125.3.2	A seasonal product which employs candelabra- or intermediate-base lamps shall be marked "CAUTION: Replace only with same type ____ Watt Max ____ UL-Classified lamps."		N/A
125.3.3	A decorative outfit which employs a medium screw lampholder shall be marked with the word "CAUTION" and the following: "(To reduce the) risk of fire(,) use only type ____ lamp(s), ____ watts max(imum)."		N/A
125.3.4	A seasonal product which employs push-in or midget or miniature screw base lamps employing lamp shunts shall be marked with instructions for the proper method of replacing a burned-out lamp as follows: "CAUTION – To reduce the risk of overheating, replace burned-out lamps promptly. Use ____ volt, ____ watt lamps only."		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
125.3.5	A midjet push-in type series, series-parallel connected lighting string that employs a construction that allows the string to operate without the lamps in place shall be marked as follows: "CAUTION – DO NOT OPERATE WITH BULBS MISSING FROM SOCKETS. MISSING BULBS SHOULD BE REPLACED PROMPTLY."		N/A
125.3.6	A decorative outfit which employs less than 8 miniature lamps (see Exception No. 2 to 31.1), a decorative outfit or series connected string with less than 20 push-in or midjet-screw lampholders, or a series-connected product employing lamps not provided with lamp shunts, shall be marked as follows: "CAUTION – Replace lamps only with ____ volt, ____ watt spare lamps provided with this product." The blanks shall be filled in with the voltage and wattage of the replacement lamps.		N/A
125.3.7	A series-connected lighting string which employs non-replaceable lamps shall be marked as follows: CAUTION – To reduce the risk of fire or electric shock, do not attempt to replace lamps or modify string.		N/A
125.3.8	A seasonal product which employs both push-in individually-flashing lamps and steady illuminating lamps in accordance with the exception to 28.3 shall be marked as follows: CAUTION – This product contains lamps of two different sizes. To reduce the risk of overheating do not replace steady illuminating lamps with flashing lamps. Use ____ volt lamps only.		N/A
125.3.9	A series-connected lighting string which employs replaceable individual flashing lamps, and non-replaceable steady illuminating lamps shall be marked as follows: "CAUTION – This product contains two different types of lamps. To reduce the risk of fire or electric shock do not attempt to replace the steady lamps (that are non-replaceable) and/or modify string. Replace burned-out individual flashing lamps promptly with individually flashing lamps only. Use ____ volt lamps only." The blank shall be filled in with the voltage value of the replacement lamp.		N/A
125.3.10	A seasonal product which employs two different size lamps in accordance with Exception No. 3 in 28.1, shall be marked as follows: "CAUTION – This product contains lamps of two different sizes. To reduce the risk of overheating, replace burned-out lamps promptly. Use ____ volt ____ watt lamps only for the smaller lamps and ____ volt ____ watt lamps only for the larger lamps."		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
125.4	Products employing load fittings		N/A
125.4.1	A series- or series-parallel-connected decorative-lighting string or a decorative outfit consisting of a string with decorative covers which employs a non-polarized load fitting shall be marked within 3 inches (76.2 mm) of the face of the load fitting with the word "CAUTION" and the following: "This lighting string is rated ____ Watts (____ Amps), do not overload. Connect other lighting strings or decorative outfits end-to-end up to a maximum of 216 Watts (1.8 Amps) total." Additional instructions shall be provided with the user servicing instructions to further explain the wattage, where to find the wattage rating on the product and where to find the current rating on products that do not contain a wattage rating.		N/A
125.4.2	A series- or series-parallel-connected decorative-lighting string or a decorative outfit consisting of a series-connected string with decorative covers, which employs a nonstandard multi-pin connector, shall be marked within 3 inches (76.2 mm) of the face of the load fitting with the word "CAUTION" and the following:		N/A
	a) "This lighting string is rated ____ Watts (____ Amps), do not overload. Connect end-to-end only lighting strings or decorative outfits of the same model number from the same manufacturer for a total of 216 Watts (1.8 Amps)."		N/A
	b) "Do not replace or modify any connectors on this product, discard product if connector is damaged. "		N/A
	c) "Make sure connectors are fully inserted and any connector rings are twisted until completely secured such that the ring can no longer be turned and the two portions of the connector are completely assembled."		N/A
125.4.3	A series- or series-parallel connected string which employs a polarized load fitting shall be marked "Do not overload. Connect end-to-end a maximum of six (6) lighting strings or decorative outfits of the same type."		N/A

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	A series- or series-parallel connected string or a decorative outfit consisting of a string with decorative covers which employs a polarized load fitting shall be marked within 3 inches (76.2 mm) of the face of the load fitting with the word "CAUTION" and the following: "This lighting string is rated ____ Watts (____ Amps), do not overload. Connect other lighting strings or decorative outfits end-to-end up to a maximum of 432 Watts (3.6 Amps) total." Additional instructions shall be provided with the user servicing instructions to further explain the wattage, where to find the wattage rating on the product and where to find the current rating on products that do not contain a wattage rating."		N/A
125.4.4	A parallel-connected decorative-outfit provided with one or more load fittings shall be marked, where visible to the user, with the following: "CAUTION – Do not overload: a) Connect a maximum of three (3) series- or series-parallel-connected lighting strings or decorative outfits; or b) Connect a maximum of thirty (30) candelabra and intermediate base lamps; or c) Connect a maximum of one (1) motorized decorative outfit. Do not interconnect different types of products. "		N/A
	The marking shall be located either adjacent to the load fittings or on a tag located within 3 inches (76.2 mm) of the load fittings.		N/A
125.4.5	A series- or series-parallel-connected decorative outfit provided with one or more non-polarized load fittings shall be marked, where visible to the user, with the following: "CAUTION – This lighting string is rated ____ Watts (____ Amps), do not overload. Connect end-to-end a maximum of 216 Watts (1.8 Amps) total. Do not interconnect different types of products."		N/A
	The marking shall be located either adjacent to the load fittings or on a tag located within 3 inches (76.2 mm) of the load fittings. Additional instructions shall be provided with the user servicing instructions to further explain the wattage, where to find the wattage rating on the product and where to find the current rating on products that do not contain a wattage rating.		N/A

