TEST REPORT
IEC 60598-2-4
Luminaires
Luminaires, Part 2: Particular requirements
Section 4: Portable general purpose luminaires

Report Number.....:	68.140.23.0885.01
Date of issue.....:	2024-01-26
Total number of pages .....:	43 pages (not including attachments)
Name of Testing Laboratory preparing the Report.....:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Applicant's name.....:	Tangla lighting and living limited
Address .....:	10F Mass Mutual Tower, 33 Lockhart Road, Wanchai, HONG KONG
Test specification:	
Standard .....:	IEC 60598-2-4:2017 for use in conjunction with IEC 60598-1:2020
Test procedure .....:	GS+CE_LVD
Non-standard test method .....:	N/A
TRF template used .....:	IECEE OD-2020-F1:2020, Ed.1.3
Test Report Form No.....:	IEC60598_2_4I
Test Report Form(s) Originator ....:	UL (US)
Master TRF .....:	Dated 2021-06-10

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Test item description..... :	Portable general purpose luminaires (LED Rechargeable Lamps)
Trade Mark(s)..... :	--
Manufacturer..... :	Same as applicant
Model/Type reference..... :	TL-RL-1001-3000mAh; TL-RL-1002-3000mAh; TL-RL-1003-3000mAh; TL-RL-1004-3000mAh; TL-RL-1006-3000mAh; TL-RL-1007-3000mAh; TL-RL-1008-3000mAh; TL-RL-1009-3000mAh; TL-RL-1010-3000mAh; TL-RL-1011-3000mAh; TL-RL-1012-3000mAh; TL-RL-1013-3000mAh; TL-RL-1014-3000mAh; TL-RL-1015-3000mAh; TL-RL-1016-3000mAh; TL-RL-1017-3000mAh; TL-RL-1018-3000mAh; TL-RL-1019-3000mAh; TL-RL-1020-3000mAh; TL-RL-1021-3000mAh; TL-RL-1022-3000mAh; TL-RL-1001-2000mAh; TL-RL-1002-2000mAh; TL-RL-1003-2000mAh; TL-RL-1004-2000mAh; TL-RL-1006-2000mAh; TL-RL-1007-2000mAh; TL-RL-1008-2000mAh; TL-RL-1009-2000mAh; TL-RL-1010-2000mAh; TL-RL-1011-2000mAh; TL-RL-1012-2000mAh; TL-RL-1013-2000mAh; TL-RL-1014-2000mAh; TL-RL-1015-2000mAh; TL-RL-1016-2000mAh; TL-RL-1017-2000mAh; TL-RL-1018-2000mAh; TL-RL-1019-2000mAh; TL-RL-1020-2000mAh; TL-RL-1021-2000mAh; TL-RL-1022-2000mAh
Ratings..... :	Rated Voltage: 5VDC Battery: Li-ion battery, 3.7V, 2*1500mAh [for models with suffix '3000mAh']; Li-ion battery, 3.7V, 2000mAh [for models with suffix '2000mAh'] Rated Power: 1.5W Protection Class: III Degree of Protection: IP44 Blue Light Risk Group: RG0

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**Testing Laboratory:**	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch	
Testing location/ address.....:		Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China	
Tested by (name, function, signature) ..... :		Elain Zhang Project Handler	
Approved by (name, function, signature).. :		Sunny Yan Designated Reviewer	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address.....:			
Tested by (name + signature) .....:			
Witnessed by (name, function, signature)..:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Witnessed by (name, function, signature)..:			
Approved by (name, function, signature)...:			
Supervised by (name, function, signature) :			

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

Attachment No. 1:	2 pages of test report for EU Group Differences and National differences for EN 60598-2-4:2018 and EN IEC 60598-1:2021+A11:2022;
Attachment No. 2:	20 pages of test report for IEC 62031:2018 1 page of test report for EU Group Differences and National differences for EN IEC 62031:2020+A11:2021 (for LED module);
Attachment No. 3:	7pages of report for IEC TR 62778 (for blue light risk group);
Attachment No. 4:	16 pages of test report for IEC 62493:2015; IEC 62493:2015/AMD1:2022 (for EMF);
Attachment No. 5:	28 pages for test report of IEC 61347-2-11:2001, IEC 61347-2-11:2001/AMD1:2017 used in conjunction with IEC 61347-1:2015, IEC 61347-1:2015/AMD1:2017 (for inner controller);
Attachment No. 6:	2 pages of test report for Clause 22 and 23 of IEC 61347-2-7:2011, IEC 61347-2-7:2011/AMD1:2017 used in conjunction with IEC 61347-1:2015, IEC 61347-1:2015/AMD1:2017 (for inner controller);
Attachment No. 7:	2 pages of test report for AfPS GS 2019:01 PAK (for PAH) .
Attachment No. 8:	34 pages of test report for photo documentation.

Summary of testing:

All applicable tests as described in the compliance checklist were performed at TL-RL-1012-3000mAh, TL-RL-1014-2000mAh.	**Testing location:** Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China

Summary of compliance with National Differences (List of countries addressed):

Germany and European Group difference

☒ **The product fulfils the requirements of below standards:**

Ø EN 60598-2-4:2018

Ø EN IEC 60598-1:2021+A11:2022

Ø EN 62493:2015+A1:2022

Ø AfPS GS 2019:01 PAK

Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

☐ **Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:**

Procedure number, issue date and title:

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

☒ **Statement not required by the standard used for type testing**

(Note: When IEC or ISO standard requires a statement concerning the uncertainty of the measurement systems used for tests, this should be reported above. The informative text in parenthesis should be delete in both cases after selecting the applicable option)

Copy of marking plate:

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

1. Main label:

Tangla lighting and living limited
TL-RL-1001-3000mAh
5V⎓, 1.5W
Li-ion battery: 3.7V⎓, 2x1500mAh

10F Mass Mutual Tower, 33 Lockhart Road, Wanchai, HONG KONG
Importer: xxxxxx

Tangla lighting and living limited
TL-RL-1001-3000mAh
5V⎓, 1.5W
Lithium-batterie: 3.7V⎓, 2x1500mAh

10F Mass Mutual Tower, 33 Lockhart Road, Wanchai, HONG KONG
Importeur: xxxxxx

Location: Sticking on the enclosure.

2. Sub-label, sticking near USB inlet.

5V⎓, 1A

Remark:

Labels for other models are similar with above label, except different for model no. and battery parameter.

Height of WEEE mark at least 7mm, height of other marks at least 5mm, height of letters and numerals at least 2mm.

Test item particulars .....:	Portable luminaires
Classification of installation and use.....:	Portable luminaires for indoor and outdoor use.
Supply Connection .....:	USB connector
Protection Class.....:	III
Degree of protection .....:	IP44
Blue Light Risk Group.....:	RG0
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 .....:	See below
Date of receipt of test item.....:	2023-12-19
Date (s) of performance of tests .....:	2023-12-19 to 2024-01-26

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Clause numbers between brackets refer to clauses in IEC 60598-1

Name and address of factory (ies).....:	Foshan Glory Lighting Co., Ltd. No.1 Cangsha West Road, 528329, Foshan, Guangdong, PEOPLE'S REPUBLIC OF CHINA

General product information and other remarks:

The manufacturer/ Importer has to ensure the appliance placing on the EU market conforms to the applicable EU directives which provide the affixing of the CE marking, such as LVD, EMC, RoHS, ErP, and so on.

According to the EU directives which have been aligned with EU NLF (new legislative framework), both of manufacturer and importer's name and address shall be affixed on the product or, where that is not possible, on its packaging or in a document accompanying the product before the product is placed on the EU market.

According to the German product safety law (ProdSG), the name and address of manufacturer (an EU-based importer or authorized representative if the manufacturer is not based in EU) shall be affixed on the product or, where that is not possible, on its packaging or in a document accompanying the product before the product is placed on the EU market.

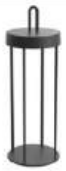
The portable luminaires for indoor and outdoor use.

While use USB cord charge, it needs to charge indoor.

The portable luminaires are not suitable for handheld.

The product shall be charged by a SELV adaptor with output 5V/1A.

Model list:

Model no.		Size	Weight (kg)	Photo
TL-RL-1001-3000mAh	TL-RL-1001-2000mAh	Æ128*H280	0.8245	 ABS + metal base
TL-RL-1002-3000mAh	TL-RL-1002-2000mAh	Æ128*H500	0.954	
TL-RL-1003-3000mAh	TL-RL-1003-2000mAh	Æ128*H366	0.79	 ABS + metal base
TL-RL-1004-3000mAh	TL-RL-1004-2000mAh	Æ130*H298	1.014	 ABS + metal base
TL-RL-1006-3000mAh	TL-RL-1006-2000mAh	Æ129*H266	0.36	 ABS + metal base
TL-RL-1007-3000mAh	TL-RL-1007-2000mAh	Æ128*H285	0.39	 ABS + metal base

TL-RL-1008-3000mAh	TL-RL-1008-2000mAh	Æ128*H285	0.726	 ABS + Cork base
TL-RL-1009-3000mAh	TL-RL-1009-2000mAh	Æ250*H215	0.4965	 ABS + Bamboo shade
TL-RL-1010-3000mAh	TL-RL-1010-2000mAh	Æ360*H330	0.54	
TL-RL-1011-3000mAh	TL-RL-1011-2000mAh	Æ460*H375	0.60	
TL-RL-1012-3000mAh	TL-RL-1012-2000mAh	Æ152*H198	1.598	 ABS + Glass shade
TL-RL-1013-3000mAh	TL-RL-1013-2000mAh	130*130*H388	0.744	 ABS + metal base
TL-RL-1014-3000mAh	**TL-RL-1014-2000mAh**	130*130*H500	1.112	
TL-RL-1015-3000mAh	TL-RL-1015-2000mAh	Æ180*H1400	2.4	 ABS + metal base
TL-RL-1016-3000mAh	TL-RL-1016-2000mAh	148*128*H125	0.2485	 ABS+ metal hanging hook
TL-RL-1017-3000mAh	TL-RL-1017-2000mAh	190*128*H85	0.3065	 ABS + metal hanging pole

TL-RL-1018-3000mAh	TL-RL-1018-2000mAh	190*128*H85	0.2255	 ABS + wood hanging pole
TL-RL-1019-3000mAh	TL-RL-1019-2000mAh	148*128*H192	0.295	 ABS + metal support
TL-RL-1020-3000mAh	TL-RL-1020-2000mAh	150*130*H426	0.80	 ABS + metal hanging hook +metal base
TL-RL-1021-3000mAh	TL-RL-1021-2000mAh	150*130*H538	1.1675	
TL-RL-1022-3000mAh	TL-RL-1022-2000mAh	Æ128*H86.5	0.1935	 ABS

Remark:

1. The apperance color for all models can be: black, green, army green, purple, red, grey, white, milky white.
2. Models TL-RL-1004-3000mAh, TL-RL-1012-3000mAh, TL-RL-1015-3000mAh, TL-RL-1004-2000mAh, TL-RL-1012-2000mAh, TL-RL-1015-2000mAh are not suitable for hanging.
3. For models with suffix '3000mAh', the rechargeable battery: Li-ion, 2*1500mAh
   For models with suffix '2000mAh', the rechargeable battery: Li-ion, 2000mAh.
4. For TL-RL-1012-3000mAh, TL-RL-1012-2000mAh, no other things are allowed in the glass shade, otherwise it will affect the stability.

Model TL-RL-1022-3000mAh was chosen as representative model to perform blue light risk test.
Models TL-RL-1001-3000mAh to TL-RL-1015-3000mAh, TL-RL-1001-2000mAh to TL-RL-1015-2000mAh were chosen to perform stability test.
Unless otherwise specified, models TL-RL-1012-3000mAh and TL-RL-1014-2000mAh were chosen to perform all other tests.

IEC 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict

4.4 (0)	**GENERAL TEST REQUIREMENTS**		¾
4.4 (0.3)	More sections applicable .....:	Yes ☐ No ☒	¾
4.4 (0.5)	Components	below	¾
4.4 (0.7)	**Information for luminaire design in light sources standards**		¾
4.4 (0.7.2)	Light source safety standard .....:	IEC/EN IEC 62031	¾
	Luminaire design in the light source safety standard		P

4.5 (2)	**CLASSIFICATION OF LUMINAIRES**		¾
4.5 (2.2)	Type of protection .....:	Class III	P
4.5 (2.3)	Degree of protection.....:	IP44	¾
4.5 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces .....:	Yes ☒ No ☐	
4.5 (2.5)	Luminaire for normal use .....:	Yes ☒ No ☐	¾
	Luminaire for rough service .....:	Yes ☐ No ☒	¾
4.5.1 (-)	Ordinary luminaire classified “for indoor use only”...:	Yes ☐ No ☒	¾
	Luminaires other than ordinary classified “for indoor use only”.....:	Yes ☐ No ☒	¾
	Luminaires other than ordinary classified for “outdoor use” and “for indoor use”.....:	Yes ☒ No ☐	¾
4.5.2 (-)	Portable luminaire for outdoor use classified IPX4 or higher	IP44	P
4.5.3 (-)	Luminaires designed for standing on a floor or table classified as suitable for direct mounting on normally flammable surfaces		P

4.6 (3)	**MARKING**		¾
4.6 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
4.6 (3.3)	Additional information		P
	Language of instructions	Germany and English	P
4.6 (3.3.1)	Combination luminaires		N/A
4.6 (3.3.2)	Nominal frequency in Hz		N/A
4.6 (3.3.3)	Operating temperature		N/A
4.6 (3.3.5)	Wiring diagram		N/A
4.6 (3.3.6)	Special conditions		N/A

IEC 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict
4.6 (3.3.7)	Metal halide lamp luminaire – warning		N/A
4.6 (3.3.8)	Limitation for semi-luminaires		N/A
4.6 (3.3.9)	Power factor and supply current		N/A
4.6 (3.3.10)	Suitability for use indoors		N/A
4.6 (3.3.11)	Luminaires with remote control		N/A
4.6 (3.3.12)	Clip-mounted luminaire – warning		N/A
4.6 (3.3.13)	Specifications of protective shields		N/A
4.6 (3.3.14)	Symbol for nature of supply	⎓	P
4.6 (3.3.15)	Rated current of socket outlet		N/A
4.6 (3.3.16)	Rough service luminaire		N/A
4.6 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		N/A
4.6 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
4.6 (3.3.19)	Protective conductor current in instruction if applicable		N/A
4.6 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
4.6 (3.3.21)	Non replaceable and non-user replaceable light sources information provided	Non replaceable light sources	P
4.6 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
4.6 (3.3.23)	Luminaires without controlgear provided with necessary information for selection of appropriate component		P
4.6 (3.3.24)	If not supplied with terminal block, information on the packaging		N/A
4.6 (3.3.25)	Luminaires employing light sources emitting UV on mains wiring, information provided		N/A
4.6 (3.3.26)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided		N/A
4.6 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
4.6.1 (-)	Luminaire not suitable for outdoor application		N/A
	Required symbol		N/A
	Information in the instructions		N/A
4.6.2 (-)	Outdoor use, socket outlet incorporated in the luminaire		N/A

IEC 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict
	Maximum power rating marked		N/A
	Position of the marking		N/A
4.7 (4)	**CONSTRUCTION**		—
4.7 (4.2)	Components replaceable without difficulty		N/A
4.7 (4.3)	Wireways smooth and free from sharp edges		P
4.7 (4.4)	**Lampholders**		N/A
4.7 (4.4.1)	Integral lampholder		N/A
4.7 (4.4.2)	Wiring connection		N/A
4.7 (4.4.3)	Lampholder for end-to-end mounting		N/A
4.7 (4.4.4)	Positioning		N/A
	- pressure test (N) .....:		—
	After test the lampholder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N/A
	- bending test (N) .....:		—
	After test the lampholder has not moved from its position and show no permanent deformation		N/A
4.7 (4.4.5)	Peak pulse voltage		N/A
4.7 (4.4.6)	Centre contact		N/A
4.7 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
4.7 (4.4.8)	Lamp connectors		N/A
4.7 (4.4.9)	Caps and bases correctly used		N/A
4.7 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N/A
4.7 (4.5)	**Starter holders**		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
4.7 (4.6)	**Terminal blocks**		N/A
	Tails		N/A
	Unsecured blocks		N/A
4.7 (4.7)	**Terminals and supply connections**		**P**
4.7 (4.7.1)	Contact to metal parts		N/A
4.7 (4.7.2)	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A

IEC 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict
4.7 (4.7.3)	Terminals for supply conductors		P
4.7 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A
	- electrical test according to 15.6.3		N/A
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N/A
4.7 (4.7.4)	Terminals other than supply connection		P
4.7 (4.7.5)	Heat-resistant wiring/sleeves		N/A
4.7 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
4.7 (4.8)	**Switches**		P
	- adequate rating		P
	- adequate fixing		P
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches	The dimming switch was tested in appliance for 10000 cycles endurance test according to IEC 61058-1:2000; IEC 61058-1:2000/AMD1:2001; IEC 61058-1:2000/AMD2:2007 and EN 61058-1:2002+A2:2008 and found to comply with this requirement.	P
4.7 (4.9)	**Insulating lining and sleeves**		N/A
4.7 (4.9.1)	Retainment		N/A
	Method of fixing.....:		N/A
4.7 (4.9.2)	Insulated linings and sleeves:		N/A
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C).....:		N/A
4.7 (4.10)	**Double or reinforced insulation**		N/A
4.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A

