Test Report issued under the responsibility of:

GTS

TEST REPORT
UL 588
STANDARD FOR SAFETY
Seasonal and Holiday Decorative Products

Report Number..... :	GTS2025040047S01
Date of issue..... :	2025-04-17
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Testing Laboratory.....	Global United Technology Services Co., Ltd.
Address.....	No.123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China
Applicant's name ..... :	Hong Kong Ting Son Trading Co., Limited
Address..... :	UNIT 1406A,14/F, THE BELGIAN BANK BUILDING NOS.721-725 NATHAN ROAD, KOWLOON, HONGKONG
Test specification:	
Standard ..... :	UL588:2023 (Nineteenth Edition)
Test procedure..... :	Type test
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	UL588B
Test Report Form(s) Originator ..... :	GTS
Master TRF..... :	2023-10

General disclaimer:

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Test Item description .....:	led strip light
Trade Mark .....:	BEIZELTE
Manufacturer.....:	Hong Kong Ting Son Trading Co., Limited
Manufacturer address.....:	UNIT 1406A,14/F, THE BELGIAN BANK BUILDING NOS.721-725 NATHAN ROAD, KOWLOON, HONGKONG
Model/Type reference .....:	60ft, 100ft, 150ft, 200ft, 300ft, 400ft, 500ft, 16.4ft, 20ft, 32ft, 50ft, 120ft
Ratings .....:	LED Driver: 100-240V~, 50/60Hz Luminaire: 24V⎓2A

Clive Cheng
Project Engineer

Robinson Luo
Technical Director
Safety Laboratory

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..... : 2025-04-02

Date (s) of performance of tests..... : 2025-04-02 to 2025-04-16

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.

Factory location

Name and address of factory (ies) ..... :	Hong Kong Ting Son Trading Co., Limited UNIT 1406A,14/F, THE BELGIAN BANK BUILDING NOS.721-725 NATHAN ROAD, KOWLOON, HONGKONG

GENERAL PRODUCT INFORMATION:

Product Description –

1、This lighting fixture is composed of a power unit, a control circuit, a remote controller, and a light strip;
2、The input of the adapter is 100-240V~, and the output is 24V⎓;
3、The control circuit is controlled by the remote controller, which can change the colour and brightness of the light strip;
4、The LED lamp beads inside the light strip are connected in parallel;

Copy of marking plate

led strip light
Model: 60ft Rating: 24V⎓2A Date: 2025-04 Hong Kong Ting Son Trading Co., Limited

Remark:
Due to similarity of rating labels, only above representative model's label are listed, other models are technical identical except with model number.

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
	CONSTRUCTION		---
	ALL PRODUCTS		---
6	General		P
6.1	If a product employs a component or another product as part of its construction, each part of the product shall comply with its applicable construction requirements. For example, if a series-connected string employs a controller, construction requirements for a series-connected string, controller, cord connected wiring device, and series-connected lampholder and lamp shall all be applied.		P
6.2	The wire type and overcurrent protection requirements for a seasonal lighting product are summarized in Table 6.1 and Table 6.2.		P
7	Overcurrent Protection		P
7.1	A product covered by this standard shall be provided with integral overcurrent protection which complies with the Standard UL 248-1, and UL248-14		P
7.2	A product employing a power inlet intended for use with a cord set or a detachable power-supply cord shall be provided with fusing		N/A
	a) In the power inlet or adjacent to the point of connection to the power-supply source provided by the product, and		N/A
	b) In the detachable power-supply cord if provided.		N/A
7.3	The overcurrent protection shall be either an integral part of the attachment plug or current tap, or of a through-cord design (in-line fuseholder) located so that there is not more than 6 inches (152 mm) between the face of the attachment plug or current tap and the side of the fuseholder furthest from the attachment plug or current tap. If a through-cord design is employed, a minimum 20 AWG (0.52 mm2) wire shall be used between the attachment plug or current tap and the fuseholder.		N/A
7.4	The rating of the overcurrent protection shall be as indicated in Table 6.1 or Table 6.2.		P
7.5	A product provided with a polarized line fitting shall employ one fuse which shall be connected to the ungrounded (narrow) blade of the attachment plug or current tap, and be replaceable		N/A
7.6	A product employing a replaceable /use shall be provided with at least one spare fuse.		N/A
7.7	A product provided with a non-polarized line fitting shall employ two fuses, one connected to each conductor, which are not required to be replaceable.		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
7.8	The supplementary protection used for the midget push-in series- or series-parallel connected lighting string employing self-shorting lampholder contacts shall be of the non-automatically re-settable type, and if provided in a lamp, shall be non-replaceable and not be provided with a shunt. It may be in a glass lamp or otherwise suitably enclosed in a material that complies with Section 10, Enclosures. The protector shall comply with Calibration Test, Section 65, Fault Current Test. Section 66 and if provided in a lamp, the Cascading Lamp Temperature Test. Section 85.		N/A
8	Materials		P
8.1	A shade, diffuser, or decorative part employed in a seasonal lighting product shall be constructed of a material with a maximum vertical downward burning rate of 4 inches (102 mm) per minute as determined by the Downward Burning Rate Test, Section 50		N/A
8.2	Simulated needles, leaves, small twigs, and other loose decorative parts shall be constructed of insulating material, as determined by compliance with the Conductivity of Decorative Parts Test, Section 51, if they are:		N/A
	a) Located within 2 inches (51 mm) of a lampholder employed in a seasonal product, or		N/A
	b) Employed in a seasonal product to which one or more lighting strings may be attached.		N/A
8.3	A polymeric material used to provide all or any part of an enclosure employed in a seasonal lighting product shall comply with the requirements for Enclosures, Section 10.		P
8.4	No edge, point, or burrs of an uninsulated live part shall contact the insulation of the wire or the insulation of the conductor of a cord that is connected at opposite polarity.		N/A
8.5	Insulation on which current-carrying parts are mounted shall be of cold-molded or phenolic composition or of an equivalent insulating material		P
8.6	Hard fiber is acceptable for insulating bushings, washers, separators, and barriers, but not for the sole support of live parts.		N/A
9	Mechanical Assembly		P
9.1	A splice, a non-enclosed motor, a printed wiring board, a switch without enclosed terminals, and any wiring shall be located in an enclosure which complies with the requirements in Enclosures, Section 10.		P
9.2	A controller, splice compartment, direct plug-in unit, or electronically-operated ornament shall employ an enclosure which complies with the requirements in Enclosures, Section 10		P
9.3	A seasonal lighting product or accessory shall have all parts reliably secured in place.		P

UL 588			
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9.4	An adhesive used to secure parts of the enclosure of a product shall comply with the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C, and the Adhesive Test, Section 63.		P
9.5	If a seasonal lighting product or component employs an enclosure, the unit shall be constructed such that it is not necessary to open or remove the enclosure when the unit is used as intended. If the enclosure is held together by screws, then commonly removable fasteners, such as flathead or cross recessed, square recessed, or star recessed head screws or a combination thereof, or a standard bolt pattern, shall not be used unless the screws are covered by an insulating material determined suitable for the application		P
9.6	Each switch, receptacle, lampholder, and similar device shall be mounted securely such that it is kept from turning. A means, other than friction alone, shall be provided to prevent the device from turning. This means may consist of a lockwasher for a device employing a single hole mounting means.		N/A
9.7	A switch in the primary circuit or an overcurrent-protective device shall be located within an enclosure in such a manner as to not be accessible or exposed to tampering, or subject to damage during normal use. A switch shall also comply with Switches, Section 19.		N/A
9.8	The actuating means of a switch, such as a toggle, handle, or similar device, shall comply with the requirement in 9.7 if dislodging such a part results in the exposure of live parts (see 12.1) or film-coated magnet wire as determined by contact with the probe illustrated in Figure 9.1 .		N/A
9.9	If the exterior part of the switch or control forms part of an enclosure, the part shall comply with the requirement in 10.3.4(b) and shall be mechanically secured in place.		P
10	Enclosures		P
10.1	General		P
10.1.1	An enclosure employed in a seasonal lighting product shall be formed and assembled with the strength and rigidity necessary to resist the abuses to which it is likely to be subjected, without increasing the risk of fire, electric shock, or injury to persons due to total or partial collapse of the enclosure with a resulting reduction of spacings, loosening or displacement of parts, or other defects.		P
10.1.2	The enclosure of a controller, direct plug-in unit, or electronically-operated ornament shall be constructed of a polymeric material which complies with 10.3.1 – 10.3.10		P

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
10.1 .3	The enclosure of an open-winding motor or transformer, splices. Or wiring other than the power supply cord shall be constructed of metal or a polymeric material which complies with 10.2.1 – 10.3.10.		P
10.1.4	Means shall be provided to prevent external wires from being pushed into the enclosure of the product. Compliance shall be determined by the Wire Push-Back Relief Test, Section 47		P
10.2	Metallic enclosures		N/A
10.2.1	An enclosure of sheet metal shall be constructed either of uncoated steel, whose thickness is not less than 0.032 inch (0.81 mm), or of another metal that provides strength and rigidity equivalent to that of 0.032 inch (0.81 mm) steel.		N/A
10.2.2	Sheet steel shall be coated with a corrosion-resistant material such as zinc, paint, enamel, or lacquer		N/A
10.3	Polymeric enclosures		P
10.3.1	A thermoplastic or thermosetting material used to provide all or any part of the enclosure as specified in 10.1 .1 and 12.1, or to provide structural support in the product, shall comply with the requirements in 10.3.4 – 10.3.10.		P
10.3.2	Polymeric materials employed in an attachment plug, current tap, power inlet, load fitting, or inline fuseholder shall comply with the requirements in 10.3.4 – 10.3.10.		P
10.3.3	Lampholders constructed of polymeric materials shall comply with 10.3.10 in addition to the requirements in Lampholders, Section 22. When electronic circuitry is encapsulated in a polymeric material employed inside a lampholder the polymeric material shall also comply with 10.3.1 0.		N/A
10.3.4	A material used to enclose or provide structural support for electrical live parts shall be considered acceptable if:		P
10.3.5	The impact evaluation of a polymeric enclosure of outdoor units, described in 10.3.4(b), shall be performed after low-temperature conditioning at minus 35°C (minus 31°F) as described in the Cold Impact Test, Section 61 .		N/A
10.3.6	During either of the tests specified in 10.3.4(b), snap fit parts of the enclosure shall not separate as a result of the impact if it exposes live parts.		N/A
10.3.7	In addition to the applicable requirements in this section, a polymeric enclosure employed in a product intended for outdoor use shall comply with the requirements for Outdoor-Use Products, Section 27.		P
10.3.8	The ultraviolet (UV) conditioning described in the Ultraviolet (UV) Light Exposure and Water Immersion Tests, Section 94, shall be conducted on outdoor units in which polymeric material is used as an enclosure or for structural support, and all other units subjected to ultraviolet radiation from integral fluorescent lamps.		P

