TEST REPORT

Product Name:	Lighting chain (LED strip Light)
Brand Name:	N/A
Model Number:	See page 3.
Prepared For:	Guangzhou Linong Lighting Technology Co., Ltd
Address:	Keying Rd, Guangzhou Sci-Tech Industry Park, Taihe Town Baiyun District, Guangzhou City, Guangdong Province, China.
Prepared By:	Shenzhen DL Testing Technology Co., Ltd.
Address:	101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China
Date of Receipt:	Jun. 25, 2023
Test Date	Jun. 26, 2023 - Jun. 26, 2023
Date of Report:	Jun. 27, 2023
Report No.:	DL-20230627045S

TEST REPORT
IEC 60529
Degrees of protection provided by enclosures (IP Code)

Report reference No. ..... :	DL-20230627045S
Tested by (name) ..... :	Oran Peng
Reviewed by (name) ..... :	Ray Liang
Approved by (name) ..... :	Jade Yang
Date of issue ..... :	Jun. 27, 2023
Total number of pages ..... :	18 pages
Applicant's name ..... :	Guangzhou Linong Lighting Technology Co., Ltd
Address ..... :	Keying Rd, Guangzhou Sci-Tech Industry Park, Taihe Town Baiyun District, Guangzhou City, Guangdong Province, China.
Testing Laboratory ..... :	Shenzhen DL Testing Technology Co., Ltd.
Address ..... :	101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China
Test location ..... :	Same as above
Test specification:	
Standard ..... :	EN 60529:1991+A1:2000+A2:2013
Test procedure ..... :	IP44
Non-standard test method ..... :	N/A
Test item description ..... :	Lighting chain (LED strip Light)
Brand Name ..... :	N/A
Manufacturer ..... :	Guangzhou Linong Lighting Technology Co., Ltd Keying Rd, Guangzhou Sci-Tech Industry Park, Taihe Town Baiyun District, Guangzhou City, Guangdong Province, China.
Model/Type reference ..... :	See page 3
Ratings ..... :	--

Test item particulars ..... :	
Temperature range ..... :	25°C
Relative humidity ..... :	56%RH
Air pressure ..... :	100kPa
Possible test case verdicts:	
- test case does not apply to the test object ..... :	N/A
- test object does meet the requirement ..... :	Pass
- test object does not meet the requirement ..... :	Fail
General remarks:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(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 point is used as the decimal separator.	

General product information:

All models have the same as construction.

The modle list as below:

LNTS0XX384COBT0-DC, LNTS0XX312COBT0-DC, LNTS0XX320COBT0-DC, LNTS0XX480COBT0-DC, LNTS0XX528COBT0-DC, LNTS0XX576COBT0-DC, LNTS0XX600COBT0-DC, LNTS0XX608COBT0-DC, LNTS0XX756COBT0-DC, LNTS0XX768COBT0-DC, LNTS0XX784COBT0-DC, LNTS0XX312COBH0-DC, LNTS0XX320COBH0-DC, LNTS0XX384COBH0-DC, LNTS0XX480COBH0-DC, LNTS0XX528COBH0-DC, LNTS0XX576COBH0-DC, LNTS0XX600COBH0-DC, LNTS0XX608COBH0-DC, LNTS0XX756COBH0-DC, LNTS0XX768COBH0-DC, LNTS0XX784COBH0-DC, LNTS0XX312COBG0-DC, LNTS0XX320COBG0-DC, LNTS0XX384COBG0-DC, LNTS0XX480COBG0-DC, LNTS0XX528COBG0-DC, LNTS0XX576COBG0-DC, LNTS0XX600COBG0-DC, LNTS0XX608COBG0-DC, LNTS0XX756COBG0-DC, LNTS0XX768COBG0-DC, LNTS0XX784COBG0-DC, LNTS0XX312COBV0-DC, LNTS0XX320COBV0-DC, LNTS0XX384COBV0-DC, LNTS0XX480COBV0-DC, LNTS0XX528COBV0-DC, LNTS0XX576COBV0-DC, LNTS0XX600COBV0-DC, LNTS0XX608COBV0-DC, LNTS0XX756COBV0-DC, LNTS0XX768COBV0-DC, LNTS0XX784COBV0-DC.