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125.4.6	A decorative outfit accessory provided with a load fitting shall be marked where readily visible to the user as follows: "CAUTION: Do not overload – Maximum total load shall not exceed ____ Watts (____Amps)."		P
	Additional instructions shall be provided with the user servicing instructions to further explain the wattage, where to find the wattage rating on the product and where to find the current rating on products that do not contain a wattage rating.		P
125.4.7	A series- or series-parallel-connected decorative outfit provided with one or more polarized load fittings shall be marked, where visible to the user, with the following: "CAUTION – This lighting string is rated ____ Watts (____Amps), do not overload. Connect end-to-end a maximum of 436 Watts (3.6 Amps) total. Do not interconnect different types of products."		P
	The marking shall be located either adjacent to the load fittings or on a tag located within 3 inches (76.2 mm) of the load fittings.		P
	Additional instructions shall be provided with the user servicing instructions to further explain the wattage, where to find the wattage rating on the product and where to find the current rating on products that do not contain a wattage rating.		P
125.5	Products without load fittings		N/A
125.5.1	A product with an input current in excess of 1.75 A or which employs more than 30 parallel-connected lampholders, shall be marked with the following: CAUTION – Do not connect to another lighting string, decorative outfit, or seasonal product.		N/A
125.5.2	A series- or series-parallel-connected decorative lighting string or decorative outfit which employs a polarized plug and no load fitting shall be marked with the following: "CAUTION – Do not connect to another lighting string, decorative outfit, or seasonal product."		N/A
125.6	Decorative-lighting strings		—
125.6.1	A decorative-lighting string shall be marked with the type of string, either series-connected or parallel-connected.		N/A
125.7	Decorative outfits		—

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125.7.1	A decorative outfit shall be marked with the word CAUTION and the following: This is an electric product - not a toy! To avoid risk of fire, burns, personal injury and electric shock it should not be played with or placed where small children can reach it.		P-
125.8	Tree stands		---
125.8.1	A motorized tree stand shall be marked with the recommended tree height and total load weight.		N/A
125.8.2	A tree stand not provided with a well to hold water shall be marked: CAUTION - Use only with an artificial tree. This stand does not contain a well for water.		N/A
125.8.3	A motorized tree stand which employs load fittings intended for connection to specific lamp type lighting strings shall be marked adjacent to the load fitting with the following: Connect only _____ type light strings.		N/A
125.8.4	A motorized tree stand which employs load fittings not intended for connection to specific lamp type lighting strings shall be marked adjacent to the load fitting with the following: CAUTION - Do not overload - Max total load shall not exceed 8 A.		N/A
125.9	Ornaments		N/A
125.10	Products employing batteries		N/A
125.11	Battery supply polarity identification		N/A
125.12	Bubble lights		N/A
125.13.1	A product that is provided with a detachable Class 2 power supply shall be marked near the connection, "CAUTION: To reduce the risk of fire and electric shock, use only the power supply Model _____ mfd. by _____ that was provided with this product."		N/A
126	Carton/Stuffer Sheet/Product/Cord Tag Markings		---
126.1	General		---
126.1.1	The markings specified in this Section shall be located on the product or a tag attached to the product, on the carton in which a product is packaged, or on a stuffer sheet or instruction manual provided with the product.		N/A
126.2	Products employing power inlets		---
126.2.1	A seasonal product which employs a power inlet for use with a cord set or detachable power-supply cord shall include the following instructions:		N/A

UL 588			
Clause	Requirement - Test	Result - Remark	Verdict
	a) CAUTION - To reduce the risk of electric shock, use only with the power-supply cord provided or with a cord set intended for outdoor use.		N/A
	b) Do not use a cracked, frayed, or damaged cord. Inspect the cord periodically.		N/A
	c) Do not abuse cord - Do not carry product by the cord or yank or pull it to disconnect from the outlet.		N/A
	d) Disconnect the product from the outlet when not in use.		N/A
126.3	Products employing skeleton-type lampholders		N/A
126.4	Decorative-lighting strings		—
126.4.1	A decorative-lighting string shall include the following instructions: "CAUTION" and the following: "To reduce the risk of fire and electric shock: a) Do not install on trees having needles, leaves or branch coverings of metal or materials which look like metal, and b) Do not mount or support strings in a manner that can cut or damage wire insulation."		N/A
126.5	Ornaments		P
127	Carton Markings		—
127.1	General		—
127.1.1	The markings specified in this Section shall be located on the individual carton or container in which a product is packaged, where readily visible without opening the package.		N/A
	a) When packaged in a carton, the marking shall appear on the outside front cover.		N/A
	b) When packaged in a bag, the marking shall appear on two opposing sides of the bag.		N/A
	c) When packaged in a bag attached to a piece of cardboard, the marking shall appear on both sides of the cardboard.		N/A
	d) When packaged in a transparent polymeric covering attached to cardboard, the marking shall appear on the front of the package, on the cardboard.		N/A
127.1.2	The carton or container in which a seasonal product intended for indoor use only is packaged shall be marked with the following or the equivalent: For Indoor Use Only or Indoor Use.		N/A