UL 588			
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10.3.9	With regard to consideration of thermal endurance in the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C, the material shall possess a mechanical temperature index, with impact, as a result of long term aging or a generic temperature index of at least the measured temperature in the Temperature Test, Section 43.		P
10.3.10	Polymeric materials employed for an enclosure, attachment plug, current tap, load fitting, in-line fuseholder, or series-connected lampholder, or any device not mounted within an enclosure shall have a minimum flammability rating as indicated in Table 10.1. The flammability rating is to be determined by the applicable tests in the Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94.		P
11	Enclosure Openings		N/A
11.1	There shall not be openings in the enclosure except for the passage of wiring, a rotating shaft, or a power-supply cord, if employed, or for ventilation. These openings shall not be larger than necessary and shall comply with 11.2. Any opening in the enclosure shall not permit accessibility of live parts as determined by contact with the probe illustrated in Figure 9.1. A ventilation opening shall also comply with 11.3 – 11 .6.		N/A
11.2	If wiring passes through an opening in a metal wall, it shall be protected by a bushing, a grommet, or by rolling the edge of the metal at the opening not less than 120 degrees. The edges of an opening shall be free of burrs, fins, and other sharp edges. See 21.1		N/A
11.3	A ventilation opening employed in the enclosure of a product shall be of such size and shape that the opening does not exceed a major dimension of 0.15 inches (3.8 mm).		N/A
11.4	A ventilation opening employed in the enclosure of a product shall be provided with a barrier between the opening and any live part or possible source of arcing, such as a switch, fuse, printed wiring board, splice, or similar device. A ventilation opening shall comply with 11 .5 and 11 .6.		N/A
11.5	A ventilation opening shall not be located in any horizontal surface of the product. A horizontal surface is considered to be any surface in which the included angle is less than 45 degrees as measured between the inside surface of the enclosure containing the ventilation opening and the horizontal.		N/A
11.6	The barrier specified in 11.4 shall be of such dimensions and located such that a straight line drawn from any live part or arcing part, past the edge of the barrier, will intersect the enclosure a minimum of 0.25inch (6.4 mm) from the edge of the opening. A live part shall not be located below the opening. Examples of both unacceptable and acceptable constructions are illustrated in Figure 11. 1.		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
12	Accessibility of Live Parts		P
12.1	Electric parts shall be located or enclosed so as to reduce the likelihood of unintentional contact with an uninsulated live part or any current-carrying live part, other than a class 2 circuit, considered to be a potential risk of electric shock. An uninsulated live part is considered to exist if the open-circuit potential between uninsulated live parts and ground is greater than 42.4 volts peak (30 V rms) and the available current through a 1500-ohm resistance, shunted by a capacitance of 0.15 Mf, is more than 0.5 Ma.	All live parts insulated	P
12.2	Accessibility of uninsulated live parts is to be determined by contact with the probe illustrated in Figure 9.1. The probe is to be applied to the area being investigated and rotated, changed in configuration, or angled to any position before, during, and after application. The probe is to be applied with a force of 1lb (4.4 N).		N/A
12.3	The grounded (neutral) conductor shall not be accessible except during relamping of a parallel connected, screw-base lamp.		N/A
13	Supply Connections		P
13.1	General		P
13.1.1	A seasonal lighting product shall be provided with a means for connection to the supply circuit. This means shall consist of one of the following:		P
	a) An attachment plug or current tap provided as part of the product, such as for a lighting string,		N/A
	b) An integral power-supply cord consisting of a length of flexible cord and an attachment plug or current tap		N/A
	c) A blade assembly located on the enclosure of the product for direct connection to the supply circuit, or		P
	d) A power inlet intended for use with a cord set or detachable power-supply cord if the manufacturer: 1)Recommends the use of a cord set which complies with the Standard UL817 2) Provides a detachable power-supply cord with the product which complies with UL 817 and 13.1.3.		N/A
13.1.2	An ornament shall be provided with a means for connection to the push-in lampholder of a series connected string or decorative outfit, such as a lampholder adapter or input leads and an adapter.		N/A
13.1.3	The length of a detachable power-supply cord provided with a product shall not be less than 8inches (203mm).		P
13.1.4	The conductor employed in a decorative lighting string shall be continuous, without a splice or tap, from fitting to fitting. A decorative outfit, or similar decorative products, may employ splices in accordance with Splices, Section 11.		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
13.1.5	The maximum current flow permitted in a fully loaded conductor of a seasonal product shall be in accordance with Table 13.1.		P
13.1.6	The conductors of the flexible cord or wire shall be fastened securely and in a workmanlike manner to the terminals of the attachment plug, current tap, or load fitting as determined by the Reliability of Conductor Connections Test, Section 72.		P
13.1.7	The supply connection requirements for a seasonal product are outlined in Table 6.1 and Table 6.2.		P
13.1.8	A seasonal product shall not employ wire positioning devices on non-enclosed flexible cord, wires, or conductors.		P
13.1.9	Deleted		---
13.1.10	A series-connected LED lighting string is permitted to be provided with a candelabra-base (E12) or intermediate-base (E17) male screw base for connection to the lampholders of a parallel-connected lighting string		N/A
13.2	Cords		P
13.2.1	Cords employed in a seasonal product shall comply with the Standard for Flexible Cords and Cables, UL 62. All wire and cord shall have a minimum flame rating of VW-1.		P
13.2.2	In a decorative outfit with one or more medium-screw lampholders, the minimum cord size shall be 20 AWG (0.52 mm2).		N/A
13.2.3	The flexible cord employed in an indoor-use parallel-connected seasonal product shall be a minimum 20 AWG (0.52 mm2) , Type XTW, parallel conductor cord or a minimum 18 AWG (0.82 mm2) Type SPT-1 or SPT-2, all wire with a minimum insulation temperature of 105°C (221°F). Types SPT-1 and SPT-2 are suitable for both indoor and outdoor use when the cord type designation ends with the letter “W”.		N/A
13.2.4	The wire employed in a series-connected seasonal product shall have a minimum insulation temperature of 105°C (221 °F) and in accordance with the following: a)Type CXTW, twisted conductor, minimum 22 AWG (0.32 mm2); b)Type XTW, 22 AWG (0.32 mm2); or c)Type CSTW-ES, CXTW-IS or CXTW-S, single conductor, a minimum 22 AWG (0.32 mm2).		N/A
13.2.5	The maximum length of lay of CXTW twisted conductors shall not exceed an average, between any two fittings, of 15 times the sum of the outside diameters of the wires which are twisted together		P
13.2.6	A detachable power-supply cord provided with a seasonal lighting product which employs a power inlet shall be Type SPT-2, or the equivalent		P
13.2.7	The power-supply cord of a motorized product shall be minimum 20 AWG (0.52 mm2), Type SPT-2, SJ, SJT, SJE, SJO, SJOO, S, ST, SE, SO, SOO, or S cord.		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
13.2.8	The power-supply cord of either a splice compartment or a controller, that is provided with an integrally-attached lighting string, shall be at least the same gauge and equivalent type of wire as the lighting string and shall be within the ampacity of the wire gauge as indicated in Table 13.1 . The power supply cord of a controller or splice compartment not provided with an integrally-attached lighting string, but provided with a dedicated receptacle, shall be suitable for the ampacity of the wire, but not smaller than 18 AWG (0.82 mm2), and not lighter than Type SP-2 or SPT-2.		P
13.2.9	Non-exposed internal wiring in an enclosure may be appliance wiring material (AWM) with temperature, current, and voltage ratings suitable for the intended application.		P
13.2.10	The wire of flexible cord employed in a Class 2 circuit with a maximum available power of 50 Watts as measured in 49.2 – 49.4, shall be suitable for the current with a minimum of 1/64-inch (0.4-mm) thick insulation.		P
13.2.11	A flexible cord provided with an additional decorative insulated covering over the insulation of the cord shall have a minimum flame rating of VW-1 for the combination of the decorative covering and flexible cord insulation. The combination shall not affect the integrity of the wire connections as determined by performing the appropriate conductor secureness or strain relief testing.		N/A
13.3	Wiring devices		P
13.3.1	In addition to the applicable requirements in this standard, an attachment plug, cord connector, current tap, power inlet, or other wiring device employed in a seasonal lighting product shall comply with the applicable requirements in the Standard UL 498, or UL 817.		P
13.3.2	An attachment plug, current tap, or load fitting provided with a seasonal product shall be of a 2-pole, 2-wire, non-grounding configuration		P
13.3.3	A seasonal product shall not employ more than 3 loads or load fittings. For this requirement, a load or load fitting is considered to be a cord connector, a dedicated receptacle, the female contacts of a current tap, or a string or decorative outfit which is an integral part of the product.		P
13.3.4	A current tap employed in a seasonal lighting product shall be other than the screw shell type and shall not provide more than 3 loads or load fittings, including the string or outfit to which it is attached.		N/A
13.3.5	The face of a cord connector, current tap, or dedicated receptacle employed in a seasonal lighting product shall be:		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
	a) Circular with a minimum area equal to the area of a 9116-inch (14.2-mm) radius circle, the center point of which is coincident with the intersection of a center line drawn through the center of the slots. See Figure 13.1 for details; or		N/A
	b) Rectangular with a minimum area equal to the area of a 1- by 314-inch (25.4- by 19.0-mm) rectangle with a 7/32-inch (5.6-mm) radius at the comers and provided with a 3116-inch (4.8-mm) radius half-circle projection from the center of each of the 1-inch (25.4-mm) sides. See Figure 13.2 for minimum dimensions.		N/A
13.3.6	An attachment plug, a power inlet, or a load fitting employed in a seasonal product shall be rated in accordance with Table 13.2. A current tap shall be rated 15 A.		P
13.3.7	A ground-supported seasonal lighting product shall be constructed such that the power inlet or similar means will not come in contact with the ground when it is situated in the intended operating position.		N/A
13.3.8	If a seasonal lighting product employs a power inlet intended for use with a cord set or detachable power-supply cord, the connecting means to the power supply of the product shall be constructed such that, when the cord connector of a cord set or detachable power-supply cord is inserted, the blades will not be energized until they are inaccessible to contact by persons. Compliance shall be determined by the Accessibility Test, Section 76.		N/A
13.3.9	A seasonal lighting product employing a power inlet intended for use with a cord set or detachable power-supply cord, shall not be provided with terminal pins that will accommodate a standard flatiron or appliance coupler.		N/A
13.3.9	A seasonal lighting product employing a power inlet intended for use with a cord set or detachable power-supply cord, shall not be provided with terminal pins that will accommodate a standard flatiron or appliance coupler.		N/A
13.4	Polarization		N/A
13.4.1	The attachment plug, current tap, or power inlet of a seasonal product employing a parallel connected string, parallel-connected lampholders, or a decorative lighting harness shall be of the polarized type. The attachment plug. Current tap, or power inlet of a series-connected seasonal product employing a series-connected string or series-connected lampholders shall be of the non-polarized type.		N/A
13.4.2	A non-polarized configuration shall not be employed on a product with an input current greater than 0.6 A.		N/A
13.4.3	If a polarized attachment plug or current tap is provided, the connection shall comply with Figure 13.3 and the polarity identification of the flexible cord shall comply with Table 13.3.		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
13.4.4	A current tap or a load fitting, such as a cord connector or dedicated receptacle, employed in a seasonal lighting product provided with a polarized attachment plug shall be of the polarized type		N/A
	A current tap or load fitting employed in a seasonal lighting product provided with a non-polarized attachment plug shall be of the non-polarized type		N/A
13.4.5	The conductor of the power-supply cord that is intended to be ungrounded (hot) shall have the following items connected to it, if provided:		N/A
	a) The center contact of a parallel-connected screw lampholder,		N/A
	b) The terminal or lead of a load fitting intended to be ungrounded (hot),		N/A
	c) The overcurrent-protective device in a parallel-connected product, and		N/A
	d) A manually-operated, line-connected, single-pole switch.		N/A
13.4.6	A polarized configuration shall only be employed on a product with 20 AWG (0.52 mm^2) or larger wire.		N/A
13.4.7	A product employing a polarized detachable power-supply cord shall not accommodate a non-polarized cord		N/A
13.5	Grounding		N/A
13.5.1	A load fitting, such as a cord connector or dedicated receptacle, employed in a decorative outfit accessory provided with a grounding type attachment plug shall also be of the grounding type.		N/A
13.5.2	The conductor of the power-supply cord that is intended for grounding shall be connected to the grounding terminal of the load fitting.		N/A
14	Terminals and Conductive Parts		P
14.1	Terminals and conductive parts shall not be constructed of copper plated steel.		P
14.2	A terminal shall be suitable for the gauge and insulation thickness of the wire intended to be used.		N/A
14.3	Current-carrying parts shall be of silver, copper, copper alloy, or other material acceptable for the particular application and shall be mounted on polymeric, phenolic or urea composition or on another insulating material acceptable for the purpose. LED lamp leads shall not be plated steel.		P
15	Strain Relief		P
15.1	A seasonal lighting product shall be provided with strain relief such that a pull exerted on the supply cord cannot be transmitted directly to terminals, splices, or interior wiring of the unit.		P