IEC 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict
	Capacitors and switches		N/A
4.7 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
4.7 (4.10.3)	Retainment of insulation:		N/A
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
4.7 (4.10.4)	Protective impedance device		N/A
	Basic and supplementary insulation bridged by resistor(s) or appropriate capacitor		N/A
	Double or reinforced insulation bridged by at least two separate resistors in series or appropriate capacitor(s)		N/A
	Capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.2 of IEC 60065		N/A
4.7 (4.11)	**Electrical connections and current-carrying parts**		**P**
4.7 (4.11.1)	Contact pressure		P
4.7 (4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
4.7 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
4.7 (4.11.4)	Material of current-carrying parts		P
4.7 (4.14.7)	No contact to wood or mounting surface		P
4.7 (4.14.7)	Electro-mechanical contact systems		P
4.7 (4.12)	**Screws and connections (mechanical) and glands**		**P**
4.7 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part.....:	Screws fixing suspension rope: 0.5Nm	P

IEC 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict
	Torque test: torque (Nm); part.....:	For TL-RL-1002-3000mAh, TL-RL-1003-3000mAh, TL-RL-1011-3000mAh: Screws fixing metal base: 1.2Nm	P
	Torque test: torque (Nm); part.....:	For TL-RL-1006-3000mAh, TL-RL-1014-3000mAh: Screws fixing metal bracket: 1.2Nm	P
	Torque test: torque (Nm); part.....:	For TL-RL-1011-3000mAh: Screws for fixing metal bracket: 0.5Nm	P
4.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
4.7 (4.12.4)	Locked connections:		P
	- fixed arms; torque (Nm).....:	For TL-RL-1003-3000mAh, TL-RL-1005-3000mAh, TL-RL-1007-3000mAh, TL-RL-1008-3000mAh, TL-RL-1015-3000mAh (top part): 2.5Nm; For TL-RL-1015-3000mAh (middle pole): 5.0Nm	P
	- lampholder; torque (Nm).....:		N/A
	- push-button switches; torque 0,8 Nm.....:		N/A
4.7 (4.12.5)	Screwed glands; force (Nm).....:		N/A
4.7 (4.13)	**Mechanical strength**		**P**
4.7 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm).....:	LED cover: 0.35Nm	P
	- other parts; energy (Nm).....:	Metal enclosure, plastic enclosure, wood base, metal pole, metal base: 0.5Nm	P
	1) live parts		N/A
	2) linings		N/A
	3) protection		P
	4) covers		P
4.7 (4.13.2)	Metal parts have adequate mechanical strength		N/A
4.7 (4.13.3)	Straight test finger		N/A
4.7 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	d) for temporary installations and suitable for mounting on a stand		N/A
4.7 (4.13.6)	Tumbling barrel		N/A
4.7 (4.14)	**Suspensions, fixings and means of adjusting**		P
4.7 (4.14.1)	Mechanical load:		P
	A) four times the weight	Except for TL-RL-1004-3000mAh, TL-RL-1012-3000mAh, TL-RL-1015-3000mAh, TL-RL-1004-2000mAh, TL-RL-1012-2000mAh, TL-RL-1015-2000mAh	P
	B) torque 2,5 Nm		N/A
	C) bracket arm; bending moment (Nm) .....:		N/A
	D) load track-mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) .....:		N/A
	Metal rod. diameter (mm) .....:		N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
4.7 (4.14.2)	Load to flexible cables		N/A
	Mass (kg) .....:		—
	Stress in conductors (N/mm²) .....:		N/A
	Mass (kg) of semi-luminaire .....:		N/A
	Bending moment (Nm) of semi-luminaire .....:		N/A
4.7 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles.....:		N/A
	- strands broken .....:		N/A
	- electric strength test afterwards		N/A
4.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
4.7 (4.14.5)	Guide pulleys		N/A
4.7 (4.14.6)	Strain on socket-outlets		N/A
4.7 (4.15)	**Flammable materials**		**P**
	- glow-wire test 650°C.....:	below	P
	- spacing ³ 30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- no fiercely burning material		P
	- thermal protection		N/A
	- electronic circuits exempted		N/A
4.7 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
4.7 (4.16)	**Luminaires for mounting on normally flammable surfaces**		N/A
	No lamp control gear .....:	(compliance with Section 12)	N/A
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		N/A
4.7 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
4.7 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
4.7 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A
4.7 (4.17)	**Drain holes**		N/A
	Clearance at least 5 mm		N/A
4.7 (4.18)	**Resistance to corrosion**		P
4.7 (4.18.1)	- rust-resistance		N/A
4.7 (4.18.2)	- season cracking in copper		N/A
4.7 (4.18.3)	- corrosion of aluminium		P
4.7 (4.19)	Ignitors compatible with ballast		N/A
4.7 (4.20)	Rough service vibration		N/A
4.7 (4.21)	**Protective shield**		N/A
4.7 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
4.7 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
4.7 (4.21.3)	No direct path		N/A
4.7 (4.21.4)	Impact test on shield		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Glow-wire test on lamp compartment.....:	below	N/A
4.7 (4.22)	Attachments to lamps not cause overheating or damage		N/A
4.7 (4.23)	Semi-luminaires comply Class II		N/A
4.7 (4.24)	**Photobiological hazards**		**P**
4.7 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
4.7 (4.24.2)	Retinal blue light hazard		P
	Class of risk group assessed according to IEC/TR 62778 .....:	RG0	—
	Luminaires with E_{thr} :		N/A
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2...:		N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N/A
4.7 (4.25)	**Mechanical hazard**		**P**
	No sharp point or edges		P
4.7 (4.26)	**Short-circuit protection**		N/A
4.7 (4.26.1)	Adequate means of uninsulated accessible SELV or PELV parts		N/A
4.7 (4.26.2)	Short-circuit test with test chain according 4.26.3		N/A
	Supply source ES1 PSE		N/A
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
4.7 (4.27)	**Terminal blocks with integrated screwless protective earthing contacts**		N/A
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 W		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 W		N/A
	Voltage drop test, resistance < 0,05 W		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.7 (4.28)	**Fixing of thermal sensing control**		N/A
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		N/A
	Max. temperature on adhesive material (°C) .....:		—
	100 cycles between t_{min} and t_{max}		N/A
	Temperature sensing control still in position		N/A
4.7 (4.29)	**Luminaires with non-replaceable light source**		P
	Not possible to replace light source	Screws and screw poles for LED cover fixed by glue	P
	Live part not accessible after parts have been opened by hand or tools		N/A
4.7 (4.30)	**Luminaires with non-user replaceable light source**		N/A
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		N/A
	At least one fixing means requiring use of tool		N/A
4.7 (4.31)	**Insulation between circuits**		**P**
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
4.7 (4.31.1)	SELV or PELV circuits		P
	Used SELV or PELV source	Specified in user manual	P
	Voltage ≤ ELV		P
	Insulating of SELV or PELV circuits from LV supply		P
	Insulating of SELV or PELV circuits from other non SELV or PELV circuits		N/A
	Insulating of SELV or PELV circuits from FELV		N/A
	Insulating of SELV or PELV circuits from other SELV or PELV circuits		N/A
	SELV or PELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Socket outlets does not admit plugs of other voltage systems		P
	Plugs and socket-outlets does not have protective conductor contact		P
4.7 (4.31.2)	FELV circuits		N/A
	Used FELV source		N/A
	Voltage ≤ ELV		N/A
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets have protective conductor contact		N/A
4.7 (4.31.3)	Other circuits		N/A
	Other circuits insulated from accessible parts according Table X.1		N/A
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N/A
	- conductive parts are connected together		N/A
	- test according 7.2.3		N/A
	- conductive part does not cause an electric shock in case of an insulation fault		N/A
	- equipotential bonding in master/slave applications		N/A
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N/A
	- slave luminaire constructed as class I		N/A
4.7 (4.32)	**Overvoltage protective devices**		N/A
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
4.7 (4.33)	**Luminaire powered via information technology communication cabling**		P
	Requirements for Class III luminaire		P
	Rated voltage within the range of ES1 and does not exceed maximum voltage of used connector		P
	Luminaire does not create any hazard from overvoltage	(see Annex 2)	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.7 (4.34)	**Electromagnetic fields (EMF)**		**P**
	No harmful electromagnetic fields		P
4.7 (4.35)	**Protection against moving fan blades**		N/A
	Test with a standard test finger		N/A
	Test with test probe acc. to Figure 13 (IEC 61032) for portable luminaire		N/A
	Blades rounded with radius ≥ 0.5 mm and:		N/A
	- hardness less than D60 Shore		N/A
	- peripheral speed less than 15 m/s		N/A
	- input power of fan ≤ 2 W at rated voltage		N/A
4.7 (4.36)	**Track-mounted luminaires**		N/A
	Test in accordance with Annex A of IEC60570:2003/AMD2:2019		N/A
4.7.1 (-)	Insulation not damaged when moving, adjusting or placing on support		P
4.7.2 (-)	Wiring fixed, to avoid rubbing		N/A
	Carrier or clips of insulation material or with insulating lining		N/A
4.7.3 (-)	Luminaire does not overturn:		P
	- at an angle of 6° for indoor use		N/A
	- at an angle 15° for outdoor use		P
4.7.4 (-)	Candlestick luminaires provided with switch		N/A
	Switch in candlestick luminaires with E5 or E10 lampholders switches all lamps on and off simultaneously		N/A
	Switch part of the luminaire or within 300 mm of the luminaire if with cord		N/A
4.7.5 (-)	Voltage not exceeding 25 V for E5 lampholders		N/A
	E10 lampholder voltage:		N/A
	- not exceeding 60 V for series connection		N/A
	- not exceeding 250 V for parallel connection		N/A
	Maximum rated wattage does not exceed 100 W		N/A
4.7.6 (-)	Tails not provided for luminaires for outdoor use		N/A
4.7.7 (-)	Not more than two cable entries for luminaires for outdoor use		P
4.7.8 (-)	Portable luminaires for outdoor use, socket-outlet degree of protection at least same as the luminaire but not less than IPX4.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Degree of protection maintained with or without a plug inserted into the socket-outlet.		N/A
	Class II luminaires, mains socket-outlets comply with the standard and only allow connection to Class II luminaires		N/A
	Class I luminaires, mains socket-outlets comply with the standard and only allow connection to Class I or Class II luminaires		N/A
4.7.9 (-)	Lampholders and plugs resistant to tracking for luminaires for outdoor use	below	N/A
	Compliance to clause 13.4		N/A
4.8 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		¾
4.8 (11.2.1)	Impulse withstand category (Normal category II)	Category II ☒ Category III ☐	¾
	Category III according Annex U		N/A
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
4.8 (11.2.2)	Creepage distances for frequency up to 30 kHz	below	N/A
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with $\hat{U}_{OUT}$ and f_{UOUT} according IEC 61347-1, clause 7.1, item w	below	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	below	N/A
4.8 (11.2.3)	Clearances for frequency up to 30 kHz	below	N/A
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_P	below	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	below	N/A
4.9 (7)	**PROVISION FOR EARTHING**		¾
4.9 (7.2.1 + 7.2.3)	Accessible metal parts		N/A
	Metal parts in contact with supporting surface		N/A
	Resistance < 0,5 W.....:		N/A
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Protective earth makes contact first		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Terminal blocks with integrated screwless protective earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
4.9 (7.2.2 + 7.2.3)	Protective earthing continuity in joints, etc.		N/A
4.9 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A
4.9 (7.2.5)	Earth terminal integral part of connector socket		N/A
4.9 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
4.9 (7.2.7)	Electrolytic corrosion of the protective earth terminal		N/A
4.9 (7.2.8)	Material of protective earth terminal		N/A
	Contact surface bare metal		N/A
4.9 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
4.9 (7.2.11)	Protective earthing core coloured green-yellow		N/A
	Length of protective earthing conductor		N/A
4.9 (7.2.12)	PELV circuit connected to protective earth for functional purpose		N/A
4.10 (14)	**SCREW TERMINALS**		¾
	Separately approved; component list.....:	See Annex 1	N/A
	Part of the luminaire .....:	below	N/A
4.10 (15)	**SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS**		¾
	Separately approved; component list.....:	See Annex 1	N/A
	Part of the luminaire .....:	below	N/A
4.11 (5)	**EXTERNAL AND INTERNAL WIRING**		¾
4.11 (5.2)	**Supply connection and external wiring**		**P**
4.11 (5.2.1)	Means of connection.....:	USB connector	P
	Outdoor luminaire has not PVC insulated external wiring if not Class III or SELV/PELV circuits ≤ 25 V AC/60 V DC/25 V peak interrupted DC voltage with frequency 10Hz -200 Hz or protected from outdoor environment		N/A
4.11 (5.2.2)	Type of cable.....:	See Annex 1	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Nominal cross-sectional area (mm²).....:	See Annex 1	P
	Cables equal to IEC 60227 or IEC 60245		N/A
4.11 (5.2.3)	Type of attachment, X, Y or Z		N/A
4.11 (5.2.5)	Type Z not connected to screws		N/A
4.11 (5.2.6)	Cable entries:		N/A
	- suitable for introduction		N/A
	- adequate degree of protection		N/A
4.11 (5.2.7)	Cable entries through rigid material have rounded edges		N/A
4.11 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
4.11 (5.2.9)	Locking of screwed bushings		N/A
4.11 (5.2.10)	Cord anchorage:		N/A
	- covering protected from abrasion		N/A
	- clear how to be effective		N/A
	- no mechanical or thermal stress		N/A
	- no tying of cables into knots etc.		N/A
	- insulating material or lining		N/A
4.11 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A
	d) whole cable can be mounted		N/A
	e) no touching of clamping screws		N/A
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		N/A
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
4.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
4.11 (5.2.10.3)	Tests:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- impossible to push cable; unsafe		N/A
	- pull test: 25 times; pull (N) .....:		N/A
	- torque test: torque (Nm).....:		N/A
	- displacement £ 2 mm		N/A
	- no movement of conductors		N/A
	- no damage of cable or cord		N/A
	- function independent of electrical connection		N/A
4.11 (5.2.10.4)	Luminaire with/designed for use with supply cord with maximum current of 2A:		N/A
	- Ordinary Class III luminaire supplied with SELV ≤ 25V RMS/60V DC		N/A
	- Ordinary Class III luminaire supplied with PELV ≤ 12V RMS/30V DC		N/A
	- Other than ordinary Class III luminaire supplied with voltage ≤ 12V RMS/30V DC		N/A
	Pull test of 30 N		N/A
4.11 (5.2.11)	External wiring passing into luminaire		N/A
4.11 (5.2.12)	Looping-in terminals		N/A
4.11 (5.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
4.11 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		P
	No unsafe compatibility		P
4.11 (5.2.15)	Connectors for Class III luminaires (IEC 60603 or IEC 62680)		P
4.11 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Appliance inlet or connector systems (IEC 61984)		N/A
4.11 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
4.11 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