UL 588			
Clause	Requirement - Test	Result - Remark	Verdict
127.1.3	The carton or container in which a seasonal product intended for both indoor and outdoor use is packaged shall be marked with the following or the equivalent: "For Indoor and Outdoor Use, Indoor and Outdoor Use, or Indoor and Outdoor."		P-
INSTRUCTION MANUAL			
128	General		—
128.1	A decorative-lighting string, decorative outfit, and ornament shall be provided with legible instructions pertaining to:		—
	a) The risk of fire, electric shock, or injury to persons that may be associated with the use of the product,		N/A
	b) Operation of the product, and		N/A
	c) User-maintenance and storage.		N/A
128.2	The instructions indicated in Sections 121 – 123 shall be provided as an instruction manual, on a stuffer sheet, or on an outside surface of the smallest unit package of the product.		N/A
128.3	The instruction manual shall include the model or catalog number of the product or products which it covers.		P-
129	Instructions Pertaining to the Risk of Fire, Electric Shock, or Injury to Persons		—
129.1	General		—
129.1.1	Instructions pertaining to a risk of fire, electric shock, or injury to persons shall state precautions that should be taken to reduce such risks.		N/A
129.1.2	Instructions pertaining to the risk of fire, electric shock, or injury to persons shall be:		N/A
	a) In the first part of the manual,		N/A
	b) Before all other instructions, including the operating instructions, and		N/A
	c) Separate in format from other instructions related to assembly, operation, maintenance, and storage.		N/A
129.1.3	The instructions may include illustrations to identify the important safety features specified in 121.2.1.		N/A
129.1.4	The height of the lettering in the text and illustrations of the instructions specified in 121.2.1 shall be as follows:		—

UL 588			
Clause	Requirement - Test	Result - Remark	Verdict
	a) Upper case letters shall not be less than 1/12 inch (2.1 mm) in height.		N/A
	b) Lower case letters shall not be less than 1/16 inch (1.6 mm) in height.		N/A
	c) The phrases "IMPORTANT SAFETY INSTRUCTIONS," "READ AND FOLLOW ALL SAFETY INSTRUCTIONS," and "SAVE THESE INSTRUCTIONS" shall be in letters not less than 3/16 inch (4.8 mm) in height.		N/A
129.1.5	Unless otherwise indicated, the text of the safety instructions shall be verbatim to, or in equally definitive terminology as, 121.2.1, except where specific conflict of the application to a product exists.		N/A
	The items may be numbered. The phrases READ AND FOLLOW ALL SAFETY INSTRUCTIONS and SAVE THESE INSTRUCTIONS shall be first and last, respectively, in a list of items. Other important safety instruction items considered appropriate by the manufacturer may be inserted.		N/A
129.2	Decorative-lighting strings, decorative outfits, and ornaments		—
129.2.1	The following instructions shall be provided with a decorative-lighting string, decorative outfit, or ornament:		N/A
	IMPORTANT SAFETY INSTRUCTIONS		N/A
	a) "READ AND FOLLOW ALL SAFETY INSTRUCTIONS."		N/A
	b) " Do not use seasonal products outdoors unless marked suitable for indoor and outdoor use. When products are used in outdoor applications, connect the product to a Ground Fault Circuit Interrupting (GFCI) outlet. If one is not provided, contact a qualified electrician for proper installation."		N/A
	c) "This seasonal use product is not intended for permanent installation or use."		N/A
	d) "Do not mount or place near gas or electric heaters, fireplaces, candles or other similar sources of heat."		N/A
	e) "Do not secure the wiring of the product with staples or nails, or place on sharp hooks or nails."		N/A
	f) "Do not let lamps rest on the supply cord or on any wire."		N/A

UL 588			
Clause	Requirement - Test	Result - Remark	Verdict
	g) "Unplug the product when leaving the house, when retiring for the night, or if left unattended." The text "or if left unattended" is optional.		NA
	h) "This is an electric product – not a toy! To avoid risk of fire, burns, personal injury and electric shock it should not be played with or placed where small children can reach it."		NA
	i) "Do not use this product for other than its intended use."		NA
	j) "Do not hang ornaments or other objects from cord, wire, or light string."		NA
	k) "Do not close doors or windows on the product or extension cords as this may damage the wire insulation."		NA
	l) "Do not cover the product with cloth, paper or any material not part of the product when in use."		NA
	m) "This product has a polarized plug (one blade is wider than the other) as a feature to reduce the risk of electric shock. This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician. Do not use with an extension cord unless plug can be fully inserted. Do not alter or replace the plug." It is acceptable to omit this item if the product does not employ a polarized plug.		NA
	n) "This product is equipped with push-in type lamps. Do not twist lamps." It is acceptable to omit this item if the product does not contain push-in type lamps.		NA
	o) "This product employs overload protection (fuse). A blown fuse indicates an overload or short-circuit situation. If the fuse blows, unplug the product from the outlet. Also unplug any additional strings or products that may be attached to the product. Replace the fuse as per the user servicing instructions (follow product marking for proper fuse rating) and check the product. If the replacement fuse blows, a short-circuit may be present and the product should be discarded." It is acceptable to omit this item for an ornament or if the fuse is not replaceable.		NA
	p) "Read and follow all instructions that are on the product or provided with the product."		NA
	q) "SAVE THESE INSTRUCTIONS"		NA
130	Use and Care Instructions		—