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
15.2	If a seasonal lighting product is provided with a wiring device, such as an attachment plug, cord connector, or current tap, strain relief shall be provided such that a pull exerted on the wire or cord cannot be transmitted directly to the terminals or interior wiring of the wiring device. Compliance shall be determined by the Strain Relief Test, Section 71.		P
15.3	If a seasonal lighting product is provided with a series-connected lampholder, strain relief shall be provided for the wire attachments at each lampholder, and the insulation on each connected wire shall be held securely. Compliance shall be determined by the Lampholder Strain Relief Tests, Section 79.		N/A
15.4	Each surface borne upon or otherwise contacted by a strain-relief knot in a flexible cord shall be free from all burrs, fins, and other projections or sharp edges that can damage the wires.		P
15.5	An electronically-operated ornament shall be provided with strain relief such that a pull exerted on any external leads subject to handling cannot be transmitted directly to the terminals, splices, or internal wiring of the unit, including the adaptor. Acceptability shall be determined by the Strain Relief Test, Section 107. A non-electronically-operated ornament shall comply with the Lampholder Strain Relief Tests, Section 79.		P
16	Spacings		---
	The minimum spacings between live parts of opposite polarity, between live and dead-metal parts, and between live parts and an accessible metal enclosure shall be as specified in Table 16.1. If a live part is not rigidly secured in position by means other than friction between surfaces, or if a movable dead-metal part is in proximity to an uninsulated live part, the construction shall be such that the minimum acceptable spacings are maintained		P
	All uninsulated live parts connected to different circuits, including all secondary circuits, shall be spaced from one another as though they were parts of opposite polarity and shall be judged on the basis of the highest voltage involved.		N/A
16.2	Film-coated wire is considered to be a live part in determining compliance of a product with the spacing requirements.		N/A
16.3	Spacings on a printed wiring board assembly employed in a seasonal lighting product shall comply with the values in Table 16.1.		P
16.4	For an ornament, the spacings between uninsulated live parts of opposite polarity, and uninsulated live parts and the metal enclosure shall: a) Be a minimum 1/32 inch (0.8 mm), or b) Be subjected to the Abnormal Operation Test, Section 48.	No ornament	N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
17	Splices		---
17.1	The number of splices in a decorative outfit shall be kept to a minimum. Each splice shall comply with each of the following items (see 13.1.4):	No wire splice	N/A
	a) Each splice shall be soldered, welded, or otherwise effectively assembled by means of a connector. A soldered joint shall be mechanically secure before soldering.		N/A
	b) Each splice shall be enclosed as indicated in Mechanical Assembly, Section 9, Enclosures, Section 10, Accessibility of Live Parts, Section 12, and Spacings, Section 16, and protected such that the splice cannot be subjected to a strain or other mechanical abuse		N/A
17.2	A lead is considered to be mechanically secure when one or more of the following is provided:		N/A
	a) At least one full wrap around a terminal.		N/A
	b) At least one right angle bend when passed through an eyelet or opening.		N/A
	c) Twisting with other conductors.		N/A
18	Class 2 Circuits		P
18.1	A Class 2 circuit shall be derived from the output of:		P
	a) A Class 2 transformer which complies with the applicable requirements in the Standard for Low Voltage Transformers – Part 1: General Requirements, UL 5085-1, and the Standard for Low Voltage Transformers – Part 3: Class 2 and Class 3 Transformers, UL 5085-3; or		N/A
	b) A Class 2 power unit which complies with the applicable requirements in the Standard for Class 2 Power Units, UL 1310; or		N/A
	c) A power unit which complies with the applicable requirements for a limited power source (LPS) in the Standard for Information Technology Equipment – Safety – Part 1: General Requirements, UL 60950-1; or		N/A
	d) A power unit which complies with the applicable requirements for a limited power source (LPS) in the Standard for Audio/Video, Information and Communication Technology Equipment – Part 1: Safety Requirements, UL 62368-1; or		N/A
	e) An LED Driver for non-integral LED lighting strings that complies with the applicable requirements in the Outline of Investigation for Seasonal Use LED Drivers and Non-Integral LED Lighting Strings, UL 2749		P
18.2	A product that is provided with a detachable Class 2 power supply shall be marked as described in 125.13.1.		P