“XX”= WW, NW, PW, CW, RR, GG, BB, YY, RB, DW, TC or FC

indicates color of LED, WW=3000K White, NW=4000K White, PW=6000K White, CW=11000K White, RR=Red, GG=Green,BB=Blue, YY=Yellow, RB=Red+Blue, DW=Double White,TC=Red+Green+Blue, FC=Red+Green+Blue+White.

“Z”=1, 2, 3, 4, 5, 6, 7, 8, 9 or 0 indicates length of LED strip,

1=0.5m/strip, 2=1m/strip, 3=1.5m/strip, 4=2m/strip, 5=2.5m/strip,

6=3m/strip, 7=3.5m/strip, 8=4m/strip, 9=4.5m/strip, 0=5m/strip

Unless otherwise specified, models LNTS0XX384COBT0-DC were selected as representative models to perform all tests.

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Clause	Requirement + Test	Result - Remark	Verdict
13	**Tests for protection against solid foreign objects indicated by the first characteristic numeral**		**P**
13.1	Test means	First characteristic numeral is4	P
	Test means and the main test conditions are given in table 7		P
	Table 7 – Test means for the tests for protection against solid foreign objects		P

First character-istic numeral	Test means (object probes and dust chamber)	Test force	Test conditions, see
0	No test required	-	-
1	Rigid sphere without handle or guard $50^{+0.05}_{0}$ mm diameter	50 N ± 10 %	13.2
2	Rigid sphere without handle or guard$12.5^{+0.2}_{0}$ mm diameter	30 N ± 10 %	13.2
3	Rigid steel rod $2.5^{+0.05}_{0}$ mm diameter with edges free from burrs	3 N ± 10 %	13.2
4	Rigid steel rod $1.0^{+0.05}_{0}$ mm diameter with edges free from burrs	1 N ± 10 %	13.2
5	Dust chamber figure 2, with or without underpressure	-	13.4 + 13.5
6	Dust chamber figure 2, with under-pressure	-	13.4 + 13.6

13.2	Test conditions for first characteristic numerals 1, 2, 3, 4	First characteristic numerals is 4	P
	The object probe is pushed against any openings of the enclosure with the force specified in table 7.		P
13.3	Acceptance conditions for first characteristic numerals 1, 2, 3, 4	First characteristic numerals is 4	P
	The protection is satisfactory if the full diameter of the probe specified in table 7 does not pass		P

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Clause	Requirement + Test	Result - Remark	Verdict
	through any opening.		
13.4	Dust test for first characteristic numerals 5 and 6		N/A
	The test is made using a dust chamber incorporating the basic principles shown in figure 2 whereby the power circulation pump may be replace by other means suitable to maintain the talcum powder in suspension in a closed test chamber. The talcum powder used shall be able to pass through a square-meshed sieve the nominal wire diameter of which is 50μm and the nominal width of a gap between wires 75μm . The amount of talcum powder to be used is 2Kg per cubic metre of the test chamber volume. It shall not have been used for more than 20 tests.		N/A
	Enclosures are of necessity in one of two categories: Category1: Enclosures where the normal working cycle of the equipment causes reductions in air pressure within the enclosure below that of the surrounding air, for example, due to thermal cycling effects. Category 2: Enclosures where no pressure difference relative to surrounding air is present.	Category 1 enclosures	N/A
	Category 1 enclosures: The enclosure under test is supported inside the test chamber and the pressure inside the enclosure is maintained below the surrounding atmospheric pressure by a vacuum pump. The suction connection shall be made to a hole specially provided for this test. A volume of air 80 times the volume of the sample enclosure tested without exceeding the extraction rate of 60 volumes per hour. In no event shall the depression exceed 2 kPa(20 mbar) on the manometer shown in figure 2.		N/A
	Category 2 enclosures: The enclosure under test is supported in its normal operating position inside the test chamber, but is not connected to a vacuum		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	pump. Any drain-hole normally open shall be left open for the duration of the test. The test shall be continued for a period of 8h.		
13.5	Special conditions for first characteristic numeral 5		N/A
13.5.1	Test conditions for first characteristic numeral 5		N/A
	The enclosure shall be deemed category 1 unless the relevant product standard for the equipment specifies that the enclosure is category 2.		N/A
13.5.2	Acceptance conditions for first characteristic numeral 5		N/A
	The protection is satisfactory if, on inspection, talcum powder has not accumulated in a quantity or location such that, as with any other kind of dust, it could interfere with the correct operation of the equipment or impair safety. Except for special cases to be clearly specified in the relevant product standard, no dust shall deposit where it could lead to tracking along the creepage distances.		N/A
13.6	Special conditions for first characteristic numeral is 6		N/A
13.6.1	Test conditions for first characteristic numeral is 6		N/A
	The enclosure shall be deemed category 1, whether reductions in pressure below the atmospheric pressure are present or not		N/A
13.6.2	Acceptance conditions for first characteristic Numeral 6		N/A
	The protection is satisfactory if no deposit of dust is observable inside the enclosure at the end of the test.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
14	**Tests for protection against water indicated by the second characteristic numeral**		**P**
14.1	Test means	Second characteristic numeral is 4	P
	The test means and the main test conditions are given in table 8.		P