UL 588			
Clause	Requirement - Test	Result - Remark	Verdict
130.1	The instruction manual shall contain specific instructions concerning the use and care of the product. These instructions shall be preceded by the heading "Use and Care Instructions." The instructions shall include, but are not limited to, the following:		N/A
	a) "When the product is placed on a live tree, the tree should be well maintained and fresh. Do not place on live trees in which the needles are brown or break off easily. Keep the tree holder filled with water." This item may be omitted if the product is not intended for placement on a tree or next to a tree.		N/A
	b) "If the product is placed on a tree, the tree should be well secured and stable." This item may be omitted if the product is not intended for placement on a tree or next to a tree.		N/A
	c) "Before using or reusing, inspect product carefully. Discard any products that have cut, damaged, or frayed wire insulation or cords, cracks in the lampholders or enclosures, loose connections, or exposed copper wire."		N/A
	d) "When storing the product, carefully remove the product from wherever it is placed, including trees, branches, or bushes, to avoid any undue strain or stress on the product conductors, connections, and wires."		N/A
	e) When not in use, store neatly in a cool, dry location protected from sunlight.		N/A
130.2	The markings in 122.1 (a) and (b) may be omitted for those decorative-lighting strings that are obviously not intended for use during the Christmas holiday season, such as a string with Halloween or Easter figures such as pumpkins or eggs.		N/A
131	User Servicing Instructions		—
131.1	The instruction manual shall contain specific instructions concerning user servicing. These instructions shall be preceded by the heading "User Servicing Instructions." The instructions shall include, but are not limited to, those described in 123.2 – 123.7		N/A
131.2	For products that employ replaceable fuses, the instruction manual shall have specific instructions concerning how to physically replace the fuse		N/A

UL 588			
Clause	Requirement - Test	Result - Remark	Verdict
	The instructions shall include, but are not limited to the following statements, or the equivalent, to successfully replace the fuse and shall include illustrations to assist the user:		—
	a) "Grasp plug and remove from the receptacle or other outlet device. Do not unplug by pulling on cord."		N/A
	b) "Open fuse cover." The manufacturer shall indicate the specific way to open the cover, such as, "Slide open fuse access cover on top of attachment plug towards blades," or "Push on tabs located next to the blades."		N/A
	c) "Remove fuse carefully." The manufacturer shall indicate the appropriate way to remove the fuse, such as whether to push the fuse from the other side or turn fuseholder over to remove fuse.		N/A
	d) "Risk of fire. Replace fuse only with ____ Amp, 125 Volt fuse (provided with product)." The blank shall be filled in with the current rating of the fuse. Words located in parenthesis are applicable only if the replacement fuse is provided with the product.		N/A
	e) "Close fuse cover." The manufacturer shall indicate the specific way to close the cover, such as, "Slide closed the fuse access cover on top of attachment plug," or "Push cover closed so that all tabs latch."		N/A
131.3	A product employing a fused attachment plug shall include the following instructions: Risk of fire. Do not replace attachment plug. Contains a safety device (fuse) that should not be removed. Discard product if the attachment plug is damaged.		N/A
131.4	For products that employ series-connected lamps, the instruction manual shall have specific instructions concerning how to physically replace the lamp. The instructions shall include, but are not limited to the following statements, or the equivalent, to successfully replace the lamp and shall include illustrations to assist the user:		N/A
	a) Grasp plug and remove from the receptacle or other outlet device. Do not unplug by pulling on cord.		N/A
	b) The manufacturer shall indicate the specific way to remove the lamp, such as, Pull lamp and plastic base straight out of lampholder or Unscrew lamp counter-clockwise.		N/A

UL 588			
Clause	Requirement - Test	Result - Remark	Verdict
	c) "Replace lamp with only ____ Volt, ____ Watt ____ type lamp (provided with product)." The blanks shall be filled in with the voltage and wattage of the lamp and type of lamp, such as super bright, regular brightness, energy saving, or LED. Words located in parentheses are applicable only if the replacement lamp is provided with the product. Typically, super-bright lamps are rated above 0.42 Watts, regular brightness lamps are rated between 0.32 – 0.40 Watts, and energy saving lamps are rated approximately 0.25 Watts.		N/A
	d) For push-in lamps, the manufacturer shall indicate how to exchange the lamp base on the new lamp with the old one if the new lamp base does not fit.		N/A
131.5	In addition to being located on a tag attached to the product, the appropriate markings specified in 125.3.2 – 125.3.4, as related to the lamp type employed, shall also be included in the relamping information provided in the instruction manual.		N/A
131.6	A decorative outfit which employs less than 8 miniature or 10 push-in or midget-screw lampholders (see Exception No. 2 to 31.1), or a series-connected product employing lamps not provided with lamp shunts, shall include the following in the instruction manual: CAUTION – Risk of fire. This product does not contain lamp shunts, which allow the product to operate if one lamp burns out. Do not replace lamps with other than the spare lamps provided with this product. or		N/A
	"CAUTION – Risk of fire. This product does not contain lamp shunts, which allow the product to operate if one lamp burns out. Do not replace lamps with other than the spare lamps provided with this product." or		N/A
	"CAUTION – Risk of fire. This product does not contain shunts inside the lamps. Do not replace lamps with other than the spare lamps provided with this product."		N/A
131.7	An ornament shall include the following or the equivalent in the instruction manual: Disconnect the lighting string or decorative outfit from the outlet before removing a lamp and replacing it with the ornament .		N/A