4.11 (5.3)	**Internal wiring**		**P**
4.11 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A).....:		N/A
	- temperatures.....:	below	N/A
	Green-yellow for protective earth only		N/A
4.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N/A
	Cross-sectional area (mm²) .....:		N/A
	Insulation thickness (mm) .....:		N/A
	Extra insulation added where necessary		N/A
4.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Cross-sectional area (mm²) .....:	see Annex 1	P
4.11 (5.3.1.3)	Double or reinforced insulation for class II		N/A
4.11 (5.3.1.4)	Conductors without insulation		N/A
4.11 (5.3.1.5)	SELV or PELV current-carrying parts		P
4.11 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
4.11 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		P
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		P
4.11 (5.3.3)	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
4.11 (5.3.4)	Joints and junctions effectively insulated		N/A
4.11 (5.3.5)	Strain on internal wiring		N/A
4.11 (5.3.6)	Wire carriers		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.11 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		P
4.11 (5.4)	**Test to determine suitability of conductors having a reduced cross-sectional area**		P
	Under test the temperature of the luminaire wiring insulation does not exceed the limits stated in Table 12.2	Max. 28.9°C (Limit: 80°C)	P
	No damage to luminaire wiring after test		P
4.11.1 (-)	Cord anchorage of luminaire for indoor use made of glass or ceramic not fixed or integral		N/A
4.11.2 (-)	For Class I and Class II luminaires for indoor use, if:		N/A
	- mass < 1 kg (kg).....:		N/A
	- rated current ≤ 2,5 A (A).....:		N/A
	- cable length ≤ 2 m (m).....:		N/A
	- the nominal cross-sectional area of copper conductor ≥ 0,5 mm² (mm²).....:		N/A
4.11.3 (-)	Terminals, cord anchorage and inlet opening provided for luminaire for outdoor use delivered without a flexible cable or cord and a plug.		N/A
4.11.4 (-)	Non-detachable flexible cables or cords not lighter than type 245 IEC 57 for Class I and Class II luminaires for outdoor use.		N/A
4.12 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		¾
4.12 (8.2.1)	Live parts not accessible		N/A
	Basic insulated parts not used on the outer surface without appropriate protection		N/A
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		N/A
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		N/A
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N/A
	Protection in any position		N/A
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Double-ended high-pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
4.12 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
4.12 (8.2.3.a)	Class II luminaire:		N/A
	- basic insulated metal parts not accessible		N/A
	- required insulation from live parts in compliance with Table X.1		N/A
	- glass protective shields not used as supplementary insulation		N/A
4.12 (8.2.3.b)	Metal BC lampholder in class I luminaires connected to protective earth		N/A
4.12 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V) .....:		N/A
	- voltage under load/ no-load DC (V).....:		N/A
	- interrupted DC voltage (V) .....:		N/A
	- touch current if applicable (mA) .....:		N/A
	One conductive part insulated		N/A
	Other than ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V) .....:		N/A
	- voltage under load/ no-load DC (V).....:		N/A
	- interrupted DC voltage (V) .....:		N/A
4.12 (8.2.3.d)	PELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V) .....:		N/A
	- voltage under load/ no-load DC (V).....:		N/A
	Other than ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V) .....:		N/A
	- voltage under load/ no-load DC (V).....:		N/A
	Pole not connected to earth insulated		N/A
	Class III luminaire only for connection to SELV or PELV		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.12 (8.2.4)	Portable luminaire has protection independent of supporting surface		N/A
4.12 (8.2.5)	Compliance with the standard test finger or relevant probe		N/A
4.12 (8.2.6)	Covers reliably secured		N/A
4.12 (8.2.7)	Luminaire other than below with capacitor > 0,5 mF not exceed 50 V 1 min after disconnection		N/A
	Portable luminaire with capacitor > 0,1 mF (0,25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 mF (0,25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A
4.12 (-)	Class I luminaire with bayonet lampholder:		N/A
	1) cap not accessible with test finger		N/A
	2) metal lampholder is earthed		N/A
4.13 (12)	**ENDURANCE TEST AND THERMAL TEST**		¾
4.13 (-)	If IP > IP 20 relevant test of (12.4), (12.5), (12.6) and (12.7) after (9.2) but before (9.3) specified in 4.14		¾
4.13 (12.2)	**Selection of lamps and ballasts**		¾
	Lamp used according Annex B	(Lamp used see below)	¾
	Controlgear if separate and not supplied	(Controlgear used see below)	¾
4.13 (12.3)	**Endurance test**		**P**
	a) mounting-position .....:	As normal use	¾
	b) test temperature (°C).....:	35	¾
	c) total duration (h) .....:	168	¾
	d) supply voltage (V).....:	--	¾
	d) if not equipped with controlgear, constant voltage/current (V) or (A) .....:	--	¾
1.13 (12.3.1d)	d) Class III luminaires powered via information technology communication cable:		P
	- voltage under normal operation (V).....:	5.5VDC	¾
	- voltage under abnormal operation (V).....:	7.5VDC	
	e) luminaire ceases to operate		¾
	f) luminaire with a constant light output function		N/A
4.13 (12.3.2)	After endurance test:		P
	- no part unserviceable		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
4.13 (12.4)	**Thermal test (normal operation)**	(below)	P
4.13 (12.5)	**Thermal test (abnormal operation)**	(below)	P
4.13 (12.6)	**Thermal test (failed lamp control gear condition):**		N/A
4.13 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) .....:		¾
	- case of abnormal conditions .....:		¾
	- electronic lamp control gear		N/A
	- measured winding temperature (°C): at 1,1 Un ....:		¾
	- measured mounting surface temperature (°C) at 1,1 Un .....:		N/A
	- calculated mounting surface temperature (°C) .....:		N/A
	- track-mounted luminaires		N/A
4.13 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions .....:		¾
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C) .....:		N/A
	- track-mounted luminaires		N/A
4.13 (12.7)	**Thermal test (failed lamp control gear in plastic luminaires):**		N/A
4.13 (12.7.1)	Luminaire without temperature sensing control		N/A
4.13 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N/A
	Test method 12.7.1.1 or Annex W .....:		¾
	Test according to 12.7.1.1:		N/A
	- case of abnormal conditions .....:		¾
	- Ballast failure at supply voltage (V) .....:		¾
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/A

IEC 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict
	- case of abnormal conditions .....:		¾
	- measured winding temperature (°C): at 1,1 Un .....:		¾
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un .....:		¾
	- calculated temperature of fixing point/exposed part (°C) .....:		¾
	Ball-pressure test..... :	below	N/A
4.13 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/A
	- case of abnormal conditions .....:		¾
	- measured winding temperature (°C): at 1,1 Un .....:		¾
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un .....:		¾
	- calculated temperature of fixing point/exposed part (°C) .....:		¾
	Ball-pressure test.....:	below	N/A
4.13 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions .....:		¾
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
4.13 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link.....:	Yes ☐ No ☐	¾
	- manual reset cut-out.....:	Yes ☐ No ☐	¾
	- auto reset cut-out .....:	Yes ☐ No ☐	¾
	- case of abnormal conditions .....:		¾
	- highest measured temperature of fixing point/ exposed part (°C): .....:		¾
	Ball-pressure test:.....:	below	N/A
4.13 (-)	Luminaire for indoor use tested in overturned position (overturns < 15°)		N/A

4.14 (9)	**RESISTANCE TO DUST AND MOISTURE**		¾
4.14 (-)	If IP > IP 20 the order of tests as specified in clause 4.13		P
4.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP.....:	IP44	¾

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Clause	Requirement + Test	Result - Remark	Verdict
	- mounting position during test.....:	As in normal use	¾
	- fixing screws tightened; torque (Nm).....:	--	¾
	- tests according to clauses .....:	Clause 9.2.0 and 9.2.5	¾
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		N/A
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		P
	c.1) For luminaires without drain holes – no water entry		P
	c.2) For luminaires with drain holes – no hazardous water entry		N/A
	d) no water in watertight, pressure watertight, high pressure and temperature water jet-proof or high pressure and cold-water jet-proof luminaire		N/A
	e) no contact with live parts (IP 2X)		N/A
	e) no entry into enclosure (IP 3X and IP 4X)	IP44	P
	e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X)		N/A
	f) no trace of water on part of lamp requiring protection from splashing water		N/A
	g) no damage of protective shield or glass envelope		N/A
4.14 (9.3)	Humidity test 48 h	25°C; 93% R.H.	P

4.15 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		¾
4.15 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø :		N/A
	Insulation resistance (MW):		P
	SELV or PELV:		P
	- between current-carrying parts of different polarity:		N/A
	- between current-carrying parts and mounting surface.....:	100MW (required: 1MW)	P
	- between current-carrying parts and metal parts of the luminaire.....:	100MW (required: 1MW)	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....:		N/A

IEC 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict
	- Insulation bushings as described in Section 5 .....:		N/A
	Other than SELV or PELV:		N/A
	- between live parts of different polarity.....:		N/A
	- between live parts and mounting surface.....:		N/A
	- between live parts and metal parts.....:		N/A
	- between live parts of different polarity through action of a switch.....:		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....:		N/A
	- Insulation bushings as described in Section 5 .....:		N/A
4.15 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Luminaires with ignitors provided with ballasts conforming to IEC 61347-2-9		N/A
	SELV or PELV:		P
	- between current-carrying parts of different polarity:		N/A
	- between current-carrying parts and mounting surface .....:	500V	P
	- between current-carrying parts and metal parts of the luminaire.....:	500V	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....:		N/A
	- Insulation bushings as described in Section 5 .....:		N/A
	Other than SELV/PELV:		N/A
	- between live parts of different polarity.....:		N/A
	- between live parts and mounting surface.....:		N/A
	- between live parts and metal parts.....:		N/A
	- between live parts of different polarity through action of a switch.....:		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....:		N/A
	- Insulation bushings as described in Section 5 .....:		N/A
4.15 (10.3)	Touch current (mA).....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Protective conductor current (mA).....:		N/A

4.16 (13)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		¾
4.16 (13.2.1)	Ball-pressure test.....:	below	N/A
4.16 (13.3.1)	Needle-flame test (10 s) .....:	below	P
4.16 (13.3.2)	Glow-wire test (650°C).....:	below	N/A
4.16 (13.4)	Proof tracking test (IEC 60112).....:	below	N/A

above	**TABLE I: Creepage distances and clearances**						N/A
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages						
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2* and Table U.1*						
Distances	**Insulation type ****	**Measured clearance**	**Required**		**Measured creepage**	**Required**	
			clearance	***Table**		**creepage**	***Table**
Distance 1:	--	--	--	--	--	--	--
Working voltage (V) .....:					See below		¾
PTI .....:					< 600 ☒ ≥ 600 ☐		¾
Pulse voltage or U_P if applicable (kV) .....:					--		¾
Supplementary information: No values are specified for working voltages below 60VDC as the test voltage of 500V is considered sufficient							
** Insulation type: B – Basic; S – Supplementary; R – Reinforced. See also IEC 60598-1 Annex M.							

above	**TABLE II: Creepage distances and clearances**						N/A
	Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages						
	Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2						
Distances	**Insulation type ****	**Measured clearance**	**Required**		**Measured creepage**	**Required**	
			clearance	***Table**		**creepage**	***Table**
Distance 1:	--	--	--	--	--	--	--
Working voltage (V) .....:					--		¾
Frequency if applicable (kHz).....:					--		¾
PTI .....:					< 600 ☐ ≥ 600 ☐		¾
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....:					--		¾
Supplementary information: --							
** Insulation type: B – Basic; S – Supplementary; R – Reinforced.							

IEC 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict

above	**TABLE: Ball Pressure Test of Thermoplastics**			**N/A**
Allowed impression diameter (mm) .....:		**2**		¾
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Supplementary information: --				

above	**TABLE: Needle-flame test (IEC 60695-11-5)**				**P**
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
USB connector	Zhongshan Chenhui	10	No	0	PASS
Plastic of DC connector	Dongguan Jingwei plastic Raw material Co., Ltd.	10	No	0	PASS
Supplementary information: --					

above	**TABLE: Glow-wire test (IEC 60695-2-11)**			**P**
Glow wire temperature .....:	650°C			¾
Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Plastic enclosure	CHIMEI Corporation	No	0	PASS
LED cover	Ningbo Lejin Yongxing chemical co., ltd.	No	0	PASS
Supplementary information:				

above	**TABLE: Proof tracking test (IEC 60112)**				**N/A**
Test voltage PTI .....:	175 V				¾
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
Supplementary information:					

IEC 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 1	TABLE: Critical components information	P

Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
USB connector (Type A)	B	Zhongshan Chenhui	Type A	Cu>58%; PVC	IEC/EN IEC 60598-1 IEC/EN 60598-2-4	Tested with appliance#
USB connector (Type C-plug&inlet)	B	Zhongshan Chenhui	Type C	Cu>58%; PVC	IEC/EN IEC 60598-1 IEC/EN 60598-2-4	Tested with appliance#
USB cord	B	ZHONGSHAN RUITIAN WIRE & CABLE CO LTD	2464	300V; 80°C; 24AWG	UL 758+ IEC/EN IEC 60598-1 IEC/EN 60598-2-4	UL E318425* + Tested with appliance#
DC connector for battery/dimming switch (plug/inlet)	B	Wenzhou JKUN Connector Co Ltd	A2001; A1501; A1251	5VDC; 2A; Cu> 58%	IEC/EN IEC 60598-1 IEC/EN 60598-2-4	Tested with appliance#
-Plastic	B	Dongguan Jingwei plastic Raw material Co., Ltd.	--	LCP	IEC/EN IEC 60598-1 IEC/EN 60598-2-4	Tested with appliance#
Battery for models with suffix '3000mAh'	B	Chongqing Jiabaocheng Energy Technology Co., Ltd.	JBC 103048PL	Li-ion; 3.7V; 1500mAH; 5.55Wh; Charging temperature: 10 to 45°C; discharging temperature: -10 to 60°C	IEC/EN 62133-1	PTC CNAS report: PTC23112712602S-IE01*
Battery for models with suffix '2000mAh'	B	Chongqing Jiabaocheng Energy Technology Co., Ltd.	JBC 103450PL	Li-ion; 3.7V; 2000mAH; 7.4Wh; Charging temperature: 10 to 45°C; discharging temperature: -10 to 60°C	IEC/EN 62133-1	PTC CNAS report: PTC23112712603S-IE01*
Battery wire	B	Dongguan Shouyi Wire and Cable Co Ltd	1007	300V; 80°C; 24AWG	UL 758+ IEC/EN IEC 60598-1 IEC/EN 60598-2-4	UL E469565* + Tested with appliance#

IEC 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Alt.	B	ZHONGSHAN COLON ELECTRICAL TECHNOLOGY CO., LTD	1007	300V; 80°C; 24AWG	UL 758+ IEC/EN IEC 60598-1 IEC/EN 60598-2-4	UL E256599* + Tested with appliance#
Dimming wire	B	Dongguan Shouyi Wire and Cable Co Ltd	1007	300V; 80°C; 24AWG	UL 758+ IEC/EN IEC 60598-1 IEC/EN 60598-2-4	UL E469565* + Tested with appliance#
Alt.	B	ZHONGSHAN COLON ELECTRICAL TECHNOLOGY CO., LTD	1007	300V; 80°C; 24AWG	UL 758+ IEC/EN IEC 60598-1 IEC/EN 60598-2-4	UL E256599* + Tested with appliance#
LED	B	Xiamen Dacol Photoelectronics Technology Co., Ltd.	TOP 2835 & White	I_F:60mA; V_F:3.2V; CCT:2700-3000K; View angle:120°	IEC TR 62778	Tested with appliance#
LED module PCB	B	KUNSHAN JINPENG ELECTRONICS CO LTD	JP-1	V-0; 130°C	UL 94+ IEC/EN IEC 60598-1 IEC/EN 60598-2-4	UL E306084* + Tested with appliance#
LED cover	B	CHIMEI Corporation	PC-110	PC	IEC/EN IEC 60598-1 IEC/EN 60598-2-4	Tested with appliance#
Plastic enclosure	B	Ningbo Lejin Yongxing chemical co., ltd.	HI-121H	ABS	IEC/EN IEC 60598-1 IEC/EN 60598-2-4	Tested with appliance#

Supplementary information:

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

The codes above have the following meaning:

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

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

C - Integrated component tested together with the appliance

D - Alternative component

* License available upon request.

Please refer TRF for the test standard publication year.

IEC 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12		P
	Type reference..... :	TL-RL-1012-3000mAh	¾
	Lamp used..... :	LED	¾
	Lamp control gear used..... :	--	¾
	Mounting position of luminaire..... :	As normal use	¾
	Supply wattage (W) ..... :	2.15W [5VDC]	¾
	Supply current (A) ..... :	0.430A [5VDC]	¾
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :	25°C	¾
	- abnormal operating mode..... :	150 % of the rated input voltage of the luminaire at the input USB port	¾
4.13 (12.4)	- test 1: rated voltage	--	¾
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	A: 1.06*5=5.3VDC B: Fully charged battery discharge	¾
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage..... :	--	¾
	Through wiring or looping-in wiring loaded by a current of A during the test ..... :	--	¾
4.13 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current or 130/150% of rated input voltage..... :	1.5*5=7.5VDC	¾

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal					Cl. 12.5 – abnor.	
		test 1	test 2		test 3	limit	test 4	limit
			A	B				
USB cord	25	--	54.7	42.7	--	80	--	--
USB connector (Type C)	25	--	56.6	44.7	--	Ref.	--	--
LED module PCB	25	--	35.4	68.1	--	130	--	--
DC connector for battery (BAT1/BAT2)	25	--	43.1	44.9	--	Ref.	--	--
Inner wire for battery (near LED module)	25	--	39.1	41.5	--	80	--	--
Inner wire for battery (near battery)	25	--	36.4	41.6	--	80	--	--
Battery surface	25	--	32.4	48.7	--	Charge:	--	--

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Clause	Requirement + Test	Result - Remark	Verdict

Battery ambient	25	--	32.2	45.1	--	45 Discharge: 60	--	--
DC connector for touch switch (CN1)	25	--	31.6	46.5	--	Ref.	--	--
Inner wire for touch switch	25	--	29.0	36.9	--	80	--	--
Touch switch surface (outside)	25	--	27.3	31.1	--	75	--	--
LED cover	25	--	33.1	41.6	--	Ref.	--	--
Plastic enclosure near battery outside	25	--	31.1	40.4	--	90	--	--
Metal bracket	25	--	27.3	36.1	--	90	--	--
Mounting surface	25	--	27.0	27.3	--	90	28.2	130

Supplementary information:

1. Max. temperatures were recorded.

2. 11 of ANNEX B of IEC/EN 60335-1 was considered and fulfilled.

a) The battery was charged for 24h;

b) the battery was being initially discharged to such an extent that the appliance cannot operate, and the appliance was normal operation.

3. For test 2:

A: battery charge voltage: 3.15V (Specification:3.0-4.2V), current: 0.197A (Specification: 0.075-1.5A).

B: battery discharge voltage: 4.081V (Specification: 3.0-4.2V), current: 0.314A (Specification: 0.00003-1.5A).

	Type reference ..... :	TL-RL-1014-2000mAh	¾
	Lamp used ..... :	LED	¾
	Lamp control gear used..... :	--	¾
	Mounting position of luminaire ..... :	As normal use	¾
	Supply wattage (W) ..... :	2.21W [5VDC]	¾
	Supply current (A) ..... :	0.442A [5VDC]	¾
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :	25°C	¾
	- abnormal operating mode..... :	150 % of the rated input voltage of the luminaire at the input USB port	¾
4.13 (12.4)	- test 1: rated voltage	--	¾
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	A: 1.06*5=5.3VDC B: Fully charged battery discharge	¾
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage..... :	--	¾
	Through wiring or looping-in wiring loaded by a current of A during the test ..... :	--	¾

IEC 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict

4.13 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current or 130/150% of rated input voltage ..... :	1.5*5=7.5VDC	¾

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal					Cl. 12.5 – abnor.	
		test 1	test 2		test 3	limit	test 4	limit
			A	B				
USB cord	25	--	59.2	39.8	--	80	--	--
USB connector (Type C)	25	--	61.7	41.9	--	Ref.	--	--
LED module PCB	25	--	37.3	60.3	--	130	--	--
DC connector for battery (BAT1/BAT2)	25	--	42.0	44.6	--	Ref.	--	--
Inner wire for battery (near LED module)	25	--	40.3	42.4	--	80	--	--
Inner wire for battery (near battery)	25	--	32.8	39.3	--	80	--	--
Battery surface	25	--	33.2	42.4	--	Charge: 45	--	--
Battery ambient	25	--	33.4	42.7	--	Discharge: 60	--	--
Plastic enclosure near battery outside	25	--	31.5	37.8	--	90	--	--
Metal pole	25	--	26.9	35.8	--	90	--	--
Mounting surface	25	--	26.1	26.3	--	90	28.0	130

Supplementary information:

1. Max. temperatures were recorded.

2. 11 of ANNEX B of IEC/EN 60335-1 was considered and fulfilled.

a) The battery was charged for 24h;

b) the battery was being initially discharged to such an extent that the appliance cannot operate, and the appliance was normal operation.