Table 8 – Test means and main test conditions for the tests for protection against water

P

Second characteristic numeral	Test means	Water flow rate	Duration of test	Test conditions, see
0	No test required	-	-	-
1	Drip box Figure 3 Enclosure on turntable	1 mm/min	10 min	14.2.1
2	Drip box Figure 3 Enclosure in 4 fixed positions of 15° tilt	3 mm/min	2.5 min for each position of tilt	14.2.2
3	Oscillating tube Fig.4 Spray±60°from vertical, distance max.200mm or Spray nozzle Fig.5 Spray ±60°from vertical	0.07 L/min ±5% per hole, multiplied by Number of holes 10 L/min ± 5%	10min 1 min/m^2 at least 5 min	14.2.3a) 14.2.3b)
4	As for numeral 3 Spray ±180° from vertical	As for numeral 3		14.2.4
5	Water jet hose Nozzle Fig.6 Nozzle 6.3mm diameter, distance 2.5m to 3m	12.5 L/min ± 5%	1 min/m^2 at least 3 min	14.2.5
6	Water jet hose Nozzle Fig.6 Nozzle 12.5mm diameter, distance 2.5m to 3m	100 L/min ± 5%	1 min/m^2 at least 3 min	14.2.6
7	Immersion tank Water-level on Enclosure:0.15m above top 1m above bottom	-	30min	14.2.7

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Clause	Requirement + Test	Result - Remark	Verdict