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
19	Switches		N/A
19.1	In addition to the applicable requirements in this standard, a switch employed in a seasonal product shall comply with the applicable requirements in the Standard for Switches for Appliances – Part 1: General Requirements, UL 61058-1	No switch used	N/A
	A photoelectric switch shall comply with the requirements in the Standard for Nonindustrial Photoelectric Switches for Lighting Control, UL 773A		N/A
19.2	19.2 A snap switch provided to control one or more incandescent lamps in a product that does not employ a load fitting shall have a current rating not less than the maximum current it controls and, shall be tungsten-rated, when controlling tungsten-filament lamps		N/A
19.3	The rating of a switch which controls the load fitting of a product shall be tungsten rated equal to the fuse rating.		N/A
19.4	In determining the required switch rating for a product without a load fitting, the sum of the marked ratings of any fixed loads shall be used. For a product without a load fitting and with lampholders, the switch shall be sized based on the Input Test, Section 42, with all loads set to draw the maximum current.		N/A
19.5	An on/off switch which controls all functions of a product employing a polarized attachment plug or current tap shall be a single-pole switch connected to the ungrounded (hot) supply conductor. An on/off switch which controls all the functions of a product employing a non-polarized attachment plug or current tap shall be a double-pole switch connected such that it disconnects both sides of the line simultaneously		N/A
20	Printed Wiring Boards		P
20.1	A printed wiring board shall comply with the Standard for Printed-Wiring Boards, UL 796, and have a minimum flammability rating of HB as determined by the applicable tests in the Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94.		P
20.2	The temperature rating of a printed wiring board shall be equivalent to the temperature measured during the Temperature Test, Section 43, when corrected to 25°C (77°F) ambient temperature.		P
21	Bushings		N/A
21.1	At the point where a flexible cord passes through an opening in a wall, barrier, or enclosing case, there shall be a bushing or equivalent protection for the cord. A bushing shall be secured in place, and shall have a smooth, rounded surface against which the cord can bear. If the wall or barrier is of metal, an insulating bushing shall be provided		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
21.2	If the cord hole is in wood, porcelain, phenolic composition, or another non-conducting material, a smooth, rounded surface is considered to be equivalent to an insulating bushing.		N/A
21.3	Ceramic materials and some molded composition are acceptable for insulating bushings. Separate insulating bushings of wood, rubber, or hot-molded shellac and tar compositions are not acceptable. Fiber may be employed if all three of the following conditions are met:		N/A
	a) The fiber is not to be subjected to a temperature in excess of 90°C (194°F) under normal operating conditions.		N/A
	b) The bushing is not to be thinner than 3/64 inch (1.2 mm)		N/A
	c) The fiber is to be formed and secured in place so that it cannot be affected adversely by ordinary conditions of moisture.		N/A
22	Lampholders		N/A
22.1	General		N/A
22.1.1	A midget or miniature Edison-screw or push-in lampholder shall only be used:		N/A
	a) In a series-connected string or a decorative outfit, tree stand, or similar decorative product employing series-connected lampholders, or		N/A
	b) In a Class 2 circuit		N/A
22.1.2	A candelabra or intermediate screw lampholder shall only be used in a parallel-connected string or a decorative outfit, tree stand, or similar product, employing parallel-connected lampholders.		N/A
22.1.3	A medium screw lampholder shall only be used in a decorative outfit employing parallel-connected lampholders.		N/A
22.1.4	Connections between lampholder terminals and leads that are not sealed in place shall be soldered.		N/A
22.1.5	When assembled to conductors or cord of the type and size intended, the opening in the lampholder through which the conductors or cord are routed shall be free of sharp edges, burrs, or fins.		N/A
22.2	Series-connected		N/A
22.2.1	General		N/A
22.2.1.1	The body of a lampholder shall comply with the Crush Test, Section 83, have a minimum temperature of 90°C and be:		N/A
	a) A thermoplastic material which complies with the requirements in 10.3.10, and the Oven Test, Section 78; or		N/A
	b) A thermoset material such as phenolic or urea.		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
22.2.1.2	The body of a lampholder which is less than 0.15 inch 3 (2500 mm 3) shall i meet the requirements in either 22.2.1.2A or 22.2.1.2B.		N/A
22.2.1.2A	The body of a lampholder shall be molded of a material that has a flammability rating of SC-0 or SC-1 in accordance with the Standard for Tests for Flammability of Small Polymeric Component Materials, UL 1694, when testing is performed on standardized flame bars of 55 (±0.5) × 13.0 (±0.5) mm at a thickness of 0.8 (±0.1) mm or less.		N/A
22.2.1.2B	For non-replaceable lamps that are not of a molded construction, the lampholder is permitted to consist of a tubing material that has been determined suitable for use in the Standard for Seasonal and Holiday Decorative Products, UL 588, and the tubing shall:		N/A
	a) Be rated 90°C		N/A
	b) Comply with the Tensile Strength requirements in the Standard for Extruded Insulated Tubing, UL 224		N/A
	c) If in direct contact with uncoated copper, comply with the Copper Corrosion Test in the Standard for Extruded Insulated Tubing, UL 224, and		N/A
	d) Be provided with a polymeric material enclosing tubing and the lamp leads. The polymeric material shall be rated 90°C and have a flammability rating of SC-0 or SC-1 in accordance with the Standard for Tests for Flammability of Small Polymeric Component Materials, UL 1694, when testing is performed on standardized flame bars of 55 (±0.5) × 13.0 (±0.5) mm at a thickness of 0.8(±0.1) mm or less		N/A
22.2.1.2C	The lampholder must comply with the Flammability Test for Small Components specified in the Standard for Tests for Flammability of Small Polymeric Component Materials, UL 1694, except that the bottom of the lampholder shall be located 11.8 ±0.39 inch (300 ±10 mm) above the cotton indicator and the flame application time shall be 10 seconds. Total consumption of the component or specimen or ignition of the cotton indicator by flaming particles or drops shall not be allowed.		N/A
22.2.1.3	A miniature screw (E10) lampholder shall comply with all of the following:		N/A
	a) There shall be accommodation for a lamp with a screw base that has 14 threads per inch (0.55 threads per 17illimetre) and a nominal diameter of 3/8 inch (9.5 mm)		N/A
	b) The lampholder depth shall be from 17/32 – 19/32 inch (13.5 – 15.1 mm), measured from the plane of the open end to the highest point on the center contact (depressed if flexible).		N/A
	c) The spacing between parts of opposite polarity and between live and dead metal parts shall not be less than 1/32 inch (0.8 mm).		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
	d) The lamp screw base shall not be contacted by the probe shown in Figure 9.1 while a lamp that complies with the maximum height of the base as indicated in Table 22.1 is fully seated in the lampholder.		N/A
22.2.1.4	A midget screw (E5) lampholder shall comply with all of the following:		N/A
	a) There shall be accommodation for a lamp with a screw base that has 25.4 threads per inch (1 thread per 18illimetre) and a nominal diameter of 3/16 inch (4.8 mm)		N/A
	b) The lampholder depth shall be a minimum 23/64 inch (9.1 mm), measured as described in 22.2.1.3(b)		N/A
	c) The spacing between parts of opposite polarity and between live and dead metal parts shall not be less than 1/32 inch (0.8 mm).		N/A
	d) The lamp screw base shall not be contacted by the probe shown in Figure 9.1 while a lamp that complies with the maximum height of the base as indicated in Table 22.1 is fully seated in the lampholder.		N/A
22.2.1.5	The spacing between parts of opposite polarity and between live and dead metal parts shall not be less than 1/32 inch (0.8 mm) for a push-in or non-replaceable lampholder. The push-in lamp shall be provided with an adapter which secures the lamp into the lampholder by push-in friction fit, or by a latching mechanism which snap-fits the lamp in place. The adapter shall be constructed of the same material as the lampholder.		N/A
22.2.1.6	A screw shell shall be fastened in place to reduce the likelihood of loosening, twisting, or straining against electrical connections. The screw shell of a midget- or miniature-screw lampholder shall comply with the “Go” and “Not Go” gauges made in accordance with the specifications for Gauges for Electric Lamp Bases and Lampholders, ANSI C81.63		N/A
22.2.1.7	Live parts in a series-connected lampholder shall not be exposed before, during, or after insertion of a lamp of the size for which the lampholder is intended. Accessibility of live parts is to be determined by contact with the probe illustrated in Figure 9.1. The probe is to be inserted into any opening in the lampholder or lamp, or the lampholder and lamp assembly		N/A
22.2.1.8	For a series-connected lampholder, contacts shall be secured in the lampholder body by means other than friction alone so as to reduce the likelihood of their displacement. Compliance shall be determined by the Secureness of Lampholder Contacts Test, Section 80.		N/A
22.2.1.9	For a series-connected lampholder employing three leads, connection between two of the leads shall be made mechanically secure before securement in the lampholder body. The lampholder shall be tested for compliance with the Secureness of Lampholder Contacts Test, Section 80		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
22.2.1.10	A midget push-in type series- or, series-parallel connected string employing spring-loaded lampholder contacts shall be provided with a minimum of one supplementary protector as indicated in 7.8 in each series-connected circuit. The lampholder shall also comply with the Cascading Lamp Temperature Test, Section 85, Cycling Test, Section 86, Lampholder Millivolt Drop Test, Section 81, and Leakage Current Following Humidity Conditioning, Section 41. In addition, these contacts shall not be used in strings that employ less than 20 lampholders		N/A
22.2.2	Outdoor use		N/A
22.2.2.1	The screw shell or contacts of a series-connected lampholder employed in a product intended for outdoor use shall be of copper or of an alloy that contains at least 80 percent copper.		N/A
22.2.2.2	A series-connected lampholder intended for outdoor use shall be provided with drain holes, or the equivalent, and shall be designed to reduce the likelihood of accumulation of water in the lampholder cavity.		N/A
22.2.2.3	A i material used for the body of a series-connected lampholder or a polymeric material described in 22.2.1.2B intended for outdoor use shall be resistant to Ultraviolet (UV) weathering and exposure to water as determined by compliance with the Ultraviolet (UV) Light Exposure and Water Immersion Tests, Section 94.		N/A
22.3	Parallel-connected		P
22.3.1	Candelabra and intermediate screw lampholders shall comply with the requirements for seasonal lighting lampholders contained in Seasonal-Lighting Lampholders, Supplement SB. Medium screw lampholders shall comply with the requirements for seasonal lighting lampholders contained in Supplement SB where specifically indicated in addition to requirements for general-use medium screw lampholders contained in the Standard for Lampholders, UL 496.	Candelabra lampholder Supplement SB: E12	P
	Medium screw lampholders employed in products intended for outdoor use shall also comply with the requirements for weatherproof lampholders contained in UL 496		N/A
22.3.2	The screw shell of each Edison-screw parallel-connected lampholder shall be connected to the terminal or lead that is intended to be connected to the grounded (neutral) conductor of the power-supply circuit. The center contact of each Edison-screw parallel-connected lampholder shall be connected to the terminal or lead that is intended to be connected to the ungrounded (hot) conductor of the power-supply circuit.	For each lampholder, screw shell connects to neutral. center contact connect to line	P
23	Lamps		P