3. For test 2:

A: battery charge voltage: 3.26V (Specification:3.0-4.2V), current:0.431A (Specification:0.1-2.4A).

B: battery discharge voltage: 4.042V (Specification:3.0-4.2V), current: 0.510A (Specification:0.00004-1A).

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 3	**Screw terminals (part of the luminaire)**		N/A
(14)	**SCREW TERMINALS**		N/A
(14.2)	Type of terminal.....:		¾
	Rated current (A).....:		¾
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm^2) .....:		¾
(14.3.3)	Conductor space (mm) .....:		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread).....:	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm).....:		N/A
	Torque (Nm).....:		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N).....:		N/A
(14.4.8)	Without undue damage		N/A

IEC 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 4	**Screwless terminals (part of the luminaire)**		N/A
(15)	**SCREWLESS TERMINALS**		N/A
(15.2)	Type of terminal.....:		¾
	Rated current (A).....:		¾
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5)	Terminals and connections for internal wiring		N/A
(15.5.1)	Mechanical tests		N/A
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples).....:		N/A
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples) .....:		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples).....:		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		¾
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples) .....:		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples) .....:		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A
15.6.2	Mechanical tests		N/A

IEC 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....:		N/A
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N) .....:		N/A
(15.6.3)	Electrical tests		N/A
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N/A

(15.6.3.1) (15.6.3.2)	**TABLE: Contact resistance test / Heating tests**										N/A
	Voltage drop (mV) after 1 h										¾
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--	
	Voltage drop of two inseparable joints										
	Voltage drop after 10th alt. 25th cycle										
	Max. allowed voltage drop (mV)..... :										¾
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--	
	Voltage drop after 50th alt. 100th cycle										N/A
	Max. allowed voltage drop (mV)..... :										¾
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--	
	Continued ageing: voltage drop after 10th alt. 25th cycle										N/A
	Max. allowed voltage drop (mV)..... :										¾
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--	
	Continued ageing: voltage drop after 50th alt. 100th cycle										N/A
	Max. allowed voltage drop (mV)..... :										¾
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--	
Supplementary information:--											

IEC60598_2_4I - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT **IEC 60598-2-4** **EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES** Luminaires Part 2: Particular requirements Section 4: Portable general purpose luminaires			
Differences according to .....:	EN 60598-2-4:2018 used in conjunction with EN IEC 60598-1:2021 + A11:2022		
TRF template used ..... :	IECEE OD-2020-F2:2020, Ed. 1.1		
Attachment Form No. .....:	EU_GD_IEC60598_2_4I_II		
Attachment Originator.....:	IMQ S.p.A.		
Master Attachment .....:	Dated 2022-07-01		
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	CENELEC COMMON MODIFICATIONS (EN)		—

4.6 (3)	**MARKING**		—
(3.2.12)	Delete the note 4		N/A

4.7 (4)	**CONSTRUCTION**		—
4.7 (4.11.6)	Electro-mechanical contact systems: electric strength test at 1 500 V		N/A

4.11 (5)	**EXTERNAL AND INTERNAL WIRING**		—
4.11 (5.2.2)	Cables equal to EN 50525		N/A
4.11 (5.2.2)	Delete paragraph 2		N/A
	Replace table 5.1 – Supply cord		N/A
4.11.4 (-)	For class I and class II portable luminaires for outdoor use, non-detachable flexible cables or cords not lighter than type H05RN-F		N/A

IEC60598_2_4I - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.13 (12)	**ENDURANCE TESTS AND THERMAL TESTS**		—
4.13 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		P

ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		—
(3.3)	DK: power supply cords of class I luminaires with label		N/A
(5.2.18)	DK: socket-outlets		N/A
(5.2.1)	CY, DK, FI, GB: type of plug		N/A
4.4.4 (-)	DK: luminaires for outdoor use classified as class II or class III		N/A

ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		—
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N/A
	FR: Safety requirements for high buildings (Arrêté du 30 décembre 2011 portant règlement de sécurité pour la construction des immeubles de grande hauteur et leur protection contre les risques d'incendie et de panique; Section VIII; Article GH 48, Eclairage) Glow-wire test for outer parts of luminaires:		N/A
	- 850°C for luminaires in stairways and horizontal travel paths		N/A
	- 650°C for indoor luminaires		N/A
	GB: Requirements according to United Kingdom Building Regulation		N/A

Attachment No. 2

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

Report Number..... :	68.140.23.0885.01
Date of issue ..... :	See main report of IEC 60598-2-4
Total number of pages.....	20
Name of Testing Laboratory preparing the Report..... :	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Applicant's name..... :	See main report of IEC 60598-2-4
Address..... :	See main report of IEC 60598-2-4
Test specification:	
Standard..... :	IEC 62031:2018
Test procedure..... :	See main report of IEC 60598-2-4
Non-standard test method..... :	N/A
Test Report Form No. ..... :	IEC62031F
Test Report Form(s) Originator.... :	Intertek Semko AB
Master TRF..... :	2018-06-14

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Only the version on the IECEE Website is the current document version

Test item description..... :		LED module	
Trade Mark..... :		See main report of IEC 60598-2-4	
Manufacturer..... :		See main report of IEC 60598-2-4	
Model/Type reference..... :		See main report of IEC 60598-2-4	
Ratings..... :		See main report of IEC 60598-2-4	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**Testing Laboratory:**	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch	
Testing location/ address.....:		Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China	
Tested by (name, function, signature).....:		See main report of IEC 60598-2-4	
Approved by (name, function, signature)...:		See main report of IEC 60598-2-4	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address.....:			
Tested by (name + signature) .....:			
Witnessed by (name, function, signature)..:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Witnessed by (name, function, signature)..:			
Approved by (name, function, signature)...:			
Supervised by (name, function, signature) :			

List of Attachments (including a total number of pages in each attachment): See main report of IEC 60598-2-4.	
Summary of testing:	
Tests performed (name of test and test clause): See main report of IEC 60598-2-4.	**Testing location:** Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China
Summary of compliance with National Differences: See main report of IEC 60598-2-4.	

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

Test item particulars .....:	LED module
Classification of installation and use.....:	Integral module
Supply Connection .....:	DC connector
.....:	--
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 ..... :	See main report of IEC 60598-2-4
Date of receipt of test item..... :	See main report of IEC 60598-2-4
Date (s) of performance of tests ..... :	See main report of IEC 60598-2-4

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

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

Name and address of factory (ies)..... :	See main report of IEC 60598-2-4

General product information:
The manufacturer/ Importer has to ensure the appliance placing on the EU market conforms to the applicable EU directives which provide the affixing of the CE marking, such as LVD, EMC, RoHS, ErP, and so on.
LED modules are tested with the product.

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		¾
4.2	Classification		
	Built-in module .....:	Yes ☐ No ☒	¾
	Independent module.....:	Yes ☐ No ☒	¾
	Integral module .....:	Yes ☒ No ☐	¾
4.6	Independent modules comply with requirements in IEC 60598-1:2014/AMD1:2017		N/A
4.8	Modules with integrated controlgear providing SELV comply with requirements according to IEC 61347-1:2015/AMD1:2017 clause L.5 to L.11.	(see Annex 1)	N/A
6	**MARKING**		¾
6.2	**Contents of marking for built-in and for independent LED modules**		**N/A**
	a) mark of origin		N/A
	b) model number, type reference		N/A
	c1) constant voltage module; rated supply voltage and supply frequency		N/A
	c2) constant current module; rated supply current and supply frequency		N/A
	d) rated power		N/A
	e) indication of connections, wiring diagram		N/A
	f) value of t_c and place on the module		N/A
	g) *E*thr if required		N/A
	h) symbol for built-in modules		N/A
	i) heat transfer temperature t_d		N/A
	j) power for heat-conduction P_d		N/A
	k) working voltage for insulation		N/A
6.3	**Location of marking for built-in LED modules**		**N/A**
	- marking of a) and b) in 6.2 on the modules		N/A
	- marking of other applicable items in 6.2 on the modules or in data sheet, leaflet or website		N/A
6.4	**Location of marking for independent LED modules**		**N/A**
	- marking of a), b), c) and f) in 6.2 on the modules		N/A
	- marking of other applicable items in 6.2 on the modules or in data sheet, leaflet or website		N/A
6.5	**Marking of integral LED modules**		**N/A**

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	- information in 6.2 a) to g) in data sheet, leaflet or website		N/A
6.6	**Durable and legibility of marking**		**N/A**
	- marking on the LED module legible after test with water		N/A
	- marking not on the LED module legible		N/A
7	**TERMINALS**		¾
7.1	**Integral terminals**		N/A
	Screw terminals comply with section 14 of IEC 60598-1	(see Annex 3)	N/A
	Screwless terminals comply with section 15 of IEC 60598-1	(see Annex 4)	N/A
7.2	**Terminals other than integral terminals**		**N/A**
	Separately approved; component list	(see Annex 2)	N/A
	Ratings suit the conditions		N/A
	Satisfy additional relevant requirements of this standard		N/A
8 (9)	**EARTHING**		¾
- (9.1)	**Provisions for protective earthing**		**N/A**
	Terminal complying with clause 8		N/A
	Locked against loosening and not possible to loosen by hand		N/A
	Not possible to loosen clamping means unintentionally on screwless terminals		N/A
	Earthing via means of fixing		N/A
	Earthing terminal only used for the earthing of the control gear		N/A
	All parts of material minimizing the danger of electrolytic corrosion		N/A
	Made of brass or equivalent material		N/A
	Contact surface bare metal		N/A
	Test according 7.2.3 of IEC 60598-1		N/A
- (9.2)	**Provision for functional earthing**		**N/A**
	Comply with clause 8 and 9.1		N/A
	Functional earth insulated from live parts by double or reinforced insulation		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
- (9.3)	**Lamp controlgear with conductors for protective earthing by tracks on printed circuit board**		**N/A**
	Test with a current of 25 A between earthing terminal and each of the accessible metal parts; measured resistance (W) at ³ 10 A according 7.2.3 of IEC 60598-1: < 0,5 W ..... :		N/A
- (9.4)	**Earthing of built-in lamp controlgear**		**N/A**
	Earth by means of fixing to earthed metal of luminaire in compliance of 7.2 of IEC 60598-1		N/A
	Earthing terminal only for earthing the built-in controlgear		N/A
- (9.5)	**Earthing via independent controlgear**		**N/A**
- (9.5.1)	Earth connection to other equipment		N/A
	Looping or through connection, conductor min. 1,5 mm² and of copper or equivalent		N/A
	Protective earthing wires in line with 5.3.1.1 and clause 7		N/A
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear		N/A
	Test with a current of 25 A between input and output earth terminals; measured resistance (W) between earthing terminal and each of the accessible metal parts at ³ 10 A according 7.2.3 of IEC 60598-1: < 0,5 W ..... :		N/A
	Output earthing terminal marked as in 7.1 t) of IEC 61347-1		N/A

9 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		¾
- (10.1)	Controlgear protected against accidental contact with live parts		N/A
- (A2)	Voltage measured with 50 kW	(see Annex A)	N/A
- (A3)	Voltage > 35 V peak or > 60 V d.c. or protective impendance device	(see Annex A)	N/A
- (10.1)	Lacquer or enamel not used for protection or insulation		N/A
	Adequate mechanical strength on parts providing protection		N/A
- (10.2)	Capacitors > 0,5 mF: voltage after 1 min (V): < 50 V ..... :		N/A
- (10.3)	Controlgear providing SELV		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		N/A
	No connection between output circuit and the body or protective earthing circuit		N/A
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		N/A
	SELV outputs separated from earth by at least basic insulation		N/A
	ELV conductive parts insulated as live parts		N/A
	Tests according Annex L of IEC 61347-1		N/A
- (10.4)	Accessible conductive parts in SELV circuits		N/A
	Output voltage under load £ 25 V r.m.s. or £ 60 V d.c.		N/A
	If output voltage > 25 V r.m.s. or > 60 V d.c.; No load output £ 35 V peak or £ 60 V d.c and touch current does not exceed 0,7 mA (peak) or 2 mA d.c. .....:		N/A
	One conductive part is insulated if output voltage or current exceeding the values above and withstand test voltage 500 V		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
10 (11)	**MOISTURE RESISTANCE AND INSULATION**		¾
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MW):		P
	For basic insulation ³ 2 MW .....:	100 MW	P
	For double or reinforced insulation ³ 4 MW.....:		N/A
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N/A
11 (12)	**ELECTRIC STRENGTH**		¾
	Immediately after clause 11 electric strength test for 1 min		P

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	Basic insulation for SELV, test voltage 500 V		P
	Working voltage £ 50 V, test voltage 500 V		N/A
	Working voltage > 50 V £ 1000 V, test voltage (V):		N/A
	Basic insulation, 2U + 1000 V		N/A
	Supplementary insulation, 2U + 1000 V		N/A
	Double or reinforced insulation, 4U + 2000 V		N/A
	No flashover or breakdown		P
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		N/A
12 (14)	**FAULT CONDITIONS**		¾
- (14.1)	When operated under fault conditions the controlgear:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		N/A
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	P
- (14.2)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (after any reduction in 14.2 - 14.5)	(see appended table)	N/A
- (14.3)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (14.4)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.5)	Short-circuit across electrolytic capacitors	(see appended table)	N/A
	Short-circuit or interruption of SPDs	(see appended table)	N/A
- (14.6)	After the tests has been carried out on three samples:		P
	The insulation resistance ³ 1 MW ..... :	100 MW	P
	No flammable gases		P
	No accessible parts have become live		N/A
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
- (14.7)	Relevant fault condition tests with high-power a.c. supply and in turn to a d.c. supply		¾

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
12.2	**Overpower condition**		**P**
	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N/A
	No fire, smoke or flammable gas is produced		P
	Molten material does not ignite tissue paper, spread below the module		P
14 (15)	**CONSTRUCTION**		¾
- (15.1)	**Wood, cotton, silk, paper and similar fibrous material**		**P**
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
- (15.2)	**Printed circuits**		**P**
	Printed circuits used as internal connections complies with clause 14		P
15 (16)	**CREEPAGE DISTANCES AND CLEARANCES**		¾
- (16.1)	**General**		N/A
	Creepage distances and clearances according to 16.2 and 16.3		N/A
	Controlgears providing SELV comply with additional requirements in Annex L		N/A
	Insulating lining of metallic enclosures		N/A
	Controlgear protected against pollution comply with Annex P		N/A
- (16.2)	**Creepage distances**		N/A
- (16.2.2)	Minimum creepage distances for working voltages		N/A
	Creepage distances according to Table 7	(see appended table)	N/A
- (16.2.3)	Creepage distances for working voltages with frequencies above 30 kHz		N/A
	Creepage distances according to Table 8	(see appended table)	N/A
- (16.3)	**Clearances**		N/A
- (16.3.2)	Clearances for working voltages		N/A
	Clearances distances according to Table 9	(see appended table)	N/A
- (16.3.3)	Clearances for ignition voltages and working voltages with higher frequencies		N/A
	Clearances distances for basic or supplementary insulation according to Table 10		N/A
	Clearances distances for reinforced insulation according to Table 11		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
16 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		¾
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		¾
(4.11)	**Electrical connections**		**P**
(4.11.1)	Contact pressure		P
(4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
(4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
(4.11.4)	Material of current-carrying parts		P
(4.11.5)	No contact to wood or mounting surface		P
(4.11.6)	Electro-mechanical contact systems		P
(4.12)	**Mechanical connections and glands**		**N/A**
(4.12.1)	Screws not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
(4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
(4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm).....:		N/A
	- lampholder; torque (Nm).....:		N/A
	- push-button switches; torque 0,8 Nm.....:		N/A
(4.12.5)	Screwed glands; force (Nm).....:		N/A

17 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		¾
- (18.1)	Ball-pressure test .....:	See Test Table 17 (18.1)	N/A
- (18.2)	Test of printed boards .....:	See Test Table 17 (18.2)	N/A
- (18.3)	Glow-wire test (650°C) .....:	See Test Table 17 (18.3)	N/A
- (18.4)	Needle-flame test (10 s) .....:	See Test Table 17 (18.4)	P
- (18.5)	Proof tracking test .....:	See Test Table 17 (18.5)	N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
18	**RESISTANCE TO CORROSION**		¾
	Comply with requirements according 4.18 of IEC 60598-1		N/A
20	**HEAT MANAGEMENT**		¾
20.1	**General**		**N/A**
	Fulfil clause 20 if replaceable LED module and when heat conducting thermal interface is needed.		N/A
20.2	**Thermal interface material**		**N/A**
	Thermal interface material delivered with the module if necessary		N/A
20.3	**Heat protection**		**N/A**
	Not impair safety when operated under poor heat-conduction conditions according Annex D		N/A
22	**PHOTOBIOLOGICAL SAFETY**		¾
22.1	**UV radiation**		**N/A**
	Luminous radiation not exceed 2mW/klm		N/A
22.2	**Blue light hazard**		**P**
	Assessed according to IEC TR 62778	RG0	P
22.3	**Infrared radiation**		**N/A**
	Requirements for infrared radiation when required		N/A
A	**ANNEX A - TESTS**		¾
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		P
12 (14)	**TABLE: tests of fault conditions**		**P**
Part	**Simulated fault**		**Hazard**
TL-RL-1012-3000mAh (USB charge) **Battery specification: 3.0-4.2V, 0.0075-1.5A**			
R10	5VDC; short-circuit; normal operation; battery voltage: 3.15V, battery current: 0.076A, battery temperature: 32.6°C		~~YES/~~NO
LED1R	5VDC; short-circuit; normal operation; battery voltage: 3.12V, battery current: 0.196A, battery temperature: 32.6°C		~~YES/~~NO
U1 (3-4)	5VDC; short-circuit; Input short circuit, power rise, recoverable; battery voltage: 3.21V, battery current: 1.22A, battery temperature: 33.8°C		~~YES/~~NO