UL 588			
Clause	Requirement - Test	Result - Remark	Verdict
131.8	A midget push-in type series, series-parallel connected lighting string that employs a construction that allows the string to operate without the lamps in place shall not include the following statements or equivalent in the instruction manual or shown on any part(s) of the product and packaging:		P
	a) Picture or drawing depicting lamp(s) removed and the string in the lit condition; or		P
	b) Wording that implies the string can be still energized even with lamp(s) removed.		N/A
131.9	A midget push-in type series, series-parallel connected lighting string that employs a construction that allows the string to operate without the lamps in place and uses a "fuse lamp" shall include instructions that identifies the location of the replaceable "fuse lamps" in the lighting strings and instructs the consumer how to properly replace the fuse lamp. In addition, the following shall be included: "WARNING – Risk of fire: This product employs overload protection (fuse lamp) in each series light circuit to provide overload protection in addition to the fuse(s) located in the plug. Do not replace the fuse lamp contained in this set with any other type of lamp, use only spare fuse lamps provided with this product."		N/A
SUPPLEMENT SA – SEASONAL-LIGHTING LAMPS			
INTRODUCTION			
SA1	Scope		N/A
CONSTRUCTION			
SA2	Screw-Base Lamps		N/A
SA3	Bubble Lights		N/A
SA4	LED Lamps		N/A
SA5	Outdoor Use LED Lamps		N/A
PERFORMANCE			
LAMPS INTENDED FOR SERIES CONNECTION			
SA6	Maximum Lamp Wattage Test		N/A
LAMPS INTENDED FOR PARALLEL CONNECTION			
SA7	Lamp Screw Base Conformity Test		N/A
SA8	Envelope-to-Base Securement Test		N/A
SA9	Lamp-Envelope Temperature Test		N/A

UL 588			
Clause	Requirement - Test	Result - Remark	Verdict
BUBBLE LIGHTS			
SA10	General		N/A
SA11	Identification Test		N/A
PRODUCTION LINE TESTS			
SA12	General		N/A
MARKINGS			
SA13	General		N/A
SUPPLEMENT SB - SEASONAL-LIGHTING LAMPHOLDERS			
INTRODUCTION			
SB1	Scope		N/A
SB2	Glossary		N/A
CONSTRUCTION			
SB3	General		N/A
SB4	Depth of Lamp Base Cavity		N/A
SB5	Body Material		N/A
SB6	Metal Screw Shells		N/A
SB7	Skeleton-Type Lampholders		N/A
SB8	Insulation-Piercing Terminals		N/A
SB9	Outdoor-Use Lampholders		N/A
PERFORMANCE			
ALL LAMPHOLDERS			
SB10	General		N/A
SB11	Dielectric Voltage-Withstand Test		N/A
SB12	Mold Stress Relief Test		N/A
SB13	Screwthread Conformity Test		N/A
SB14	Mechanical Strength of Lampholder Threads Tests		N/A
SB15	Secureness of Leads Test		N/A
SB16	Lead Pull Test		N/A
SB17	Crush Test		N/A
SB18	Temperature Tests for Seasonal Lampholders with Insulation-Piercing Terminals		N/A
OUTDOOR-USE LAMPHOLDERS			
SB19	General		P
SB20	Rain Test		P

UL 588			
Clause	Requirement - Test	Result - Remark	Verdict
S821	Leakage Current Test		P
S822	Leakage Current Following Humidity Conditioning		P
S823	Ultraviolet (UV) Light Exposure and Water Immersion Tests		P
MARKINGS			
S824	General		N/A
SUPPLEMENT SC - IN-LINE FUSEHOLDERS WITH INSULATION-PIERCING TERMINALS FOR SEASONAL PRODUCTS			
INTRODUCTION			
SC1	Scope		N/A
CONSTRUCTION			
SC2	General		N/A
PERFORMANCE			
SC3	General		N/A
SC4	Temperature Tests for Devices Employing Insulation-Piercing Terminals		N/A
SC5	Drop Test		N/A
SC6	Temperature Test		N/A
SC7	Dielectric Voltage-Withstand Test		N/A
SC8	Calibration Test		N/A
SC9	Fault Current Test		N/A
SC10	Dielectric Voltage-Withstand Test (Repeated)		N/A
SC11	Crush Test		N/A
SC12	Abnormal Pin Protrusion Test		N/A
SC13	Flexing Test		N/A
SC14	Dielectric Voltage-Withstand Test (Repeated)		N/A
SC15	Temperature Test After Flexing		N/A
SC16	Opening Force Test		N/A
SC17	Strain Relief Test		N/A
SC18	Reliability of Conductor Connections Test		N/A
SC19	Security of Insulation Test		N/A
SC20	Fuseholder Cover Test		N/A
SC21	Outdoor-Use In-Line Fuseholders		N/A
SC22	Tests for Permanence of Cord Tag		N/A