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
23.1	A lamp employed in a seasonal lighting product shall comply with the requirements for Seasonal-Lighting Lamps, Supplement SA.		P
23.2	A lamp provided with a shunt:		N/A
	a) Shall be provided only in a series-connected string or a decorative outfit employing 20 or more push-in or midget screw lampholders or 8 or more miniature screw lampholders, and		N/A
	b) Shall have its suitability determined in conjunction with the requirements for Overcurrent Protection, Section 7, and the Cascade Lamp Burnout Simulation Test, Section 84, and		N/A
	c) Shall be replaceable.		N/A
24	Lamping		N/A
24.1	Each string or decorative outfit shall be provided with a number of lamps equal to or greater than the number of lampholders in the string or unit. The string or unit shall be evaluated as indicated in 118.1		N/A
24.2	Each product employing push-in or midget or miniature screw lampholders with user-replaceable lamps in accordance with 24.1 shall be provided with at least two spare lamps for each type of lamp installed in the product. Each product employing steady-illuminating push-in type lamps without lamp shunts shall be provided with at least four spare lamps.		N/A
	The spare lamps shall be of the same type as provided in the product, such as steady burning, ballast, or individual-flashing lamps. The number of spare lamps required above shall be provided for each different type of lamp provided in the product.		N/A
25	Fuseholders and Fused Attachment Plugs		N/A
25.1	In addition to the applicable requirements in this standard, a fuseholder located in the enclosure of a unit shall comply with the Standard for Fuseholders – Part 1: General Requirements, UL 4248-1,		N/A
	A fused attachment plug or current tap shall comply with the Standard for Attachment Plugs and Receptacles, UL 498, or the Standard for Cord Sets and Power-Supply Cords, UL 817.		N/A
	An in-line fuseholder with insulation-piercing terminals shall also comply with the requirements for In-Line Fuseholders with Insulation-Piercing Terminals for Seasonal Products, Supplement SC.		N/A
25.2	The fused attachment plug, current tap, fuseholder, or in-line fuseholder shall be constructed such that there shall not be exposure of live parts during removal or replacement of the fuse(s).		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
	In addition, for a fused attachment plug or current tap, there shall not be exposure of live parts with the fuse cover partially open during 0.08 inch (2.03 mm) insertion into a receptacle. Exposure of live parts shall be determined by contact with the accessibility probe illustrated in Figure 9.1		N/A
25.3	The fuse cover of a fuseholder, in-line fuseholder, or fused attachment plug or current tap shall not be detachable from the device as determined by the Fuseholder Cover Test, Section 69.		N/A
25.4	A fuseholder, in-line fuseholder, or fused attachment plug or current tap employed in a product intended for outdoor use shall comply with the requirements for Outdoor-Use Products, Section 27.		N/A
26	Devices Employing Insulation-Piercing Terminals		N/A
26.1	A device employing insulation-piercing terminals shall be for use only with Type XTW, SPT-1, or SPT-2 parallel conductor flexible cord that complies with the Standard for Flexible Cords and Cables, UL62		N/A
26.2	If a device employs insulation-piercing terminals, it shall comply with the Temperature Tests for Devices Employing Insulation-Piercing Terminals, Section 54.		N/A
27	Outdoor-Use Products		P
27.1	A product, other than a series-connected lighting string, intended for outdoor use shall comply with the Rain Test, Section 89. A series-connected lighting string shall comply with the Rain Test described in Section 90.		P
27.2	A product intended for outdoor use which employs polymeric materials shall also comply with the Drop Test, Section 59, to be performed using a concrete surface, the Cold Impact Test, Section 61, and the Ultraviolet (UV) Light Exposure and Water Immersion Tests, Section 94.		P
27.3	A controller, splice compartment, direct plug-in unit, or similar component, that is intended for outdoor use and is likely to be ground supported, whether a separate product or provided as part of a product, shall also comply with the Standing Water Immersion Test, Section 91.		P
27.4	An enclosure, controller, splice compartment, or similar component, of a product intended for outdoor use shall be provided with a gasket or similar sealing device, and shall not rely on ultrasonic welds to seal out moisture.		P
	The gasket shall comply with the requirements for wet locations in the Standard for Gaskets and Seals, UL 157, and the Gasket Test, Section 92, in addition to the requirements in 27.5 and 27.6.		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
27.5	A gasket employed in a product intended for outdoor use shall be secured such that the removal of a lamp from the unit or the opening of a panel or a frame for relamping shall not cause the gasket to loosen. Clips or a clamping ring are an acceptable means of securement. A gasket secured by adhesive shall comply with the Gasket Adhesion Test, Section 93.		N/A
27.6	A gasket employed in a product intended for outdoor use shall be constructed of an acceptable material. Neoprene rubber is acceptable for a 60°C (140°F) service temperature and silicone is acceptable for a 105°C (221°F) maximum service temperature.		N/A
27.7	An enclosure employed in a product intended for outdoor use shall comply with the requirements in 10.3.5 and 10.3.8.		P
27.8	For an outdoor-use decorative outfit provided with both lampholders and a decorative part such as a shade, diffuser, blow molded figure, or similar decorative cover, the decorative part shall be provided with a minimum 1/4 inch (6.4 mm) diameter drain hole to reduce the likelihood of accumulated water reaching the lampholder.		N/A
27.9	Lampholders employed in a product intended for outdoor use shall also comply with 22.2.2.1 –22.2.2.3.		P
27.10	Non-moisture absorptive electrical insulation shall be used in the construction of electrical components where it is relied upon to provide electrical spacings or direct or indirect support of uninsulated live electrical parts. Untreated electrical grade paper used in transformers and untreated fiber are examples of materials that shall not be used. Vulcanized fiber, phenolic, urea, porcelain, and similar insulators, are examples of acceptable materials.		P
27.11	For decorative outfits provided with parallel-connected lampholders there shall be a minimum spacing of 1.5 inches (38 mm) between the live parts and the ground. For decorative outfits provided with series-connected lampholders, the lampholders shall not be ground supported.		N/A
SERIES-CONNECTED STRINGS			
28	General		N/A
28.1	Except as provided in 28.3 and 28.4, 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 (i.e. push-in, screw-type, or other design).		N/A
28.2	The maximum current draw for a series-connected string shall be 0.60 A.		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
28.3	A series-connected string intended for use with individual-flashing lamps that operate by means of a self-contained thermostatically-operated shunting device shall consist of one of the following (see also 28.4):		N/A
	a) Not less than 18 push-in lampholders in series with 2 midget-screw lampholders.		N/A
	b) Not less than 18 midget-screw lampholders in series with 2 miniature-screw lampholders.		N/A
	c) Not less than 35 lamps connected in series with a minimum of half of the lamps in the lighting string being steady-illuminating and one of the following:		N/A
	1) All of the lamps in the string are not replaceable,		N/A
	2) All the lamps in the string are replaceable and the lighting string is constructed such that the individual-flashing lamps cannot fit into the lampholder such that it makes an electrical connection with the lampholder intended for steady-illuminating lamps. In addition, the lamp adapters must be secured to the lamps by an adhesive that complies with the requirements outlined in Section 63, the Adhesive Test.		N/A
	3) A minimum of half of the lighting string shall be steady-illuminating lamps and non-replaceable. The remaining lamps shall be permitted to be replaceable. These strings would be required to be provided with the marking described in 125.3.9		N/A
	d) Not less than 70 lamps connected in series with a minimum of half of the lamps in the lighting string being steady-illuminating provided that the string additionally comply with the Cascading Lamp Temperature test described in Section 85.		N/A
28.4	The two larger size lampholders in each of the series-connected strings described in 28.3 are for the accommodation of current-limiting ballast lamps. Each of these ballast lamps is to be rated for at least 60 Vand 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 described in Section 96, Decorative Lighting String Intended for Use on a Patio Umbrella, when mounted as intended in accordance with the installation instructions.		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
PARALLEL-CONNECTED STRINGS			
29	General		N/A
29.1	A parallel-connected string shall employ only intermediate- or candelabra-screw lampholders, shall have at least 7 lampholders, and the total wattage of the lighting string shall not exceed the conductor current as indicated in Table 13.1.		N/A
29.2	Each lampholder in a parallel-connected string shall be switchless.		N/A
29.3	A lamp employed in a parallel connected string shall have a maximum rating of 7 watts (0.058 A at 120 V).		N/A
29.4	The conductors of a parallel-connected string shall terminate in a lampholder or an enclosure which complies with the requirements for polymeric enclosures contained in 10.1.1 – 10.1.4 and 10.3.1 – 10.3.10		N/A
DECORATIVE LIGHTING HARNESSES			
30	General		N/A
30.1	A decorative-lighting harness shall comply with the requirements for parallel-connected strings		N/A
	Except that a maximum of 6 lampholders shall be provided and medium screw lampholders may be employed.		N/A
30.2	A decorative-lighting harness shall be provided with lamps, lampholders, an attachment means, wire and overcurrent protection.		N/A
	A decorative-lighting harness may also be provided with a switch, a load fitting, or both.		N/A
30.3	A decorative-lighting harness shall not exceed 1.75 A as measured during the Input Test, Section 42, with the maximum marked wattage replacement lamps installed.		N/A
30.4	The wire employed in a decorative-lighting harness shall terminate in a lampholder or an enclosure which complies with the requirements for polymeric enclosures contained in 10.1.1 – 10.1.4 and 10.3.1 – 10.3.10.		N/A
DECORATIVE OUTFITS			
31	General		N/A
31.1	A series string employing push-in or midget or miniature base lamps that is used in a decorative outfit, tree stand, or similar product, shall comply with all the requirements applicable to series-connected strings.		N/A
	A parallel string or parallel-connected lampholder that is used in a decorative outfit, tree stand, or similar product, shall comply with all the requirements applicable to parallel strings.		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
31.2	A decorative outfit employing a medium base lamp shall comply with all of the following:		N/A
	a) The lamp shall be located to reduce the likelihood of contact with materials not provided as part of the product, such as curtains, trees, or cloth;		N/A
	b) The decorative outfit shall have a maximum temperature rise of 65°C (117°F) on any external part of the product that may come in contact with other materials, such as the outside of a blow- molded figure or a ceramic house, as determined by the Temperature Test, Section 43		N/A
	c) The decorative outfit shall be marked with its maximum tested replacement lamp wattage as indicated in 125.3.3; and		N/A
	d) Shall not be provided with a load fitting		N/A
31.3	A lampholder shall comply with the mechanical assembly requirements contained in 9.6.		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. A maximum of 6 medium screw lampholders shall be employed and shall not exceed 1.75 A as measured during the Input Test, Section 42, with the maximum marked wattage replacement lamps installed.		N/A
31.6	The wire employed in a decorative outfit shall terminate in a lampholder or an enclosure which complies with the requirements for polymeric enclosures contained in 10.1.1 – 10.1.4 and 10.3.1 – 10.3.10.		N/A
31.7	For a decorative outfit employing single conductor CXTW wire, with lampholders, wire, or both, secured to and supported by a rigid frame provided with the product, there shall be a maximum of 3 inches (76.2 mm) of cord between each secured lampholder or wire and the space between the suspended wire and the frame shall not exceed 1/2 inch (12.7 mm).		N/A
32	Motorized Devices		N/A
32.1	A motorized device in the form of a decorative outfit for either indoor or outdoor use or a tree stand for indoor use only shall be rated at 120 V or less. Acceptability is to be determined in accordance with the requirements in 32.2 – 32.4 and all other applicable requirements contained in this standard.		N/A
32.2	Receptacle outlets provided on the rotating portion of a tree stand are considered for the connection of push-in, midget-base, miniature-base, candelabra-base, or intermediate-base incandescent lamps and are considered dedicated type and shall be marked according to 125.8.3.		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
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	A motor employed in a decorative outfit shall comply with the requirements in the Standard for Overheating Protection for Motors, 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
33.1	The frame of a light sculpture shall be either a metallic material coated with a polymeric material that complies with the volume resistivity requirements in the Standard for Polymeric Materials – Use In Electrical Equipment Evaluations, UL 746C, or a polymeric material. In both cases the polymeric material shall comply with the requirements in Materials, Section 8. A polymeric frame shall also comply with the Enclosure Mold Stress Relief Test, Section 58, such that stress is not placed on electrical connections or wire as a result of the test.		N/A
33.2	If the light sculpture folds, such as for storage, or is animated, it shall have sufficient free length of wire to avoid pinching, cutting or abrading of the conductors or insulation.		N/A
33.3	Lighting sculptures consisting of more than one section are allowed to be shipped unassembled when the lighting strings are affixed to the individual sections provided that suitable user assembly instructions are included in the instruction manual.		N/A
DIRECT PLUG-IN UNITS			
34	General		P
34.1	The mechanical assembly of a direct plug-in unit intended for indoor use shall be considered acceptable if the unit:		N/A
	a) Complies with the requirements in 34.2 – 34.8, or		N/A
	b) Complies with the Standard for Class 2 Power Units, UL 1310; or		N/A
	c) Complies with the requirements for the mechanical assembly of a direct plug-in unit specified in the Standard for Information Technology Equipment – Safety – Part 1: General Requirements, UL60950-1.		N/A
34.2	The integral blade assembly of a direct plug-in unit shall comply with the construction requirements in the Standard for Attachment Plugs and Receptacles, UL 498. See 34.8		P
34.3	The mechanical assembly of a direct plug-in unit intended for outdoor use shall be considered acceptable if it complies with the requirements for Outdoor-Use Products, Section 27, in addition to the requirements in 34.1		P