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
Battery1 (+/-)	5VDC; short-circuit; lamp off, recoverable; battery voltage: 0V, battery current: 0A, battery temperature: 25.1°C		~~YES~~/NO
C2	5VDC; short-circuit; lamp off, recoverable; battery voltage:3.11V, battery current: 0.22A, battery temperature: 30.1°C		~~YES~~/NO
U4 (G-S)	5VDC; short-circuit; lamp off, recoverable; battery voltage: 3.12V, battery current: 0.247A, battery temperature: 30.2°C		~~YES~~/NO
U4 (G-D)	5VDC; short-circuit; lamp off, recoverable; battery voltage: 3.12V, battery current: 0.233A, battery temperature: 30.1°C		~~YES~~/NO
U4 (S-D)	5VDC; short-circuit; lamp brighter, recoverable; battery voltage: 3.12V, battery current: 0A, battery temperature: 32.7°C		~~YES~~/NO
LED (D1)	5VDC; short-circuit; some LED off, recoverable; battery voltage: 3.06V, battery current: 0.172A, battery temperature: 30.0°C		~~YES~~/NO
LED (D1)	5VDC; open-circuit; D1 not work, recoverable; battery voltage: 3.12V, battery current: 0.233A, battery temperature: 32.4°C		~~YES~~/NO
TL-RL-1012-3000mAh (Fully charge battery discharge) **Battery Specification:3.0-4.2V, 0.00003-1.5A**			
R10	5VDC; short-circuit; normal operation; battery voltage: 4.01V, battery current: 0.316A, battery temperature: 32.4°C		~~YES~~/NO
LED1R	5VDC; short-circuit; normal operation; battery voltage: 4.01V, battery current: 0.316A, battery temperature: 32.4°C		~~YES~~/NO
U1 (3-4)	5VDC; short-circuit; normal operation; battery voltage: 4.01V, battery current: 0.316A, battery temperature: 32.4°C		~~YES~~/NO
Battery1 (+/-)	5VDC; short-circuit; lamp off, recoverable; battery voltage: 0V, battery current: 0A, battery temperature: 25.7°C		~~YES~~/NO
C2	5VDC; short-circuit; lamp off, recoverable; battery voltage:4.02V, battery current: 0.016A, battery temperature: 25.8°C		~~YES~~/NO
U4 (G-S)	5VDC; short-circuit; lamp off, recoverable; battery voltage: 4.1V, battery current: 0A, battery temperature: 25.9°C		~~YES~~/NO
U4 (G-D)	5VDC; short-circuit; lamp darker, recoverable; battery voltage: 4.08V, battery current: 0.167A, battery temperature: 32.0°C		~~YES~~/NO
U4 (S-D)	5VDC; short-circuit; lamp brighter, recoverable; battery voltage: 4.03V, battery current: 0.521A, battery temperature: 33.8°C		~~YES~~/NO
LED (D1)	5VDC; short-circuit; some LED off, recoverable; battery voltage: 4.02V, battery current: 0.563A, battery temperature: 33.5°C		~~YES~~/NO
LED (D1)	5VDC; open-circuit; D1 not work, input power down, recoverable; battery voltage: 4.03V, battery current: 0.310A, battery temperature: 32.4°C		~~YES~~/NO
TL-RL-1014-2000mAh (USB charge) **Battery Specification: 3.0-4.2V, 0.1-2.4A.**			
LED1R	5VDC; short-circuit; normal operation; battery voltage: 3.62V, battery current: 0.432A, battery temperature: 33.4°C		~~YES~~/NO

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

U1 (3-4)	5VDC; short-circuit; Input short circuit, power rise, recoverable; battery voltage: 3.21V, battery current: 2.37A, battery temperature: 42.2°C	~~YES~~/NO
Battery1 (+/-)	5VDC; short-circuit; lamp off, recoverable; battery voltage: 0V, battery current: 0A, battery temperature: 25.2°C	~~YES~~/NO

15 (16)	**TABLE: clearance and creepage distance measurements (mm)**						**N/A**
Applicable part of IEC 61347-1 Table 7 – 11*							
Distances	**Insulation type ****	**Measured clearance**	**Required**		**Measured creepage**	**Required**	
			clearance	***Table**		**creepage**	***Table**
Distance 1:	--	--	--	--	--	--	--
Working voltage (V).....:					--		¾
Frequency if applicable (kHz) .....:					--		¾
PTI.....:					< 600 ☐ ≥ 600 ☐		¾
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....:					--		¾
Pulse voltage if applicable (kV) .....:					--		¾
Supplementary information: No values are specified for working voltages below 60 Vd.c. as the electric strength test voltage of 500V is considered sufficient.							

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

17 (18.1)	**TABLE: Ball Pressure Test of Thermoplastics**			**N/A**
Allowed impression diameter (mm) .....:		≤ 2mm		¾
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
--	--	--	--	
Supplementary information:				

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

17 (18.3)	**TABLE: Glow-wire test**		**N/A**
Glow wire temperature .....:		650°C	¾

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
--	--	--	--	--	--
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No).....:					--
Supplementary information:					

17 (18.4)	TABLE: Needle-flame test				P
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
--	--	--	--	--	--
Supplementary information: see main report of IEC 60598-2-4					

17 (18.5)	TABLE: Proof tracking test				N/A
Test voltage PTI .....:		175 V			¾
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
--	--	--	--	--	--
Supplementary information: --					

(A)	ANNEX A - TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK		¾
(A.1)	Comply with A.2 or A.3		N/A
(A.2)	Voltage £ 35 V peak or £ 60 V d.c .....:		N/A
(A.3)	If voltage measured according Clause A.2 exceeds the limit value; touch current does not exceed 0,7 mA (peak) or 2 mA d.c. ..... :		N/A
	Comply with Annex G.2 of IEC 60598-1		N/A

ANNEX 1	LED MODULES WITH INTEGRAL CONTROLGEAR PROVIDING SELV		¾
(L.5)	**Protection against electric shock**		N/A
	Comply with 9.2 of IEC 61558-1		N/A
(L.6)	**Heating**		N/A
	No excessive temperatures in normal use		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	Value if capacitor tc marked .....:		¾
	Winding insulation classified as Class .....:		¾
	Comply with tests of clause 14 of IEC 61558-1 with adjustments		N/A
(L.7)	**Short-circuit and overload protection**		N/A
	Comply with tests of clause 15 of IEC 61558-1 with adjustments		N/A
(L.8)	**Insulation resistance and electric strength**		N/A
(L.8.1)	Conditioned 48 h between 91 % and 95 %		N/A
(L.8.2)	Insulation resistance		N/A
	Between input- and output circuits not less than 5 MW .....:		N/A
	Between metal parts of class II convertors which are separated from live parts by basic insulation only and the body not less than 5 MW .....:		N/A
	Between metal foil in contact with the inner and outer surfaces of enclosures of insulating material not less than 2 MW .....:		N/A
(L.8.3)	Electric strength		N/A
	1) Between live parts of input circuits and live parts of output circuits .....:		N/A
	2) Over basic or supplementary insulation between:		N/A
	a) live parts having different polarity .....:		N/A
	b) live parts and body if intended to be connected to protective earth .....:		N/A
	c) accessible metal parts and a metal rod of the same diameter as the flexible cable or cord .....:		N/A
	d) live parts and an intermediate metal part .....:		N/A
	e) intermediate metal parts and the body .....:		N/A
	f) each input circuit and all other input circuits .....:		N/A
	3) Over reinforced insulation between the body and live parts .....:		N/A
(L.9)	**Construction**		N/A
(L.9.1)	Transformer comply with 19.12 of IEC 61558-1 and 19 of IEC 61558-2-6		N/A
	HF transformer comply with 19 of IEC 61558-2-16		N/A
(L.10)	**Components**		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	Protective devices comply with 20.6 – 20.11 of IEC 61558-1		N/A
(L.11)	**Creepage distances, clearances and distances through insulation**		N/A
	Creepage distances and clearances not less than in Clause 16		N/A
	Distance through insulation according Table L.5 in IEC 61347-1		N/A
	1) Basic distance through insulation		N/A
	Required distance (mm) .....:		¾
	Measured (mm) .....:		N/A
	Supplementary information		¾
	2) Supplementary distance through insulation		N/A
	Required distance (mm) .....:		¾
	Measured (mm) .....:		N/A
	Supplementary information		¾
	3) Reinforced distance through insulation		N/A
	Required distance (mm) .....:		¾
	Measured (mm) .....:		N/A
	Supplementary information		¾

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Critical components information					P
Object / part No.	**Code**	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
Description:	See Annex 1 of main report of IEC 60598-2-4					

Supplementary information:

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

The codes above have the following meaning:

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

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

C - Integrated component tested together with the appliance

D - Alternative component

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 3	**Screw terminals (part of the luminaire)**		**N/A**
(14)	**SCREW TERMINALS**		¾
(14.2)	Type of terminal.....:		¾
	Rated current (A).....:		¾
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm²) .....:		¾
(14.3.3)	Conductor space (mm) .....:		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread).....:	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm).....:		N/A
	Torque (Nm).....:		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N).....:		N/A
(14.4.8)	Without undue damage		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 4	**Screwless terminals (part of the luminaire)**		**N/A**
(15)	**SCREWLESS TERMINALS**		¾
(15.2)	Type of terminal.....:		¾
	Rated current (A).....:		¾
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5.1)	Terminals internal wiring		N/A
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples).....:		N/A
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples) .....:		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples).....:		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		¾
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples) .....:		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples) .....:		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

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

(15.6.3.1) (15.6.3.2)	**TABLE: Contact resistance test / Heating tests**									N/A
	Voltage drop (mV) after 1 h									¾
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--
	Voltage drop of two inseparable joints									N/A
	Voltage drop after 10th alt. 25th cycle									N/A
	Max. allowed voltage drop (mV)..... :	--								¾
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--
	Voltage drop after 50th alt. 100th cycle									N/A
	Max. allowed voltage drop (mV)..... :	--								¾
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)	--	--	--	--	--	--	--	---	--	--
	Continued ageing: voltage drop after 10th alt. 25th cycle									N/A
	Max. allowed voltage drop (mV)..... :	--								¾
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--
	Continued ageing: voltage drop after 50th alt. 100th cycle									N/A
	Max. allowed voltage drop (mV)..... :	--								¾
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--
Supplementary information: --										

Attachment No. 2

IEC62031F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT **IEC 62031:2018** **EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES** (LED modules for general lighting - Safety specifications)			
Differences according to .....:	EN IEC 62031: 2020 + A11: 2021		
TRF template used .....:	IECEE OD-2020-F2:2022, Ed. 1.2		
Attachment Form No.....:	EU_GD_IEC62031F		
Attachment Originator .....:	UL Solutions (Demko)		
Master Attachment.....:	Dated 2022-09-30		
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	CENELEC COMMON MODIFICATIONS (EN)		
	No Common modifications		**P**
ZA	**ANNEX ZA, NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS**		**P**
ZZ	**ANNEX ZZ, RELATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE SAFETY OBJECTIVES OF DIRECTIVE 2014/35/EU [2014 OJ L96] AIMED TO BE COVERED**		**P**

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Attachment No. 3

TEST REPORT
IEC TR 62778
Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires

Report Number.....:	68.140.23.0885.01
Date of issue.....:	See main report of IEC 60598-2-4
Total number of pages.....	7
Name of Testing Laboratory preparing the Report.....:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Applicant's name.....:	See main report of IEC 60598-2-4
Address .....:	See main report of IEC 60598-2-4
Test specification:	
Standard.....:	IEC TR 62778:2014 (Second Edition)
Test procedure.....:	See main report of IEC 60598-2-4
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC62778A
Test Report Form(s) Originator ....:	TÜV SÜD Product Service GmbH
Master TRF .....:	Dated 2016-02

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Attachment No. 3

Test item description .....:	See main report of IEC 60598-2-4
Trade Mark.....:	See main report of IEC 60598-2-4
Manufacturer .....:	See main report of IEC 60598-2-4
Model/Type reference.....:	See main report of IEC 60598-2-4
Ratings.....:	See main report of IEC 60598-2-4

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**Testing Laboratory:**	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch	
Testing location/ address.....:		Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China	
☐	**Associated CB Testing Laboratory:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:		See main report of IEC 60598-2-4	
Approved by (name, function, signature)...:		See main report of IEC 60598-2-4	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address.....:			
Tested by (name + signature) .....:			
Witnessed by (name, function, signature) .:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Witnessed by (name, function, signature) .:			
Approved by (name, function, signature)...:			
Supervised by (name, function, signature) :			

Attachment No. 3

List of Attachments (including a total number of pages in each attachment): --	
Summary of testing:	
Tests performed (name of test and test clause): See main report of IEC 60598-2-4	**Testing location:** Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China
Summary of compliance with National Differences (List of countries addressed): See main report of IEC 60598-2-4	
Copy of marking plate: **The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.** See main report of IEC 60598-2-4	

Attachment No. 3

Test item particulars ..... :	See main report of IEC 60598-2-4
Product evaluated ..... :	☐ **LED package** ☐ **LED module** ☐ **Lamp** ☒ **Luminaire**
Rated voltage (V) ..... :	See main report of IEC 60598-2-4
Rated current (mA) ..... :	--
Rated CCT (K) ..... :	--
Rated Luminance (Mcd/m^2) ..... :	--
Component report data used ..... :	☒ **Not applicable** ☐ **LED package** ☐ **LED module** ☐ **Lamp** Report number:
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 ..... :	See main report of IEC 60598-2-4
Date of receipt of test item ..... :	See main report of IEC 60598-2-4
Date (s) of performance of tests ..... :	See main report of IEC 60598-2-4
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.**	
Name and address of factory (ies) ..... :	See main report of IEC 60598-2-4
General product information: See main report of IEC 60598-2-4	

IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict

7	**MEASUREMENT INFORMATION FLOW**		**¾**
7.1	**Basic flow**		**P**
	'Law of conservation of luminance' applied		P
	Use of only true luminance/radiance values		P
	In case of luminaire: The light source is operated in the luminaire under similar conditions as when tested as a component		P
	In case E_{thr} value for RG2 was established the peak value was derived from angular light distribution		N/A
7.2	**Conditions for the radiance measurement**		**P**
	Standard condition applied (200mm distance, 0,011rad field of view)		P
	Non-standard condition applied		N/A
7.3	**Special cases (I): Replacement by a lamp or LED module of another type**		**N/A**
	Light source is a white light source		N/A
	Evaluation done based on highest luminance		N/A
	Evaluation done based on CCT value		N/A
7.4	**Special cases (II): Arrays and clusters of primary light sources**		**N/A**
	LED package is evaluated as .....:	☐ RG0 unlimited ☐ RG1 unlimited	N/A
	E_{thr} of LED package applies to array		N/A
8	**RISK GROUP CLASSIFICATION**		**¾**
	Risk group achieved:		P
	-...Risk Group 0 unlimited		P
	-...Risk Group 1 unlimited		N/A
	- E_{thr} ..... (lx) : Distance to reach RG1..... (m) :		N/A

Attachment No. 3

IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict

	TABLE: Spectroradiometric measurement		**P**
	Measurement performed on:	☐ LED package ☐ LED module ☐ Lamp ☒ Luminaire	
	Model number……:	TL-RL-1022-3000mAh	
	Test voltage (V)……:	Fully charge battery	¾
	Test current (A)……....:	--	¾
	Test frequency (Hz)……..:	--	¾
	Ambient, t (°C)……:	25°C	¾
	Measurement distance……:	☒ 20 cm ☐ ... cm	¾
	Source size ……:	☒ Non-small ☐ Small: .... mm	¾
	Field of view ……...:	☐ 100 mrad ☒ 11 mrad ☐ 1.7 mrad (for small sources)	¾

Item	Symbol	Units	Result	Remark
Correlated colour temperature	CCT	K	--	--
x/y colour coordinates			--	--
Blue light hazard radiance	L_B	W/(m^2•sr^1)	0.794	RG0
Blue light hazard irradiance	E_B	W/m^2	--	--
Luminance	L	cd/m^2	3.22E+03	--
Illuminance	E	lx	--	--

Supplementary information:

Measurement uncertainty statement for IEC TR 62778:2014			
Risk		Units	Expanded Uncertainty; coverage factor (k)
L_B	Blue light hazard radiance	W/(m^2•sr^1)	*U*= 8.10%; k=2

Attachment No. 3

IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict

	TABLE: Angular light distribution	**N/A**

TEST REPORT
IEC 62493
Assessment of lighting equipment related to human exposure to electromagnetic fields

Report Number.....:	68.140.23.0885.01
Date of issue .....:	See main report of IEC 60598-2-4
Total number of pages.....:	16
Name of Testing Laboratory preparing the Report.....:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Applicant's name .....:	See main report of IEC 60598-2-4
Address .....:	See main report of IEC 60598-2-4
Test specification:	
TRF template used:	IECEE OD-2020-F7:2020; ed. 2.1
Standards .....:	IEC 62493:2015, IEC 62493:2015/AMD1:2022
Test procedure.....:	See main report of IEC 60598-2-4
Test Report Form No. .....:	IEC62493C
Test Report Form(s) Originator....:	UL Solutions (US)
Master TRF.....:	Dated 2023-02-16

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

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing NCB. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description .....:		See main report of IEC 60598-2-4	
Trademark or brand name .....:		See main report of IEC 60598-2-4	
Manufacturer .....:		See main report of IEC 60598-2-4	
Model/Type reference(s) .....:		See main report of IEC 60598-2-4	
Ratings .....:		See main report of IEC 60598-2-4	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
n	**Testing Laboratory:**	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch	
Testing location/ address .....:		Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China	
Tested by (name, function, signature) .....:		See main report of IEC 60598-2-4	
Approved by (name, function, signature) ..:		See main report of IEC 60598-2-4	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address .....:			
Tested by (name, function, signature) .....:			
Approved by (name, function, signature) ..:			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address .....:			
Tested by (name + signature).....:			
Witnessed by (name, function, signature).:			
Approved by (name, function, signature) ..:			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address .....:			
Tested by (name, function, signature) .....:			
Witnessed by (name, function, signature).:			
Approved by (name, function, signature) ..:			
Supervised by (name, function, signature) :			

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

Summary of testing	
Tests performed (name of test, test Clause and date test performed): See main report of IEC 60598-2-4	**Testing location:** Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, Guangdong 518052, China

Summary of compliance with National Differences	
Country code	**National differences standard**
See main report of IEC 60598-2-4	

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other:… (*to be specified, for example when required by the standard or client*).