	8	Immersion tank Water-level: by agreement	-	by agreement	14.2.8	
	9	Fan jet nozzle Figure 7 Test of small enclosure on turntable Figure12 Turntable speed (5±1) r/min Spray at 0°, 30°, 60°, 90° Or Test of large enclosures as per intended use Spray from all practical directions Distance (175±25) mm	(15±1) L/min	30s per position 1min/m^2 at least 3 min	14.2.9(a) 14.2.9(b)	
14.2.1	Test for second characteristic numeral 1 with the drip box					N/A
	The test is made with a device which produces a uniform flow of water drops over the whole area of the enclosure.					N/A
	The turntable on which the enclosure is placed has a rotation speed of 1 r/min and the eccentricity (distance between turntable axis and specimen axis) is approximately 100 mm.					N/A
	The enclosure under test is placed in its normal operating position under the drip box, the base of which is larger than that of the enclosure. Except for enclosures designed for wall or ceiling mounting, the support for the enclosure under test should be smaller than the base of the enclosure.					N/A
	An enclosure normally fixed to a wall or ceiling is fixed in its normal position of use to a wooden board having dimensions which are equal to those of that surface of the enclosure which is in contact with the wall or ceiling when the enclosure is mounted as in normal use.					N/A
	The duration of test is 10 min.					N/A
14.2.2	Test for second characteristic numeral 2 with the					N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	drip box		
	The dripping device is the same as specified in 14.2.1 adjusted to provide the water flow rate specified in table 8.		N/A
	The table on which the enclosure is placed does not turn as in the case of the test for the second characteristic numeral 1.		N/A
	The enclosure is tested for 2,5 min in each of four fixed positions of tilt.		N/A
	These positions are 15° on either side of the vertical in two mutually perpendicular planes (see figure 3b)).		N/A
	The total duration of the test is 10 min.		N/A
14.2.3	Test for second characteristic numeral 3 with oscillating tube or spray nozzle		N/A
	The test is made using one of the two test devices described in figure 4 and in figure 5 in accordance with the relevant product standard.		N/A
	a) Conditions when using the test device as in figure 4 (oscillating tube):		N/A
	The total flow rate is adjusted as specified in table 9 and is measured with a flow meter.		N/A
	The oscillating tube is provided with spray holes over an arc of 60° either side of the centre point. The support is not perforated.		N/A
	The enclosure to be tested is placed at the centre point of the semicircle. The tube is caused to oscillate through an angle of 120°, 60° on either side of the vertical, the time forone complete oscillation (2 x 120°) being about 4 s and the test duration being 5 min.		N/A
	The enclosure is then turned through an horizontal angle of 90° and the test is continued for a further 5 min.		N/A
	The maximum acceptable radius of the oscillating tube is 1 600 mm.		N/A
	If for certain types of apparatus it is not possible to wet all parts of the enclosure under test, the support of the enclosure may be moved up or		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	down. The hand-held test device as in figure 5 (spray nozzle) should be used as a preference in such cases.		
	b) Conditions when using the test device as in figure 5 (spray nozzle):		N/A
	The counterbalanced shield is in place for this test.		N/A
	The water pressure is adjusted to give the specified delivery rate. The pressure to achieve this delivery rate will be in the range of 50 kPa to 150 kPa. It should be kept constant during the test.		N/A
	The test duration is 1 min/m2 of the calculated surface area of the enclosure (excluding any mounting surface), with a minimum duration of 5 min.		N/A
14.2.4	Test for second characteristic numeral 4 with oscillating tube or spray nozzle	Second characteristic numeral is 4	P
	The test is made using one of the two test devices described in figure 4 and in figure 5 in accordance with the relevant product standard.		P
a)	Conditions when using the test device as in figure 4 (oscillating tube):		P
	The oscillating tube has spray holes over the whole 180” of the semicircle. The total flow rate is adjusted as specified in table 9 and is measured with a flow meter.		P
	The tube is caused to oscillate through an angle of almost 360°, 180° on either side of the vertical, the time for one complete oscillation (2 × 360°) being about 12 s.		P
	The duration of the test is 10 min.		P
	If not specified otherwise in the relevant product standard, the support for the enclosure under test is perforated so as to avoid acting as a baffle and the enclosure is sprayed from every direction by oscillating the tube to the limit of its travel in each direction.		P