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
34.4	The maximum acceptable moment, center of gravity, dimensions, and weight of a direct plug-in unit shall comply with each of the Figure 34.1 requirements		P
34.5	The values specified in 34.4 shall be determined as follows:		P
	a) For units with an output cord, the cord is to be cut off at the enclosure, or at the strain-relief means if the strain-relief means is outside the enclosure		P
	b) For units with directly mounted accessories, the values are to be measured with the accessories in place		N/A
	c) A mounting tab is not to be included in the measurements of the linear dimensions for the purpose of determining moments		N/A
34.6	When inserted in a parallel-blade duplex receptacle, no part of a unit, including a mounting tab or output wiring, shall interfere with full insertion of an attachment plug or current tap into the adjacent receptacle		P
34.7	The enclosure of the direct plug-in unit shall be capable of being gripped for removal from the receptacle to which it is connected, and the perimeter of the face section from which the blades project shall not be less than 5/16 inch (7.9 mm) from any point on either blade		P
34.8	With reference to 34.7, an extension from the face for mechanical support of the blades is not to be considered in the measurement provided the extension measures 0.04 inches (1 mm) or less from the face section of the direct plug-in unit. See Figure 34.3.		N/A

ORNAMENTS			
35	General		N/A
35.1	An ornament shall be for indoor use only.	No ornaments	N/A
35.2	During or after insertion of the lampholder adapter of an ornament into the lampholder of a series-connected string or decorative outfit, there shall not be exposure of live parts as determined by contact with the accessibility probe illustrated in Figure 9.1.		N/A
35.3	An ornament shall be provided with its own mounting means, to accommodate a hook or for direct mounting to a tree, such that the weight of the ornament is not supported only by the lampholder.		N/A
35.4	Any exposed wiring as part of an ornament, including the input leads, shall comply with the wiring requirements for series-connected strings contained in Supply Connections, Section 13.		N/A
35.5	Non-exposed internal wiring may be appliance wiring material (AWM) with temperature, current, and voltage ratings suitable for the intended application.		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
35.6	A lampholder and pigtail adapter employed in an ornament shall comply with the requirements for series-connected lampholders contained in Lampholders, Section 22.		N/A
35.7	A motor employed in an ornament shall comply with 32.4.		N/A
35.8	An adapter shall be provided with a strain relief such that a pull exerted on the supply cord cannot be transmitted to the adapter contacts. This shall comply with the requirements in Lampholder Strain Relief Tests, Section 79.		N/A
BATTERY OPERATED PRODUCTS			
36	General		N/A
36.1	When a seasonal product utilizes the number and type of batteries shown in Table 36.1, the product shall comply with all the requirements in this standard for Class 2 circuits having more than a 15 W output.	No battery	N/A
	When a seasonal product utilizes fewer than the number of batteries shown in Table 36.1, the product shall be evaluated using the requirements for Class 2 circuits having less than a 15 W output.		N/A
	In addition, each of the products described above shall comply with the marking requirements in 125.10 and 125.11		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
PERFORMANCE			
37	Cheesecloth Indicators		P
38	Test Sequences		P
ALL PRODUCTS EXCEPT ORNAMENTS			
39	polymeric enclosure		P
40	Leakage Current Test		P
41	Leakage Current Following Humidity Conditioning		P
42	Input Test		P
43	Temperature Test		P
44	Mounting Position Test		N/A
45	Dielectric Voltage-Withstand Test		P
46	Strain Relief Test		P
47	Wire Push-Back Relief Test		P
48	Abnormal Operation Test		P
49	Component Power Measurement Test		N/A
50	Downward Burning Rate Test		N/A
51	Conductivity of Decorative Parts Test		P
52	Routine Flexing Test		P
53	Slip-Ring Endurance Test		N/A
54	Temperature Tests for Devices Employing Insulation-Piercing Terminals		N/A
54.1	General		N/A
54.2	Temperature test		N/A
54.3	Thermal cycling		N/A
54.4	Strain relief/terminal temperature		N/A
55	Abnormal Tests for Controllers		P
55.1	General		P
55.2	Abnormal operation test		P
55.3	Overload test		P
56	Tests for Permanence of Cord Tag		N/A
56.1	General		N/A
56.2	Test conditions		N/A
56.3	Test method		N/A
PRODUCTS EMPLOYING POLYMERIC ENCLOSURES			
57	General		P
58	Enclosure Mold Stress Relief Test		P
59	Drop Test		P
60	Impact Test		P
61	Cold Impact Test		P
62	Resistance to Crushing Test		P
63	Adhesive Test		P
PRODUCTS EMPLOYING OVERCURRENT PROTECTIVE DEVICES			

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
64	General		N/A
65	Calibration Test		N/A
66	Fault Current Test		N/A
67	Fuseholder Temperature Test		N/A
68	Fuseholder Crush Test		N/A
69	Fuseholder Cover Test		N/A
PRODUCTS EMPLOYING CORD-CONNECTED WIRING DEVICES OR POWER INLETS			
70	General		P
71	Strain Relief Test		P
72	Reliability of Conductor Connections 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
79.1	Lead pull test		N/A
79.2	Secureness of leads test		N/A
80	Secureness of Lampholder Contacts Test		N/A
81	Lampholder Millivolt Drop Test		N/A
82	Rope Strength Test		N/A
83	Crush Test		N/A
84	Cascade Lamp Burnout Simulation Test		N/A
PRODUCTS PROVIDED WITH SELF-SHORTING CONTACTS			
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		N/A
91	Standing Water Immersion Test		N/A
92	Gasket Test		N/A
93	Gasket Adhesion Test		N/A
94	Ultraviolet (UV) Light Exposure and Water Immersion Tests.		P
94.1	General		P
94.2	UV conditioning		P
94.3	Water immersion		P
DECORATIVE LIGHTING STRINGS			
95	Flexing Test		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
103	Leakage Current Test		N/A
104	Temperature Test at 200 Ma (Electronically- Operated)		N/A
105	Dielectric Voltage-Withstand Test		N/A
106	Enclosure Mold Stress Relief Test		N/A
107	Strain Relief Test		N/A
108	Drop Test		N/A
109	High Current Abnormal Test		N/A
110	High Current Inrush Test		N/A
111	Series Cascade Burnout Test		N/A
112	Abnormal Operation Test		N/A
113	Voltage Drop Test		N/A
NON-ELECTRONICALLY-OPERATED ORNAMENTS			
114	General		N/A
115	Temperature Test at 200 Ma (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		N/A
RATINGS			
121	Details		N/A
MARKINGS			
122	General		P
123	Product Markings		P
124	Product/Cord Tag Markings		P
124.1	General		p
125	Cord Tag Markings		N/A
125.1	General		N/A
125.2	Products employing replaceable fuses.		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
125.3	Products employing lamps		N/A
125.4	Products employing load fittings		N/A
125.5	Products without load fittings		N/A
125.6	Decorative-lighting strings		N/A
125.7	Decorative outfits		N/A
125.8	Tree stands		N/A
125.9	Ornaments		N/A
125.10	Products employing batteries		N/A
125.10A	Battery-operated products		N/A
125.11	Battery supply polarity identification		N/A
125.11A	Class 2 products		N/A
125.12	Bubble lights		N/A
125.13	Class 2 circuits		N/A
126	Carton/Stuffer Sheet/Product/Cord Tag Markings		P
126.1	General		P
126.2	Products employing power inlets		N/A
126.3	Products employing skeleton-type lampholders		N/A
126.4	Decorative-lighting strings		N/A
126.5	Ornaments		N/A
127	Carton Markings		P
INSTRUCTION MANUAL			
128	General		P
129	Instructions Pertaining to the Risk of Fire, Electric Shock, or Injury to Persons		P
129.1	General		P
129.2	Decorative-lighting strings, decorative outfits, and ornaments		N/A
130	Use and Care Instructions		P
131	User Servicing Instructions		P
SUPPLEMENT SA – SEASONAL-LIGHTING LAMPS INTRODUCTION			
SA1	Scope		P
CONSTRUCTION			
SA2	Screw-Base Lamps		N/A
SA2.1	General		N/A
SA2.2	Lamps intended for parallel connection		N/A
SA3	Bubble Lights		N/A
SA4	LED Lamps		P
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

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
SA8	Envelope-to-Base Securement Test		N/A
SA9	Lamp-Envelope Temperature Test		N/A
BUBBLE LIGHTS			
SA10	General		N/A
SA11	Identification Test		N/A
GLASS LED LAMPS			
SA11A	General		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
SB14.1	Pull test		N/A
SB14.1	Pull test		N/A
SB14.2	Torque test		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
SB18.1	General		N/A
SB18.2	Temperature test		N/A
SB18.3	Thermal cycling		N/A
SB18.4	Strain relief/terminal temperature		N/A
OUTDOOR-USE LAMPHOLDERS			