UL 588			
Clause	Requirement - Test	Result - Remark	Verdict
MANUFACTURING AND PRODUCTION-LINE TESTS			
SC23	Opening Force Test		N/A
SC24	Open/Close Test		N/A
SC25	Abnormal Pin Protrusion Test		N/A
MARKINGS			
SC26	General		N/A
SUPPLEMENT SD - STRING LIGHTS FOR ALL-YEAR USE			
INTRODUCTION			
SD1	Scope		N/A
SD2	Definitions		N/A
CONSTRUCTION			
SD3	General		N/A
SD3.1	Shall comply with requirements of this standard		N/A
SD3.2	Parallel-connected lighting strings shall employ non-replaceable lamp, E12, E17 or E26 lamp		N/A
SD4	Overcurrent Protection		N/A
SD4.1	Required in this standard except for the references to SD5. Not required for min. 16AWG cord or min. 16AWG cord w/o load fitting		N/A
SD5	Supply Connections		N/A
SD5.1	Wire size and type shall be min. 16AWG and min. SPT-2W, and comply with Cl. 13 and table 6.2		N/A
SD5.2	For E26 product, main cord shall be hard usage, and individual lampholder cord shall comply with SD5.1		N/A
SD5.3	Cl. 29.1 and 29.3 are not applicable		N/A
SD6	General Requirements		N/A
SD6.1	Each lampholder of E26 product shall be provided with a hook or similar means for hanging		N/A
SD6.2	Lights sets employing medium-screw incandescent lamps shall be used for outdoor use only		N/A
SD6.3	The lamp envelope temperature requirements are not applicable for incandescent E26 lamps		N/A
SD6.4	Lampholders employing insulation piercing terminals shall additionally comply with 5818.4		N/A
SD6.5	E26 lampholders shall comply with Supplement S8 or shall be a weatherproof or wet location type lampholder of UL 496		N/A
SD6.6	E26 lampholder cavity may have a depth greater than the maximum depth requirement of UL 496		N/A

UL 588			
Clause	Requirement - Test	Result - Remark	Verdict
SD6.7	Uninsulated live parts of a screw shell shall not be exposed above the rim of the lampholder cavity except during lamp replacement.		N/A
SD6.8	A load fitting shall be provided with a closure or cover close to the load fitting and be marked "Insert in cord connector when not in use" or equivalent.		N/A
SD6.9	A product employing E26 lamps shall employ lamps rated a maximum of 40 W.		N/A
PERFORMANCE			
SD7	General		N/A
SD8	Strain Relief Test		N/A
SD9	Flexing Test		N/A
SD10	Conditioning Test Prior to Rain Test		N/A
SD11	Abnormal Operation Test		N/A
MARKINGS			
SD12	General		N/A
SD12.1	The marking requirements shall be as described in Sections 122 – 127 for decorative lighting strings unless superseded by the requirements specified in this supplement.		N/A
SD12.2	The letters on the cord tag shall be black on a yellow background.		N/A
SD12.3	The markings described in 125.1.2, 125.5.1, 125.5.2, and 125.6 are not required.		N/A
SD12.4	A string light employing medium screw lamps shall be marked "For Outdoor Use Only" or equivalent.		N/A
SD12.5	A string light employing a load fitting shall be marked: "CAUTION: This string light is rated ____ Watts, do not overload. Connect other string lights end-to-end up to a maximum of ____ Watts total."		N/A
SD12.6	A string light employing medium base lamps marked in accordance with 125.3.3 is permitted to be provided with lamp replacement markings indicating a maximum 40 W lamp.		N/A
SD12.7	A string light employing medium screw base lamps is permitted to include one or more of the lamp types indicated in Figure 125.1 or one of the following medium base lamp types: CFL, LED or CCL.		N/A
SD12.8	A string light employing a load fitting shall be permanently marked on the closure or cover "Insert in the cord connector when not in use" or equivalent.		N/A
INSTRUCTIONS			

UL 588			
Clause	Requirement - Test	Result - Remark	Verdict
SD13	General		N/A
SD13.1	The instruction manual requirements shall be as described in Sections 128 – 131 unless superseded by the requirements specified in this supplement		N/A
SD13.2	The Use and Care instructions described in Section 130 shall not be provided		N/A
SD13.3	Important Safety Instructions		N/A
SD13.4	For a string light employing guide wires, the installation instructions shall describe the proper use of a guide wire.		P
SD13.5	For a string light employing medium screw lampholders and incandescent lamps, the following instruction shall be provided: CAUTION: Risk of Fire. Keep lamps away from any combustible surface		N/A
CARTON MARKINGS			
SD14	General		N/A
SD14.1	The retail packaging and/or carton markings shall be as specified in Section 127 except for the carton used for string lights employing medium screw lamps shall only be marked with the statement "CAUTION: Risk of fire and personal injury. Outdoor use only. Do not use indoors."		N/A

TABLE: List of critical components

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity*
Class 2 Power Supply	Zhongshan M&S Electronics Co.,LTD.	MLS-D22V3.6WUC-O	Input: 120Vac, 50/60Hz, 0.3A Output: 29.0Vdc, 0.124A, 3.6W	UL 1310	ATM for Report 200/102759-K, G-001
LED light	Interchangeable	Interchangeable	Voltage 2.85V	UL 588	Test with appliance
Power wire	Interchangeable	Interchangeable	Min. 26AWG, 80° C, VW-1	UL 758	UL
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See 00-C82039.					