Information on uncertainty of measurement:
The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.
IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

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

See main report of IEC 60598-2-4

Possible test case verdicts:	
- test case does not apply to the test item. :	N/A (Not Applicable)
- test item does meet the requirement ..... :	P (Pass)
- test item does not meet the requirement. :	F (Fail)
Date of receipt of test item ..... :	See main report of IEC 60598-2-4
Date (s) of performance of tests..... :	See main report of IEC 60598-2-4
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 / n point is used as the decimal separator.** Note: Throughout this TRF, numerical data taken from IEC standards are using a comma as the decimal separator. **Throughout this report, the term "Test item" is used over terms such as Test object, EUT or DUT.**	
Name and address of factory (ies) ..... :	See main report of IEC 60598-2-4
General product information (GPI) and other remarks: See main report of IEC 60598-2-4	

Table of Contents:

1 General description of test item

Note: The information in this section has been provided by the applicant.

1.1 Photo(s) of the test item

Photo 1.1.1 ..... :	see attachment No. 8

Photo 1.1.2 ..... :	see attachment No. 8

1.2 **Test item(s)**

No.	Test item name	Unique identification / type / description	Extent of test
1		*All models*	*No tested*
2			
3			
4			
5			
6			
7			
8			
Engineering statement for untested variants / product family:			
Supplementary information: --			

1.3 **Port(s)**

No.	Port Name	Type	Cable		
			Specified length in m	**Attached during test**	**Shielded**
1	Enclosure	Enclosure	-	-	-
2				☐	☐
3				☐	☐
4				☐	☐
5				☐	☐
6				☐	☐
7				☐	☐
8				☐	☐
9				☐	☐
10				☐	☐
Supplementary information: --					

1.4 **Power rating(s)**

Power supply type.....	□	AC, 1 phase
	□	AC, 2 phases
	□	AC, 3 phases
	□	Neutral
	□	Protective Earth
	n	DC
	□	Battery, not rechargeable in the device
	n	Battery, rechargeable in the device
Rated voltage.....	See main report of IEC 60598-2-4	
Rated frequency.....	See main report of IEC 60598-2-4	
Rated power	See main report of IEC 60598-2-4	

1.5 **Additional parameters**

Protection class.....	See main report of IEC 60598-2-4	
Clock frequencies	N/A	
Other parameters.....	N/A	
Software version	N/A	
Hardware version.....	N/A	
Dimensions (W x H x D).....	See main report of IEC 60598-2-4	
Mounting position.....	□	Table-top equipment
	□	Wall/Ceiling mounted equipment
	□	Floor standing equipment
	□	Hand-held equipment
	n	Other: portable

1.6 **Operating mode(s)**

No.	Abbreviation	Detailed description of the operating mode	Used for testing	
			Emission	Immunity
1			☐	☐
2			☐	☐
3			☐	☐
4			☐	☐
5			☐	☐
6			☐	☐
7			☐	☐
8			☐	☐
Supplementary information: --				

1.7 **Auxiliary equipment**

Advice to the TRF User: Include accessories which are not to be considered test items.

No.	Aux Item Name	Type and description	Manufacturer (if not the same)
1			
2			
3			
4			
5			
6			
7			
8			
Supplementary information: --			

1.8 **Documents as provided by the applicant**

No.	Document ref.	Type and description	Doc date
1		See main report of IEC 60598-2-4	
2			
3			
4			
5			
6			
7			
8			
Supplementary information: --			

1.9 **Modifications to the test item during testing**

☐	No modifications done during testing	
☐	Modifications done during testing (see details below)	
No.	**Description of modification (if any)**	**Date of modification**
1		
2		
3		
Supplementary information: --		

2 Verdict summary section

Rationale for verdicts, including N/A (Not Applicable), are listed on each test sheet.
If applicable test was not performed then CB Test Certificate cannot be issued.

Table/ Clause	Requirement – Test case	Basic standard	Verdict
6.6	Calculation of the results	IEC 62493: 2022	*N/A*
7.2	Low-power exclusion method	IEC 62493: 2022	*N/A*
7.3	Application of the EMF product standard for body worn-equipment	IEC 62209-2: 2010	*N/A*
7.4	Application of the EMF product standard for base stations	IEC 62232: 2011	*N/A*
7.5	Application of another EMF standard	IEC 62311: 2007	*N/A*
Supplementary information (e.g. detailed information to verdicts):			

2.1 **Test setups**

Figure 2.1.1..... :	Test setup 1

Figure 2.1.2..... :	Test setup 2

3 Limits

3.1 General

Devices must either be inherently compliant in 4.2.2 or comply with Van der Hoofden test limit in 4.2.3 and pass assessment procedure for intentional radiators in 4.3

4.2 Unintentional radiating part of lighting equipment

4.2.2 Lighting equipment deemed to comply with the Van der Hoofden test without testing

Name.....:	See main report of IEC 60598-2-4
Date.....:	See main report of IEC 60598-2-4
Rationale for verdict N/A .....:	Considering submitted samples were LED-light-source technology, they were found to comply with the requirement of IEC 62493:2015, IEC 62493:2015/AMD1:2022, EN 62493:2015+A11:2022 without test.

Lighting equipment is deemed to comply with the requirements of this standard without testing if it fulfils one of the following inherent-compliance conditions:	☐	electronic controlgear
	☐	incandescent-lamp technology
	n	LED-light-source technology
	☐	OLED-light-source technology
	☐	high-pressure discharge lamp LED-light-source technologies
	☐	low-pressure discharge lamp technologies with exposure distance ≥ 50 cm
	☐	independent auxiliary
Supplementary information.....:	--	

4.2.3 Application of limits

Name.....:	N/A
Date.....:	N/A
Rationale for verdict N/A .....:	N/A

☐	Lighting equipment does not inherently comply with the Van der Hoofden test without testing but the compliance factor *F* is £ 1
Supplementary information.....:	

5.6 **Measurement uncertainty**

Where relevant, the following measurement instrumentation uncertainty levels have been estimated for tests performed on the apparatus:

Type of disturbance / Test method	Calculated expanded uncertainty U_{Lab}	U_{basic}
Van der Hoofden Test		30%

5.8 **Decision rule**

If the uncertainty calculated with the instrumentation actually used for the test (Ulab) is less than or equal to the uncertainty given in 5.6 (Ubasic) then:
– compliance is deemed if the measurement result does not exceed the applicable limit;
– non-compliance is deemed to occur if the measurement result exceeds the applicable limit.

If the uncertainty calculated with the instrumentation used for the test ( ) is higher than the uncertainty given in 5.6 (Ubasic) then:
– compliance is deemed to occur if the measurement result, increased by (Ulab − Ubasic), does not exceed the applicable limit.
– non-compliance is deemed to occur if the measurement result, increased by (Ulab − Ubasic), exceeds the applicable limit.

6.2 **Operating Conditions**

Name.....:	
Date.....:	
Rationale for verdict N/A .....:	

Test location (stand).....:		
Stabilization Time.....:	☐	15 minutes for low-pressure discharge lamps
	☐	30 minutes for all other discharge lamps
	☐	Other (minutes):
Operating Conditions: .....:	☐	Specified by the manufacturer (ref. cl. 1.6)
	☐	Multiple lamp lighting equipment with all lamps operated simultaneously
	☐	Self-contained emergency lighting operated from mains
	☐	Lighting equipment with light regulation measured at the minimum and maximum limit of light regulation.
Measurement Distance .....:		
Supplementary information.....:		

Photo 6.2.1 ..... :	Test Setup – Van der Hoofden

Test results for Induced internal electric field	
Test item no(s) ref. cl. 1.2.....:	
Operating mode no(s) ref. cl. 1.6.:	
Test setup no(s) ref. cl. 3.2.....:	

7 Assessment procedure intentional radiators

Name.....:	
Date.....:	
Rationale for verdict N/A .....:	

7.2 Low-power exclusion method

Input $P_{int,rad}$.....:		
Exclusion level P_{max} .....:		
Input power $P_{int,rad}$ < exclusion level P_{max}	☐	Yes
	☐	No
Supplementary information.....:		

7.3 Application of the EMF product standard for body worn-equipment

If low-power exclusion is not met and exposure distance ≤ 0.05 m, does device comply with IEC 62209-2	☐	Yes
	☐	No
Supplementary information.....:		

7.4 Application of the EMF product standard for base stations

If low-power exclusion is not met and intentional radiator is a base station, does device comply with IEC 62232	☐	Yes
	☐	No
Supplementary information.....:		

7.5 Application of another EMF standard

If low-power exclusion is not met and intentional radiator is not considered as body-worn equipment or base station equipment, does device comply with IEC 62311	☐	Yes
	☐	No
Supplementary information.....:		

8 List of test equipment

Reference to test stand or test name (ID):			
Equipment ID	***Equipment description***	***Last Calibration date***	***Calibration due date***
--	--	--	--

Attachment No. 5

IEC/EN 61347-2-7 Clause 22&23			
Clause	Requirement + Test	Result - Remark	Verdict

22 (-)	**RECHARGING DEVICE**		P
	Recharging device provide the rated charge performance specified by the battery manufacturer to charge the battery within 24 h		P
	Transformers in the recharging device comply with relevant parts of IEC 61558-2-1, IEC 61558-2-6 and IEC 61558-2-16		N/A
22.1 (-)	Low temperature operation		P
	Charged battery for 48 h and then discharged until voltage indicated in table 1 is achieved at 20 °C ± 5 °C		P
	Charged battery at 0,9 times rated supply voltage at minimum ambient temperature for 24 h	10°C	P
	Simulating supply failure, lamp operated for rated duration of operation and at the end the battery voltage is at least V_{min} according clause 20		P
22.2 (-)	High temperature operation		P
	Charged battery for 48 h and then discharged until voltage indicated in table 1 is achieved at 20 °C ± 5 °C		P
	Charged at 0,9 times rated supply voltage at maximum ambient temperature for 24 h	25°C	P
	Simulating supply failure, lamp operated for rated duration of operation and at the end the battery voltage is at least V_{min} according clause 20		P
22.3 (-)	Abnormal operating condition		P
	Recharging device operated at 1,1 times rated supply voltage and maximum marked ambient temperature with battery disconnected and output short-circuited		P
	- no flames, molten material or flammable gases		P
	After the test period and short-circuit removed		P
	- the recharging device is safe		P
	- normal recharge if self-resetting or user-replaceable protective devices		P
22.4 (-)	Maximum output voltage		P
	Output voltage of recharging device £ 50 V d.c. at 1,1 times rated supply voltage with or without batteries connected (V) .....:	Max. 4.205VDC	P
22.5 (-)	Battery charge and discharge characteristics		P
	Charged battery for 48 h and then discharged until voltage indicated in table 1 is achieved at 20 °C ± 5 °C		P

Attachment No. 5

IEC/EN 61347-2-7 Clause 22&23			
Clause	Requirement + Test	Result - Remark	Verdict
	Charged at 0,9 and 1,1 times rated supply voltage at 25 °C ± 2 °C for 24 h		P
	Current and voltage characteristics within those declared by controlgear manufacturer		P
22.6 (-)	Lamp failure		P
	Lamp failure do not interrupt charging current to battery and not impair the operation of the battery		P
23 (-)	**PROTECTION AGAINST EXCESSIVE DISCHARGE**		P
	Protection against polarity reversal of individual cells, limits the discharge current when the battery voltage has fallen to V_{low} according a) to c)		P
	- Discharge current (A) .....:	0A (limit: 0.00003A for 1500mAh battery; 0.00004A for 2000mAh battery)	P
	Protection system prevents any further discharge until the normal supply has been restored. Battery voltage not below V_{low} and discharge current not exceed a) to c)		P
	- Battery voltage (V) .....:	3.05VDC (for 1500mAh battery) 3.03VDC (for 2000mAh battery) Limit: 3.0V	P
	- Discharge current (A) .....:	0A (limit: 0.00003A for 1500mAh battery; 0.00004A for 2000mAh battery)	P

Annex B of IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict

TEST REPORT
IEC 60335-1
ANNEX B (NORMATIVE)
APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE

B	**ANNEX B (NORMATIVE)** **APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE**		¾
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		P
	Three forms of construction covered:		P
	a) Appliance supplied directly from the supply mains or a renewable energy source, the battery charging circuitry and other supply unit circuitry incorporated within the appliance		N/A
	b) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the part of the appliance containing the battery		P
	c) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the detachable supply unit		N/A
3.1.9	Appliance operated under the following conditions:		P
	- the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		P
	- the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N/A
	-if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2		P
	- if the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed		N/A

Annex B of IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N/A
5.B.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		N/A
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage (V) and polarity of the terminals :		N/A
	The positive terminal indicated by symbol IEC 60417-5005 and the negative terminal by symbol IEC 60417-5006		N/A
	Appliances intending to be supplied from a detachable supply unit marked with symbol IEC 60417-6181 and its type reference along with symbol ISO 7000-0790 (2004-01), or		N/A
	use only with <model designation> supply unit :		N/A
7.6	Additional symbols		N/A
7.12	The instructions give information regarding charging		P
	Instructions for appliances incorporating batteries intended to be replaced by the user include required information		N/A
	Details about how to remove batteries containing materials hazardous to the environment given		N/A
	Instructions for appliance containing non user-replaceable batteries shall state the substance of the following: This appliance contains batteries that are only replaceable by skilled persons.		N/A
	Instructions for appliances containing non-replaceable batteries shall state the substance of the following: This appliance contains batteries that are non-replaceable.		P
	For appliances intending to be supplied from a detachable supply unit for the purposes of recharging the battery, the type reference of the detachable supply unit is stated along with the following:		N/A
	WARNING: For the purposes of recharging the battery, only use the detachable supply unit provided with this appliance		N/A
	If the symbol for detachable supply unit is used, its meaning is explained		N/A
7.15	Markings placed on the part of the appliance connected to the supply mains		N/A
	The type reference of the detachable supply unit is placed in close proximity to the symbol		N/A

Annex B of IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
8.2	Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment		N/A
	If the appliance can be operated without batteries, double or reinforced insulation required		N/A
11.7	The battery is charged for the period stated in the instructions or 24 h ..... :	24h	P
11.8	Temperature rise of the battery surface does not exceed the limit in the battery manufacturer's specification; measured (K); limit (K)..... :	Charge: max.8.4K (Limit: 20K) Discharge: max. 23.7K (Limit: 35K)	P
	If no limit specified, the temperature rise does not exceed 20 K; measured (K) ..... :		N/A
19.1	Appliances subjected to tests of 19.B.101, 19.B.102 and 19.B.103		P
19.10	Not applicable		N/A
19.B.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		P
19.B.102	For appliances having batteries that can be removed without the aid of a tool, short-circuit of the terminals of the battery, the battery being fully charged,		N/A
19.B.103	Appliances having batteries replaceable by the user supplied at rated voltage under normal operation with the battery removed or in any position allowed by the construction		N/A
19.13	The battery does not rupture or ignite		P
21.B.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength		N/A
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-31, the number of falls being:		N/A
	- 100, if the mass of the part does not exceed 250 g :		N/A
	- 50, if the mass of the part exceeds 250 g ..... :		N/A
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N/A

Annex B of IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N/A
25.13	An additional lining or bushing not required for interconnection cords in class III appliances or class III constructions operating at safety extra-low voltage not containing live parts		N/A
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N/A
	For other parts, 30.2.2 applies		N/A

Attachment No. 7

Report No.: 68.140.23.0885.01

Material List for PAH Risk Assessment according to AfPS GS 2019:01 PAK

Product Description: LED Rechargeable Lamps

Model: See 'General product information'