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Clause	Requirement + Test	Result - Remark	Verdict
b)	Conditions when using the test device as in figure 5 (spray nozzle):		P
	The counterbalanced shield is removed from the spray nozzle and the enclosure is sprayed from all practicable directions.		P
	The rate of water flow and the spraying time per unit area are as specified in 14.2.3.		P
14.2.5	Test for second characteristic numeral 5 with the 6,3 mm nozzle		N/A
	The test is made by spraying the enclosure from all practicable directions with a stream of water from a standard test nozzle as shown in figure 6.		N/A
	The conditions to be observed are as follows:		N/A
	- internal diameter of the nozzle: 6,3 mm;		N/A
	- delivery rate: 12,5 l/min ± 5 %;		N/A
	- water pressure: to be adjusted to achieve the specified delivery rate;		N/A
	- core of the substantial stream: circle of approximately 40 mm diameter at 2,5 m distance from nozzle;		N/A
	- test duration per square metre of enclosure surface area likely to be sprayed: 1 min;		N/A
	- minimum test duration: 3 min;		N/A
	- distance from nozzle to enclosure surface: between 2,5 m and 3 m.		N/A
14.2.6	Test for second characteristic numeral 6 with the 12,5 mm nozzle		N/A
	The test is made by spraying the enclosure from all practicable directions with a stream of water from a standard test nozzle as shown in figure 6.		N/A
	The conditions to be observed are as follows:		N/A
	- internal diameter of the nozzle: 12,5 mm;		N/A
	- delivery rate: 100 l/min ± 5 %;		N/A
	- water pressure: to be adjusted to achieve the specified delivery rate;		N/A
	- core of the substantial stream: circle of		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	approximately 120 mm diameter at 2,5 m distance from nozzle;		
	- test duration per square metre of enclosure surface area likely to be sprayed: 1 min;		N/A
	- minimum test duration: 3 min;		N/A
	- distance from nozzle to enclosure surface: between 2,5 m and 3 m.		N/A
14.2.7	Test for second characteristic numeral 7: temporary immersion between 0,15 m and 1 m		N/A
	The test is made by completely immersing the enclosure in water in its service position as specified by the manufacturer so that the following conditions are satisfied:		N/A
	a) the lowest point of enclosures with a height less than 850 mm is located 1 000 mm below the surface of the water;		N/A
	b) the highest point of enclosures with a height equal to or greater than 850 mm is located 150 mm below the surface of the water;		N/A
	c) the duration of the test is 30 min;		N/A
	d) the water temperature does not differ from that of the equipment by more than 5 K. However, a modified requirement may be specified in the relevant product standard if the tests are to be made when the equipment is energized and/or its parts in motion.		N/A
14.2.8	Test for second characteristic numeral 8: continuous immersion subject to agreement		N/A
	Unless there is a relevant product standard, the test conditions are subject to agreement between manufacturer and user, but they shall be more severe than those prescribed in 14.2.7 and they shall take account of the condition that the enclosure will be continuously immersed in actual use.		N/A
14.2.9	Test for second characteristic numeral 9 by high pressure and temperature water jetting		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The test is made by spraying the enclosure with a stream of water from a standard test nozzle as shown in Figures 7, 8 and 9.		N/A
	The set-up for measuring the impact force of the water jet is given in Figure 10.		N/A
	The distribution force shall be verified at upper and lower limits of distance tolerance range (see Figure 11).		N/A
	For small enclosures (largest dimension less than 250 mm), the enclosure shall be mounted on the test device shown in Figure 12.		N/A
	a) For small enclosures (largest dimension less than 250 mm), the enclosure shall be mounted on the test device shown in Figure 12.		N/A
	- turntable speed: 5 r/min ± 1 r/min		N/A
	- spray positions: 0°, 30°, 60°, 90°		N/A
	The test duration is 30 s per position.		N/A
	b) For large enclosures (largest dimension greater than or equal to 250 mm), the enclosure shall be mounted as per intended use. The entire exposed surface area of the enclosure shall be subjected to the spray at some point during the test procedure.		N/A
	- spray positions: the enclosure shall be sprayed from all practical directions covering the entire surface area and the spray shall be, as far as possible, perpendicular to the sprayed surface.		N/A
	- distance between nozzle and sample under test shall be 175 ± 25 mm.		N/A
	The test duration is 1 min/m2 of the calculated surface area of the enclosure (excluding any mounting surface), with a minimum duration of 3 min.		N/A
14.3	Acceptance conditions		P
	After testing in accordance with the appropriate requirements of 14.2.1 to 14.2.9, the enclosure shall be inspected for ingress of water.		P