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
SB19	General		N/A
SB20	Rain Test		N/A
SB21	Leakage Current Test		N/A
SB22	Leakage Current Following Humidity Conditioning		N/A
SB23	Ultraviolet (UV) Light Exposure and Water Immersion Tests		N/A
SB23.1	General		N/A
SB23.2	UV conditioning		N/A
SB23.3	Water immersion		N/A
MARKINGS			
SB24	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
MANUFACTURING AND PRODUCTION-LINE TESTS			
SC23	Opening Force Test		N/A
SC24	Open/Close Test		N/A
SC25	Abnormal Pin Protrusion Test		N/A

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict
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
SD4	Overcurrent Protection		N/A
SD5	Supply Connections		N/A
SD6	General Requirements		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
INSTRUCTION MANUAL			
SD13	General		N/A
CARTON MARKINGS			
SD14	General		N/A
SUPPLEMENT SE – COMMERCIAL USE LIGHTING STRINGERS AND ASSEMBLIES INTRODUCTION			
SE1	Scope		N/A
SE2	Definitions		N/A
CONSTRUCTION			
SE3	General		N/A
SE4	Supply Connections		N/A
PERFORMANCE			
SE5	General		N/A
SE6	Strain Relief Temperature Test for Commercial Seasonal Lighting Assemblies		N/A
MARKINGS			
SE7	General		N/A
SE8	Cord Tag Markings		N/A
SE9	Carton Markings		N/A
INSTRUCTION MANUAL			
SE10	General		N/A
APPENDIX A			
Standards for Components			

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict

	TABLE: Critical components information				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Power units	Hong Kong Ting Son Trading Co., Limited	HS12Y-240050-AU	Input:100-240V~, 50/60Hz Output:DC24V,2A	UL 2749	UL
Plastic	(Interchangeable)	(Interchangeable)	V-0	UL94	UL
PCB	(Interchangeable)	(Interchangeable)	V-0, 130℃	UL 796	UL
Power cord	(Interchangeable)	(Interchangeable)	VW-1	UL62	UL
LED	(Interchangeable)	(Interchangeable)	RGB	UL 588	Tested with appliance

UL 588			
Clause	Requirement + Test	Result - Remark	Verdict

42	TABLE: Input Test				P
Test Voltage: ____120____V Test Frequency: ____60___Hz					---
Model	Lamp quantity	Current (A)	Rated Power (W)	Limit	
60ft	--	0.211	10.0	48.0	
Supplementary information:					

40	TABLE: Leakage Current Test			P
Test Voltage: ____120____V Test Frequency: ____60___Hz				---
Measured location	Figure 40.1 S1 position	Measured current (mA)		limit (mA)
		Live (L)	Neutral (N)	
Accessible surface to L/N	Open	0.003	0.004	0.5
Accessible surface to L/N	Closed	0.004	0.003	0.5
Supplementary information:				

43	TABLE: Normal Temperature Test		P
	Ambient (°C) ..... :	25.0	—
	test voltage (V) ..... :	120V	—
emperature rise dT of part/at:		dT (K)	required dT (K)
Power units		13.3	65
Power cord		8.3	35
Connecter		4.6	65
Controller		11.4	65
LED		12.2	75
Supplementary information::			

45	TABLE: Dielectric Voltage-Withstand Test			P
Test voltage applied between:		Test voltage (V)	Test frequency (Hz)	Breakdown
Between live parts of power units and non-metallic accessible enclosure with metal foil		1250	60	No
Supplementary information: Voltage applied for 1 min.				