Material No.	Location/ Function of the Material	Supplier/Manufacture Name	Type/Model No. of the Material	Category	Rigidity	Smell	Color	Chemical test needed?	Test Result	Evidence attached Technical Report No.
001	Black Plastic handle	Tangla lighting and living limited	--	☐ 1 ☐ 2 ☒ 3	☐ Soft ☒ Flexible ☐ Rigid	☐ Yes ☒ No	☒ black or dark-colored ☐ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
002	Black Plastic case	Ningbo Lejin Yongxing chemical co., ltd.	HI-121H	☐ 1 ☐ 2 ☒ 3	☐ Soft ☐ Flexible ☒ Rigid	☐ Yes ☒ No	☒ black or dark-colored ☐ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
003	Metal black coating	Tangla lighting and living limited	--	☐ 1 ☐ 2 ☒ 3	☐ Soft ☐ Flexible ☒ Rigid	☐ Yes ☒ No	☒ black or dark-colored ☐ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
005	Wood black coating	Tangla lighting and living limited	--	☐ 1 ☐ 2 ☒ 3	☐ Soft ☐ Flexible ☒ Rigid	☐ Yes ☒ No	☒ black or dark-colored ☐ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
007	Type C rubber cap	Tangla lighting and living limited	--	☐ 1 ☐ 2 ☒ 3	☐ Soft ☒ Flexible ☐ Rigid	☐ Yes ☒ No	☐ black or dark-colored ☒ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
008	Translucent cover	CHIMEI Corporation	PC-110	☐ 1 ☐ 2 ☒ 3	☐ Soft ☐ Flexible ☒ Rigid	☐ Yes ☒ No	☐ black or dark-colored ☒ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
037,042	USB plastic enclosure	Zhongshan Chenhui	--	☐ 1 ☐ 2 ☒ 3	☐ Soft ☐ Flexible ☒ Rigid	☐ Yes ☒ No	☒ black or dark-colored ☐ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
047	USB cord	ZHONGSHAN RUITIAN WIRE & CABLE CO LTD	2464	☐ 1 ☐ 2 ☒ 3	☐ Soft ☒ Flexible ☐ Rigid	☐ Yes ☒ No	☒ black or dark-colored ☐ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
053	Base foam	Tangla lighting and living limited	--	☐ 1 ☐ 2 ☒ 3	☒ Soft ☐ Flexible ☐ Rigid	☐ Yes ☒ No	☒ black or dark-colored ☐ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
074, 078	Natural color wood	Tangla lighting and living limited	--	☐ 1 ☐ 2 ☒ 3	☐ Soft ☐ Flexible ☒ Rigid	☐ Yes ☒ No	☐ black or dark-colored ☒ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
080	Green Plastic handle	Tangla lighting and living limited	--	☐ 1 ☐ 2 ☒ 3	☐ Soft ☒ Flexible ☐ Rigid	☐ Yes ☒ No	☐ black or dark-colored ☒ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
081	Green plastic case	Ningbo Lejin Yongxing chemical co., ltd.	HI-121H	☐ 1 ☐ 2	☐ Soft ☐ Flexible	☐ Yes ☒ No	☐ black or dark-colored ☒ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B

Attachment No. 7

Report No.: 68.140.23.0885.01

Material List for PAH Risk Assessment according to AfPS GS 2019:01 PAK

Material No.	Location/ Function of the Material	Supplier/Manufacture Name	Type/Model No. of the Material	Category	Rigidity	Smell	Color	Chemical test needed?	Test Result	Evidence attached Technical Report No.
				☒ 3	☒ Rigid					
082	Army green Plastic handle	Tangla lighting and living limited	--	☐ 1 ☐ 2 ☒ 3	☐ Soft ☒ Flexible ☐ Rigid	☐ Yes ☒ No	☐ black or dark-colored ☒ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
083	Army green plastic case	Ningbo Lejin Yongxing chemical co., ltd.	HI-121H	☐ 1 ☐ 2 ☒ 3	☐ Soft ☐ Flexible ☒ Rigid	☐ Yes ☒ No	☐ black or dark-colored ☒ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
084	Purple Plastic handle	Tangla lighting and living limited	--	☐ 1 ☐ 2 ☒ 3	☐ Soft ☒ Flexible ☐ Rigid	☐ Yes ☒ No	☒ black or dark-colored ☐ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
085	Purple plastic case	Ningbo Lejin Yongxing chemical co., ltd.	HI-121H	☐ 1 ☐ 2 ☒ 3	☐ Soft ☐ Flexible ☒ Rigid	☐ Yes ☒ No	☒ black or dark-colored ☐ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
086	Red Plastic handle	Tangla lighting and living limited	--	☐ 1 ☐ 2 ☒ 3	☐ Soft ☒ Flexible ☐ Rigid	☐ Yes ☒ No	☒ black or dark-colored ☐ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
087	Red plastic case	Ningbo Lejin Yongxing chemical co., ltd.	HI-121H	☐ 1 ☐ 2 ☒ 3	☐ Soft ☐ Flexible ☒ Rigid	☐ Yes ☒ No	☒ black or dark-colored ☐ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
088	Grey Plastic handle	Tangla lighting and living limited	--	☐ 1 ☐ 2 ☒ 3	☐ Soft ☒ Flexible ☐ Rigid	☐ Yes ☒ No	☒ black or dark-colored ☐ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
089	Grey plastic case	Ningbo Lejin Yongxing chemical co., ltd.	HI-121H	☐ 1 ☐ 2 ☒ 3	☐ Soft ☐ Flexible ☒ Rigid	☐ Yes ☒ No	☒ black or dark-colored ☐ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
090	White Plastic handle	Tangla lighting and living limited	--	☐ 1 ☐ 2 ☒ 3	☐ Soft ☒ Flexible ☐ Rigid	☐ Yes ☒ No	☐ black or dark-colored ☒ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
091	White plastic case	Ningbo Lejin Yongxing chemical co., ltd.	HI-121H	☐ 1 ☐ 2 ☒ 3	☐ Soft ☐ Flexible ☒ Rigid	☐ Yes ☒ No	☐ black or dark-colored ☒ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
092	Milky white Plastic handle	Tangla lighting and living limited	--	☐ 1 ☐ 2 ☒ 3	☐ Soft ☒ Flexible ☐ Rigid	☐ Yes ☒ No	☐ black or dark-colored ☒ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B
093	Milky white plastic case	Ningbo Lejin Yongxing chemical co., ltd.	HI-121H	☐ 1 ☐ 2 ☒ 3	☐ Soft ☐ Flexible ☒ Rigid	☐ Yes ☒ No	☐ black or dark-colored ☒ white or light-colored	☒ Yes ☐ No	☒ Passed ☐ Failed	68.402.23.0974.01B

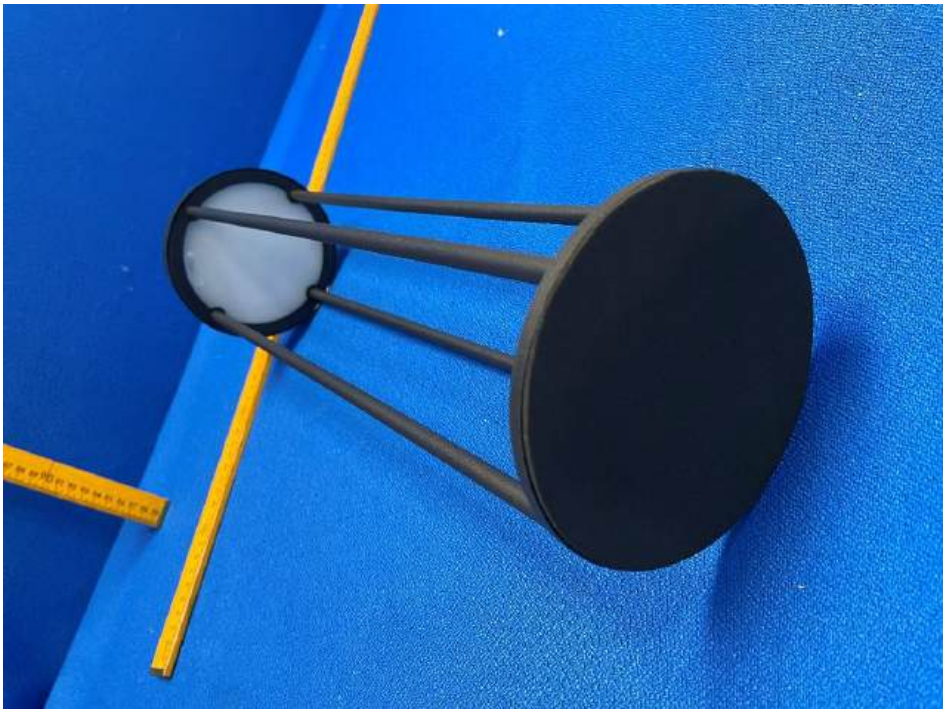
Attachment No. 8

Details of: Outlook for TL-RL-1001-3000mAh, TL-RL-1002-3000mAh, TL-RL-1001-2000mAh, TL-RL-1002-2000mAh

Representative model TL-RL-1002-3000mAh

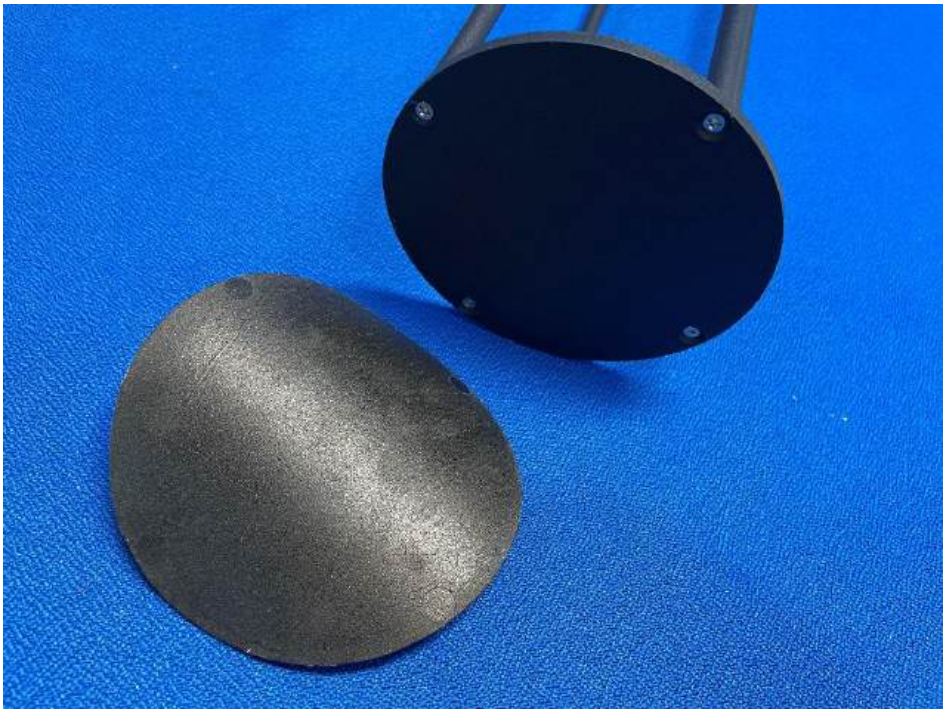
Details of: Outlook for TL-RL-1001-3000mAh, TL-RL-1002-3000mAh, TL-RL-1001-2000mAh, TL-RL-1002-2000mAh

Representative model TL-RL-1002-3000mAh



Attachment No. 8

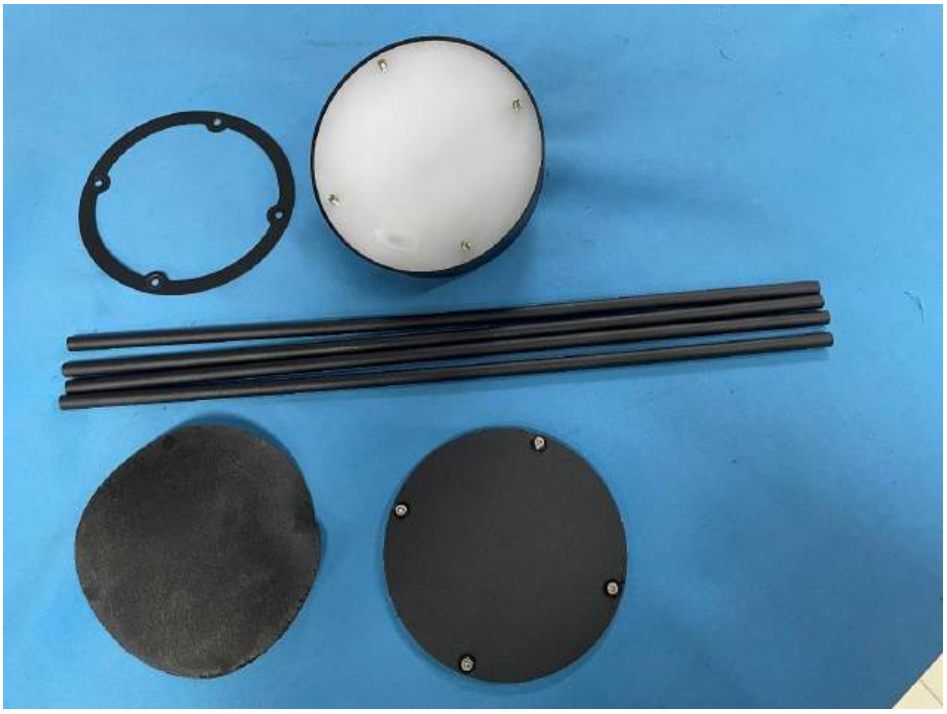
Details of: Base view for TL-RL-1001-3000mAh, TL-RL-1002-3000mAh, TL-RL-1001-2000mAh, TL-RL-1002-2000mAh



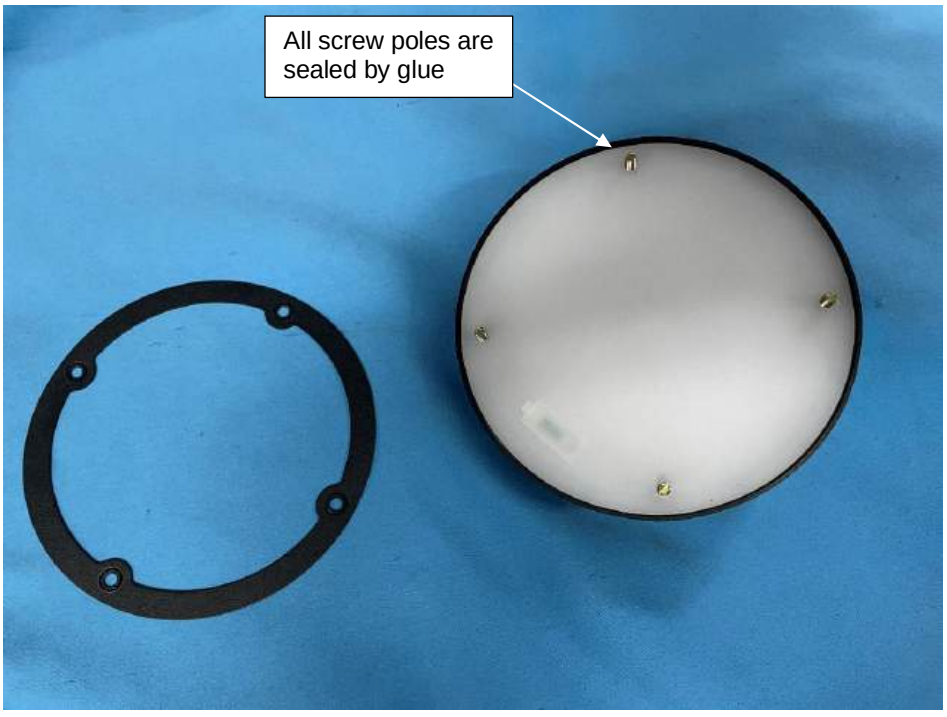
Details of: Detail view for TL-RL-1001-3000mAh, TL-RL-1002-3000mAh, TL-RL-1001-2000mAh, TL-RL-1002-2000mAh

Attachment No. 8

Details of: Detail view for TL-RL-1001-3000mAh, TL-RL-1002-3000mAh, TL-RL-1001-2000mAh, TL-RL-1002-2000mAh



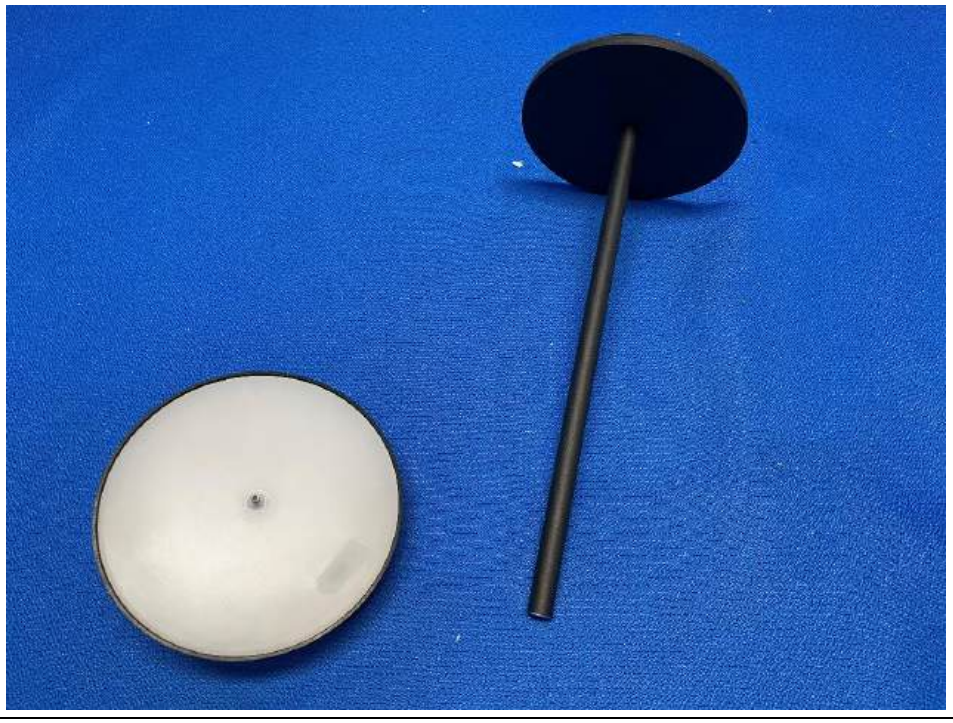
Details of: Detail view for TL-RL-1001-3000mAh, TL-RL-1002-3000mAh, TL-RL-1001-2000mAh, TL-RL-1002-2000mAh