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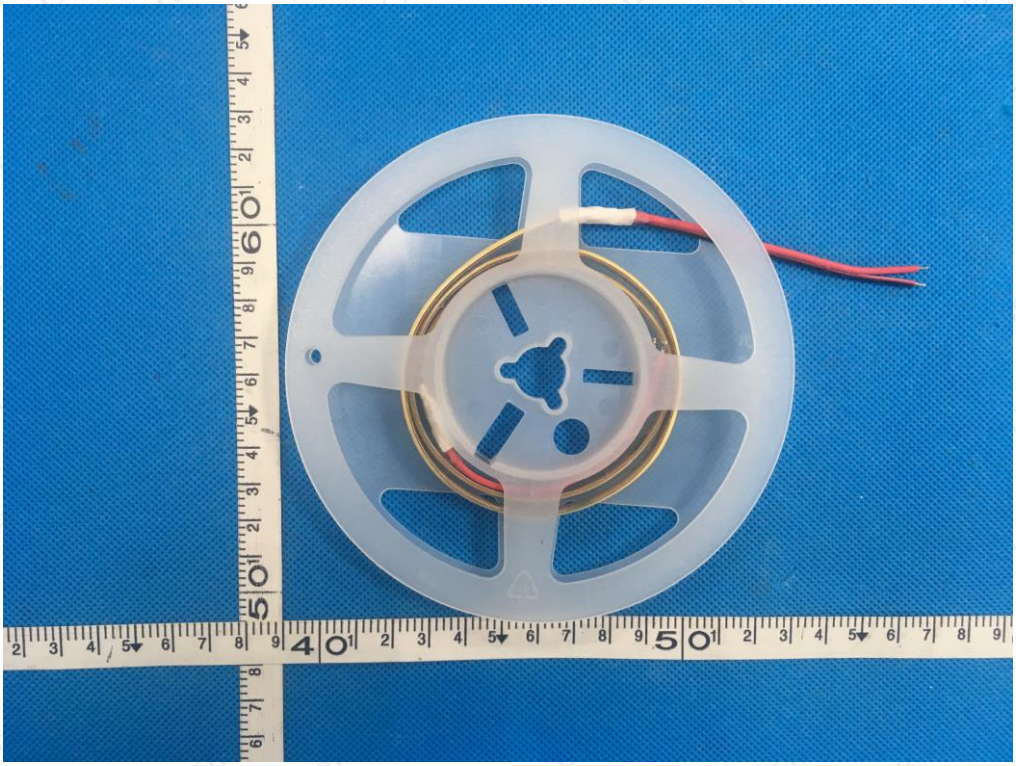
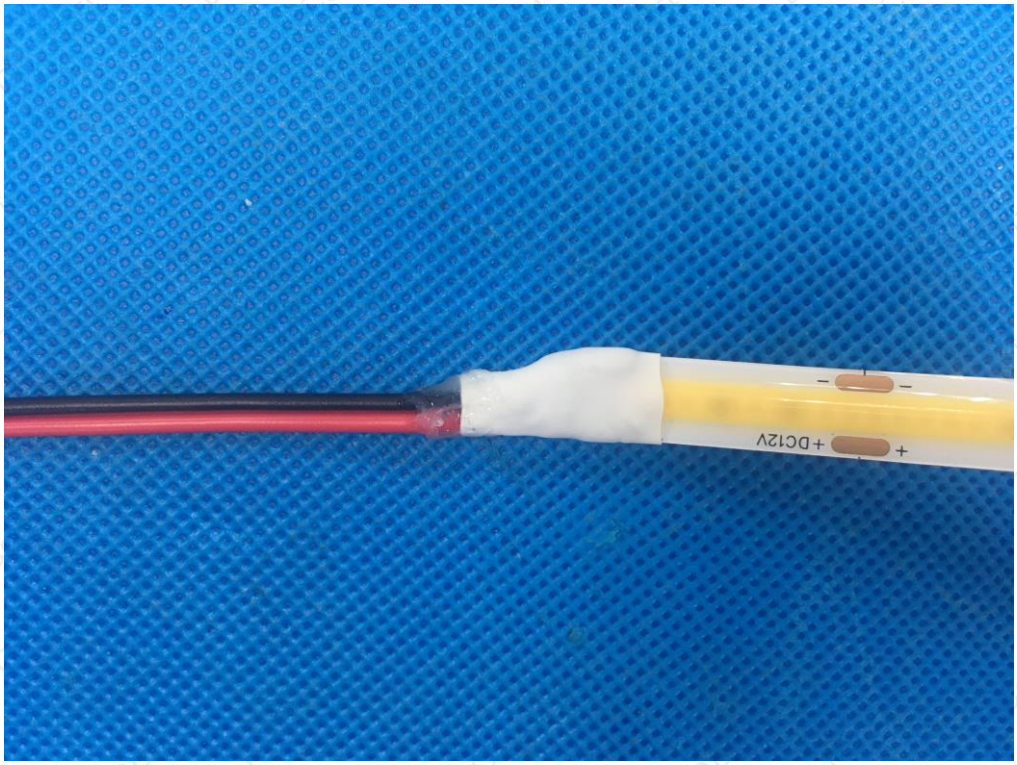
Clause	Requirement + Test	Result - Remark	Verdict
	It is the responsibility of the relevant technical committee to specify the amount of water which may be allowed to enter the enclosure and the details of a dielectric strength test, if any.		P
	In general, if any water has entered, it shall not:		N/A
	- be sufficient to interfere with the correct operation of the equipment or impair safety;		N/A
	- deposit on insulation parts where it could lead to tracking along the creepage distances;		N/A
	- reach live parts or windings not designed to operate when wet;		N/A
	- accumulate near the cable end or enter the cable if any.		N/A
	If the enclosure is provided with drain-holes, it should be proved by inspection that any water which enters does not accumulate and that it drains away without doing any harm to the equipment.		N/A
	For enclosures without drain-holes, the relevant product standard shall specify the acceptance conditions if water can accumulate to reach live parts.		N/A

Attachment No. 1:

EUT PHOTOGRAPHS





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