Photo Documentation

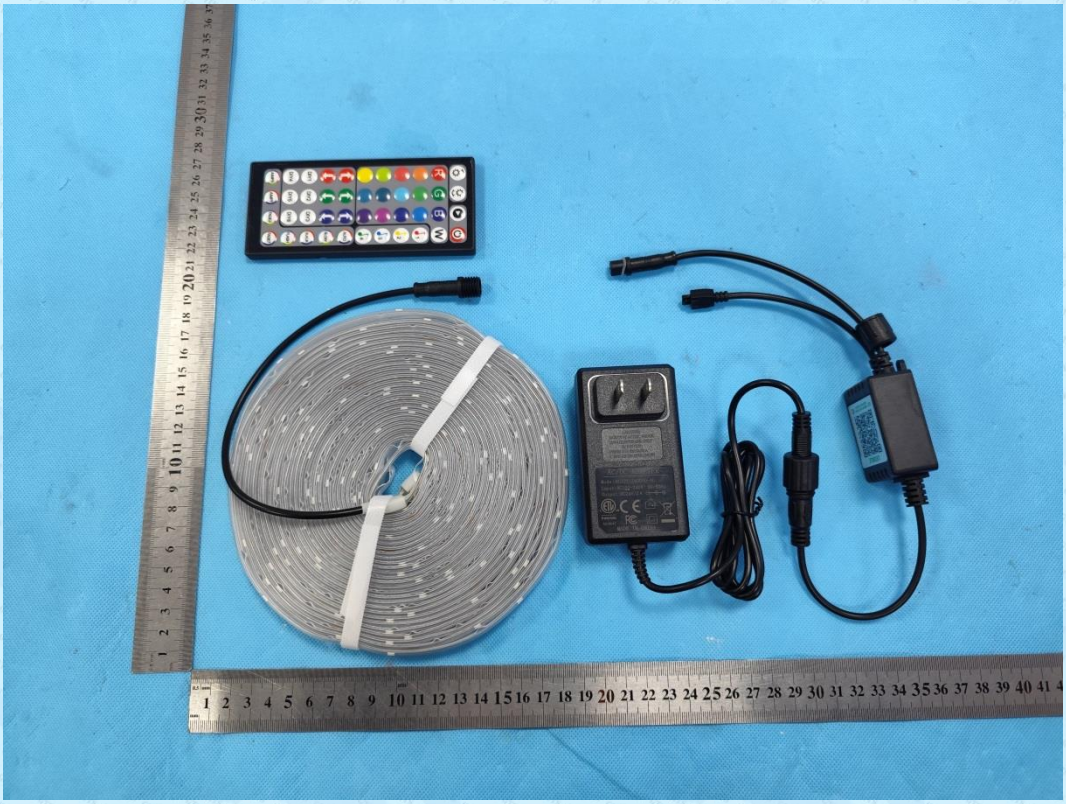


Fig.1



Fig.2

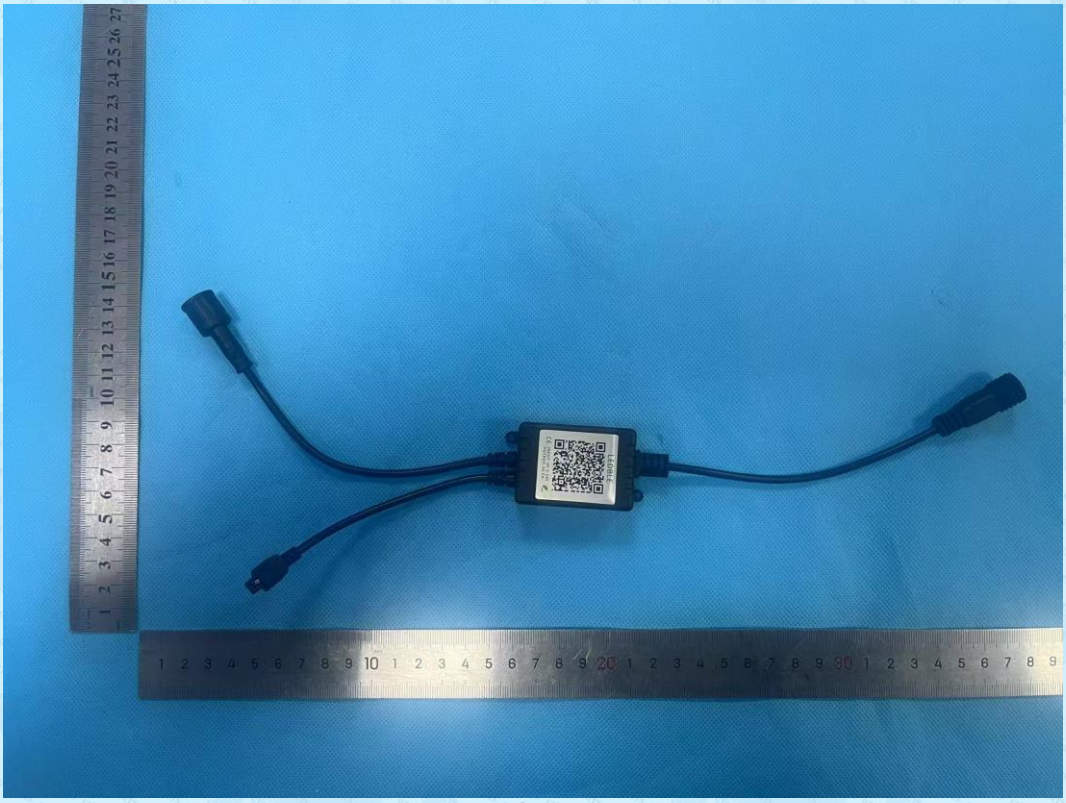


Fig.3

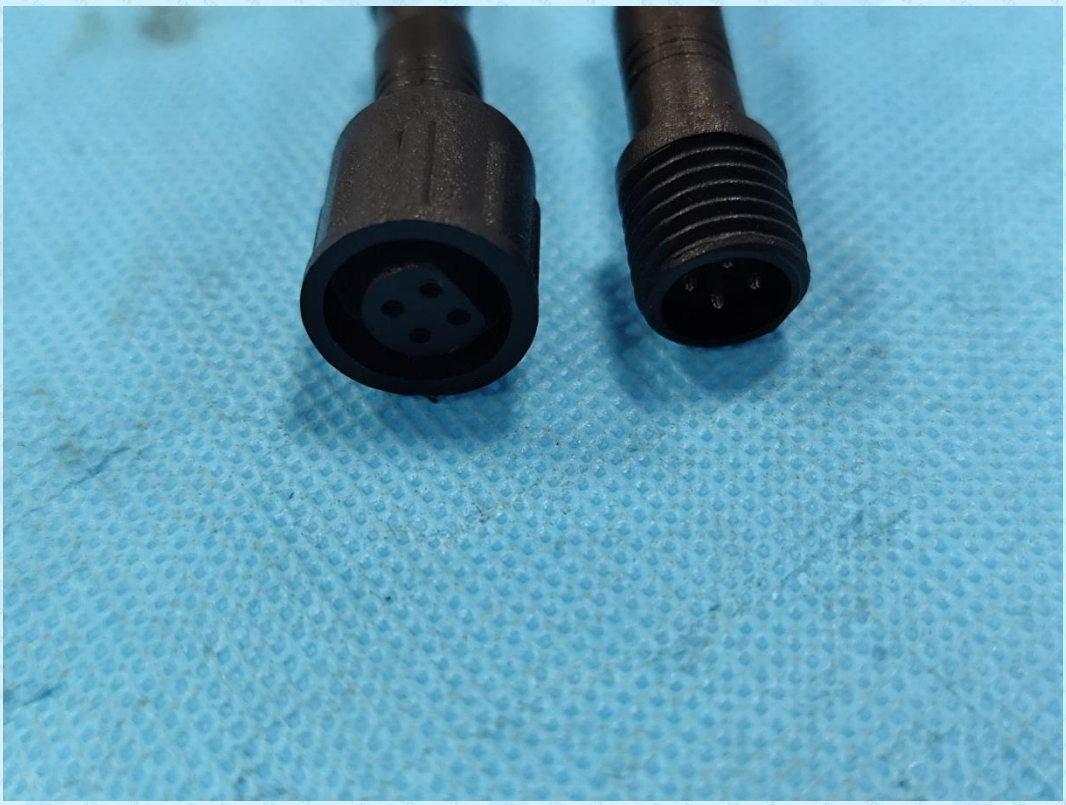


Fig.4

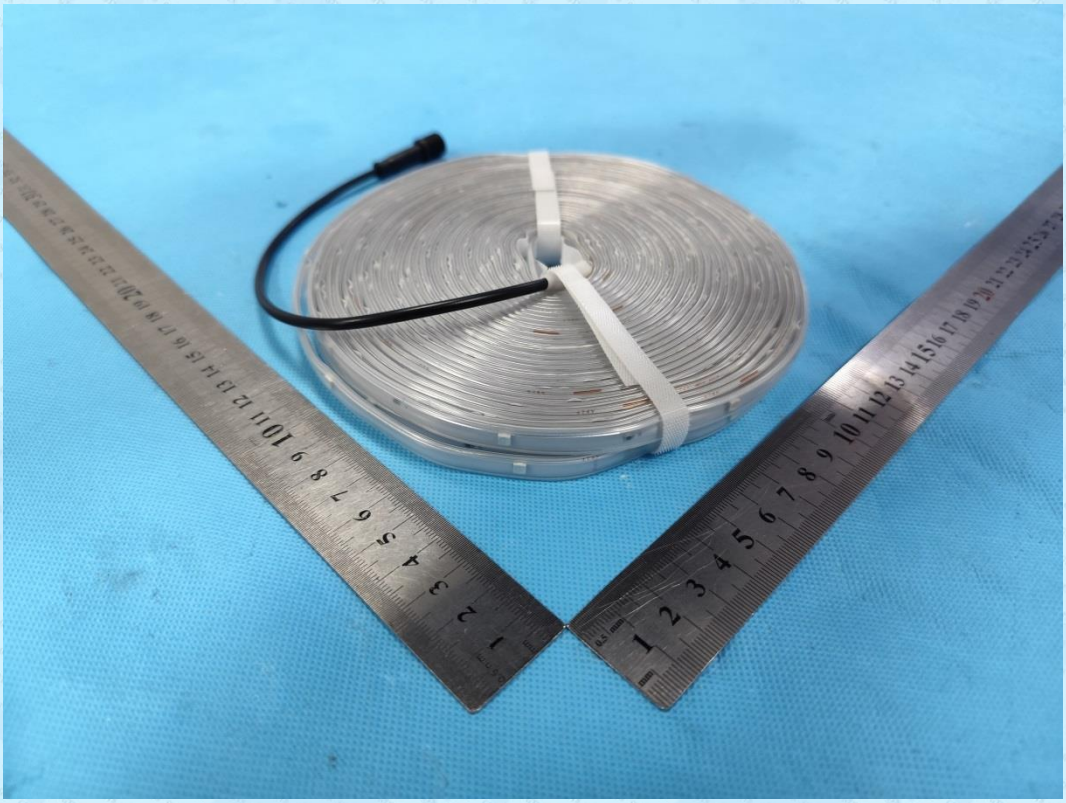


Fig.5

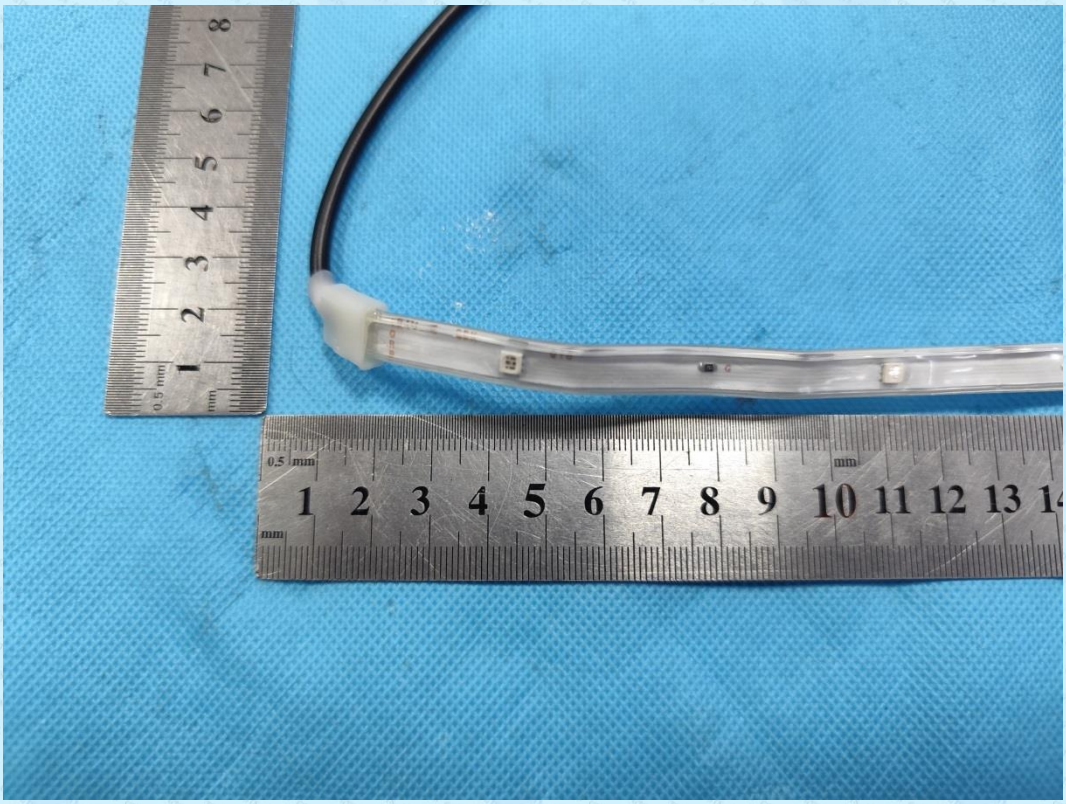


Fig.6

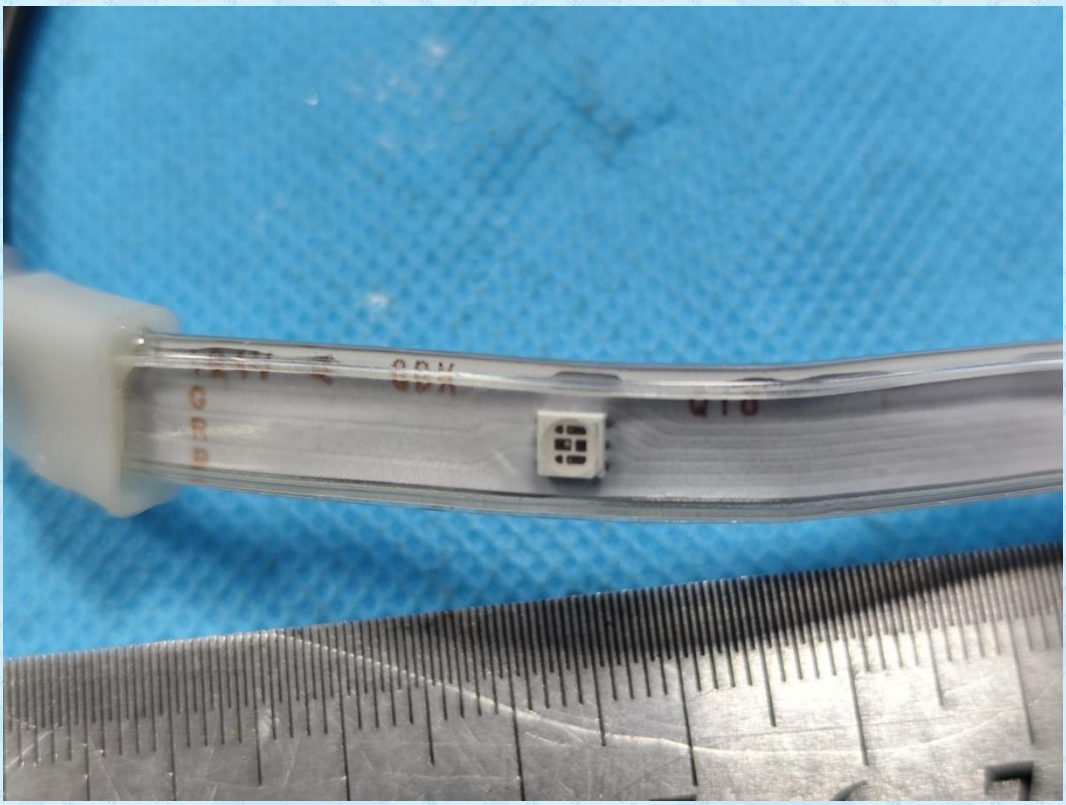


Fig.7



Fig.8



Fig.9

※END OF REPORT※