PHOTO DOCUMENTATION



Figure 1 Over view

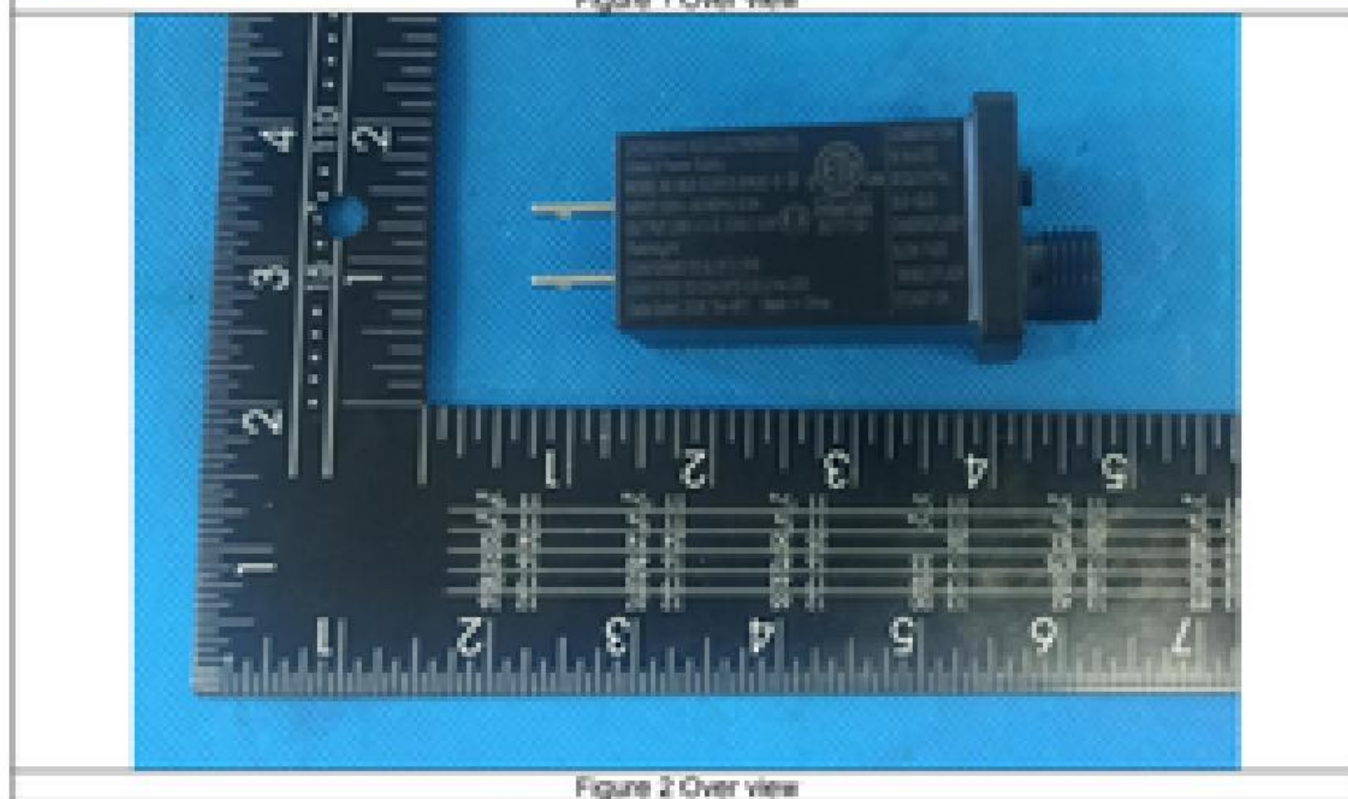


Figure 2 Over view

PHOTO DOCUMENTATION

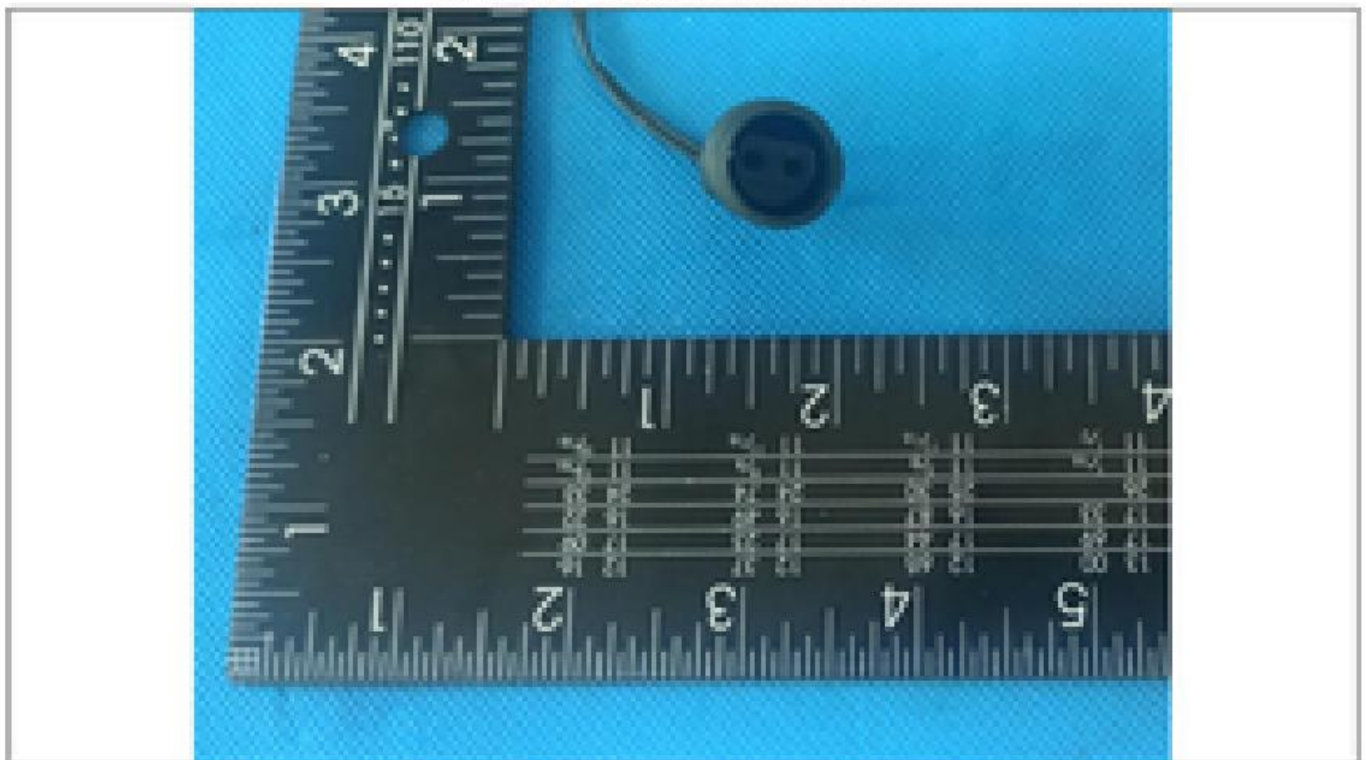


Figure 3 Overview

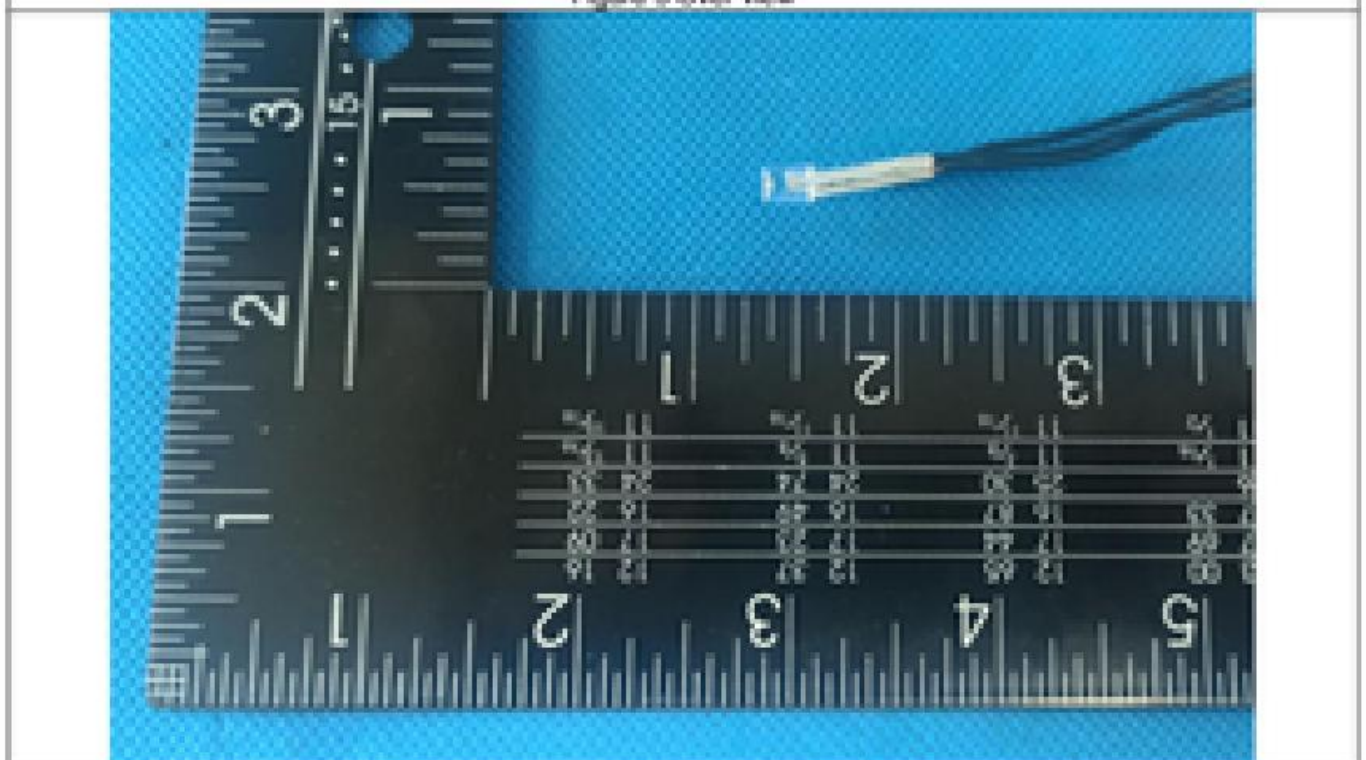


Figure 4 Overview

... End of Report ...