Attachment No. 8

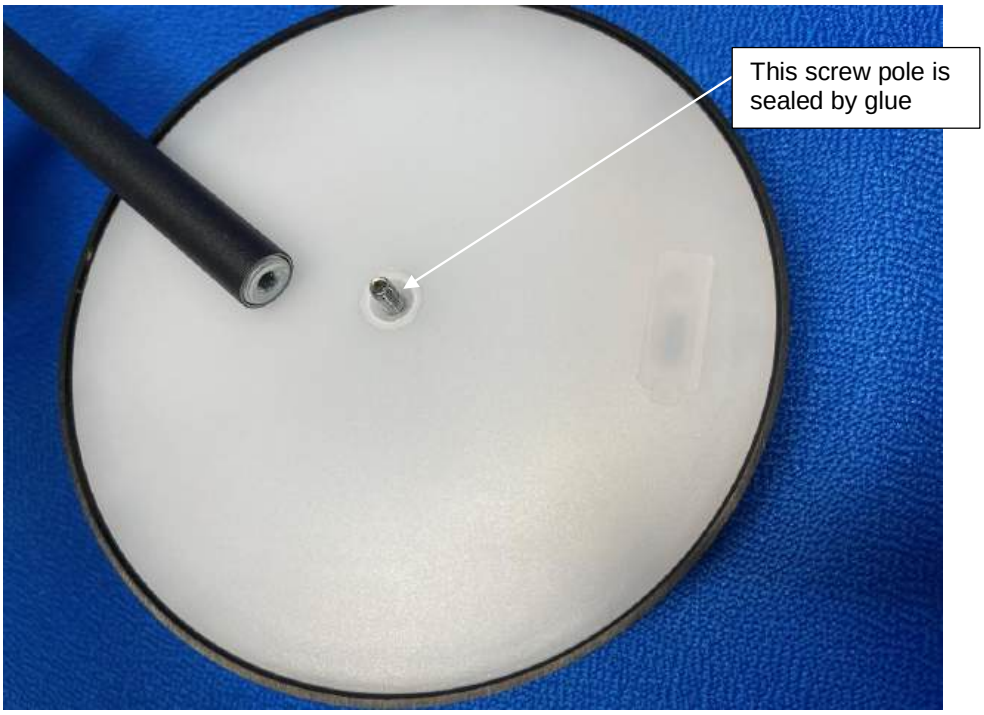
Details of: Outlook for TL-RL-1003-3000mAh, TL-RL-1003-2000mAh

Details of: Outlook for TL-RL-1003-3000mAh, TL-RL-1003-2000mAh

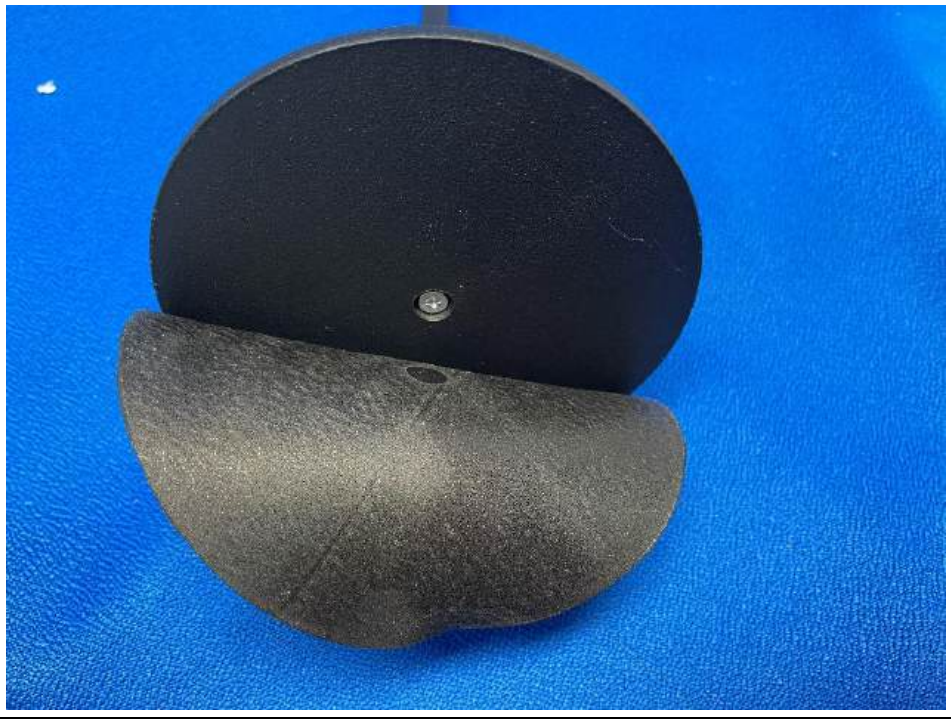


Attachment No. 8

Details of: Detail view for TL-RL-1003-3000mAh, TL-RL-1003-2000mAh



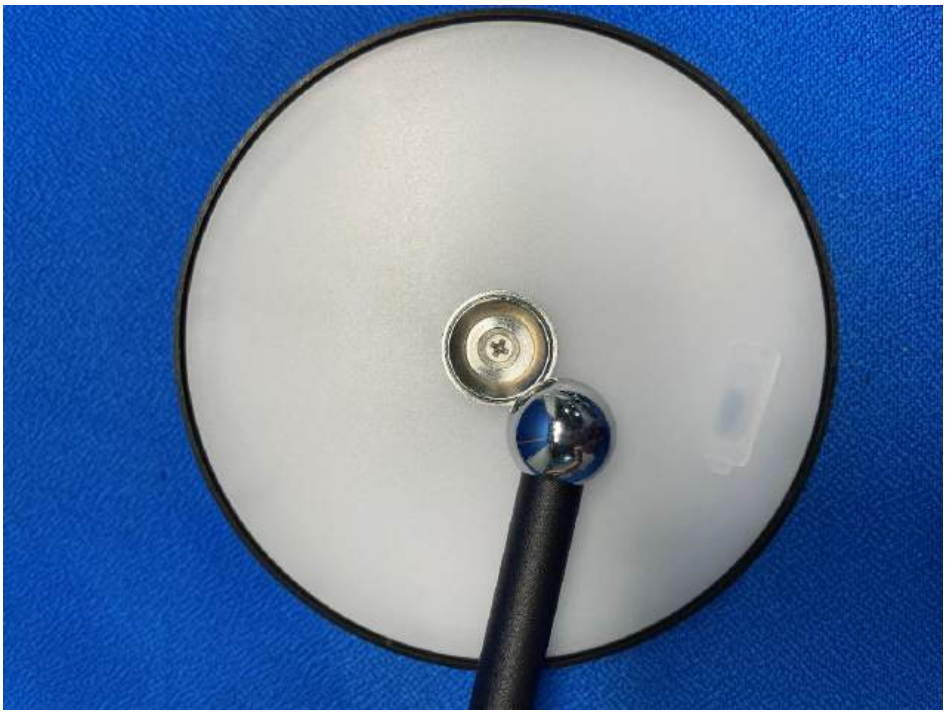
Details of: Base view for TL-RL-1003-3000mAh, TL-RL-1003-2000mAh



Attachment No. 8

Details of: Outlook for TL-RL-1004-3000mAh, TL-RL-1004-2000mAh

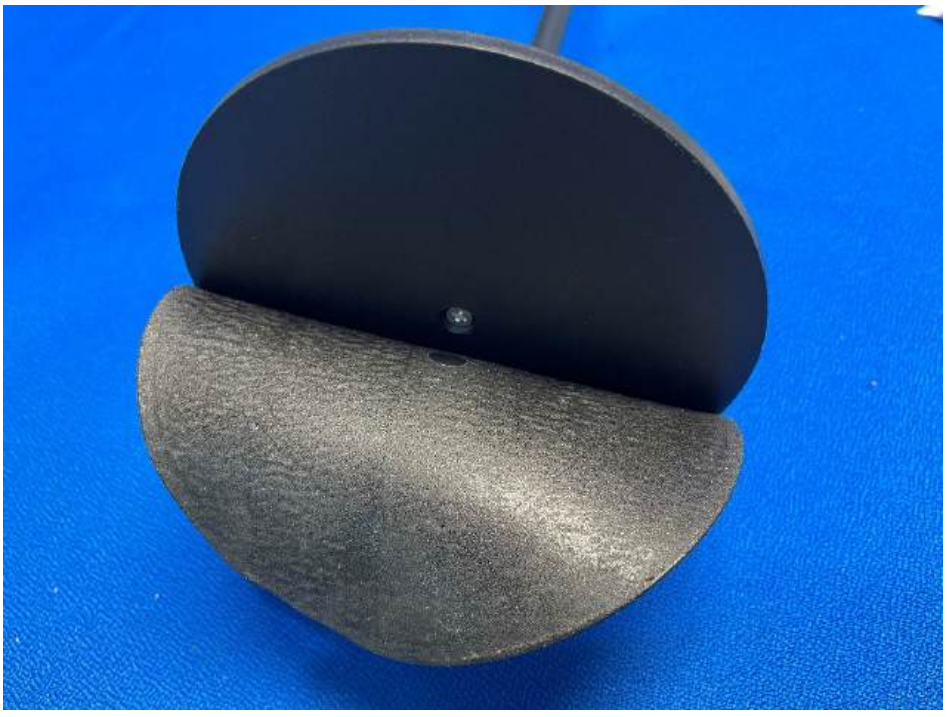
Details of: Detail view for TL-RL-1004-3000mAh, TL-RL-1004-2000mAh



Attachment No. 8

Details of: Detail view for TL-RL-1004-3000mAh, TL-RL-1004-2000mAh

Details of: Base view for TL-RL-1004-3000mAh, TL-RL-1004-2000mAh



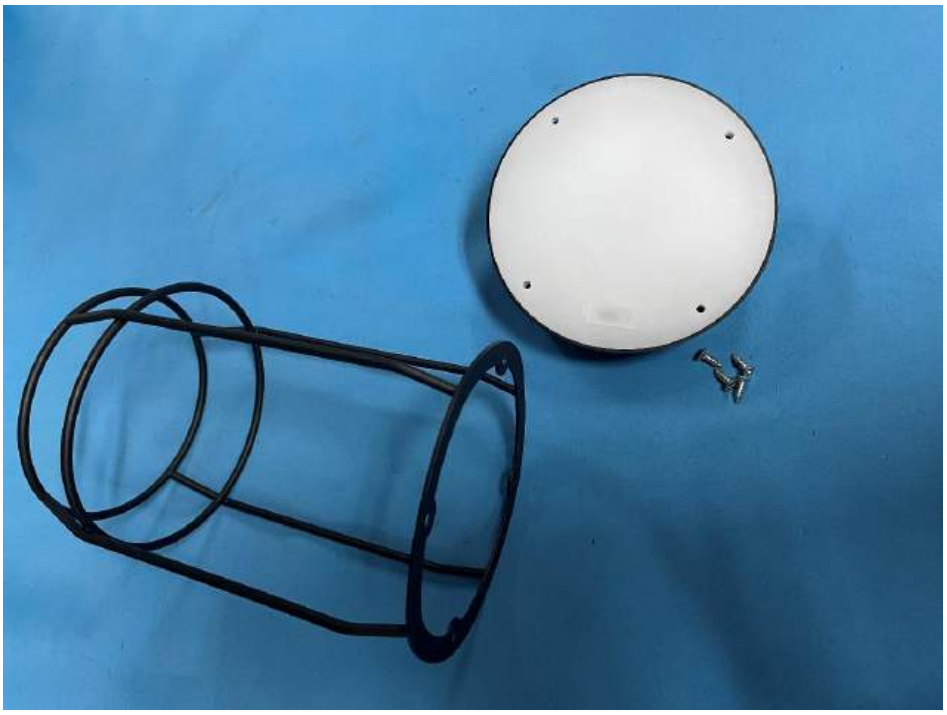
Attachment No. 8

Details of: Outlook for TL-RL-1006-3000mAh, TL-RL-1006-2000mAh

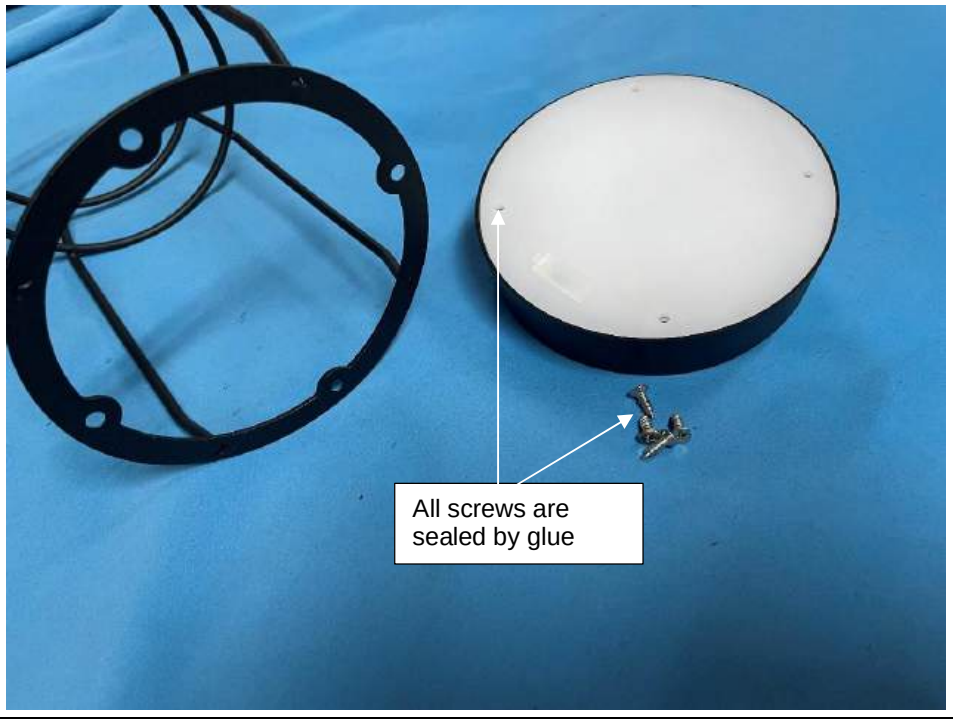
Details of: Detail view for TL-RL-1006-3000mAh, TL-RL-1006-2000mAh

Attachment No. 8

Details of: Detail view for TL-RL-1006-3000mAh, TL-RL-1006-2000mAh



Details of: Detail view for TL-RL-1006-3000mAh, TL-RL-1006-2000mAh



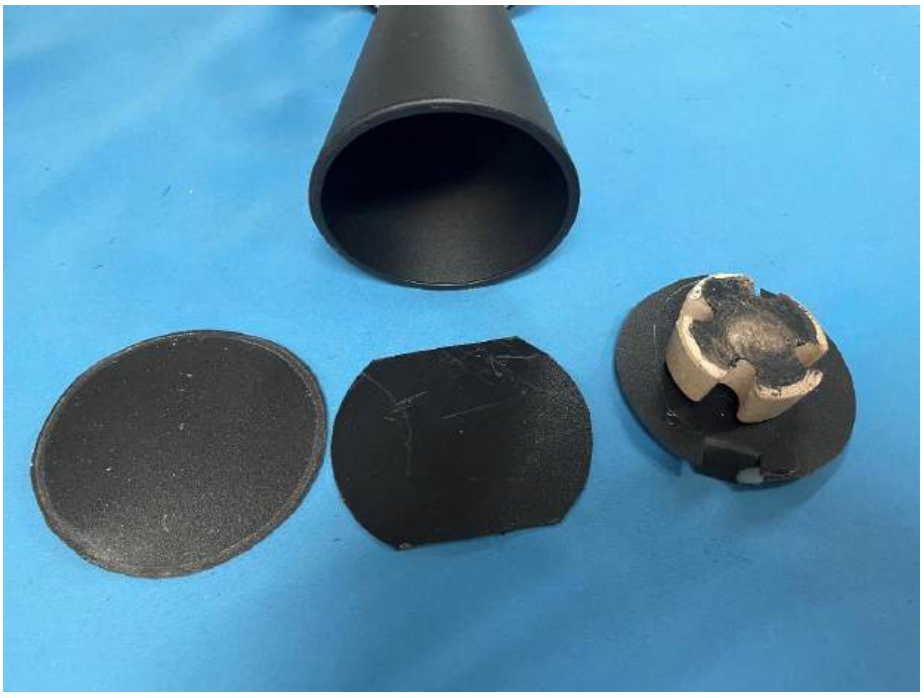
Attachment No. 8

Details of: Outlook for TL-RL-1007-3000mAh, TL-RL-1007-2000mAh

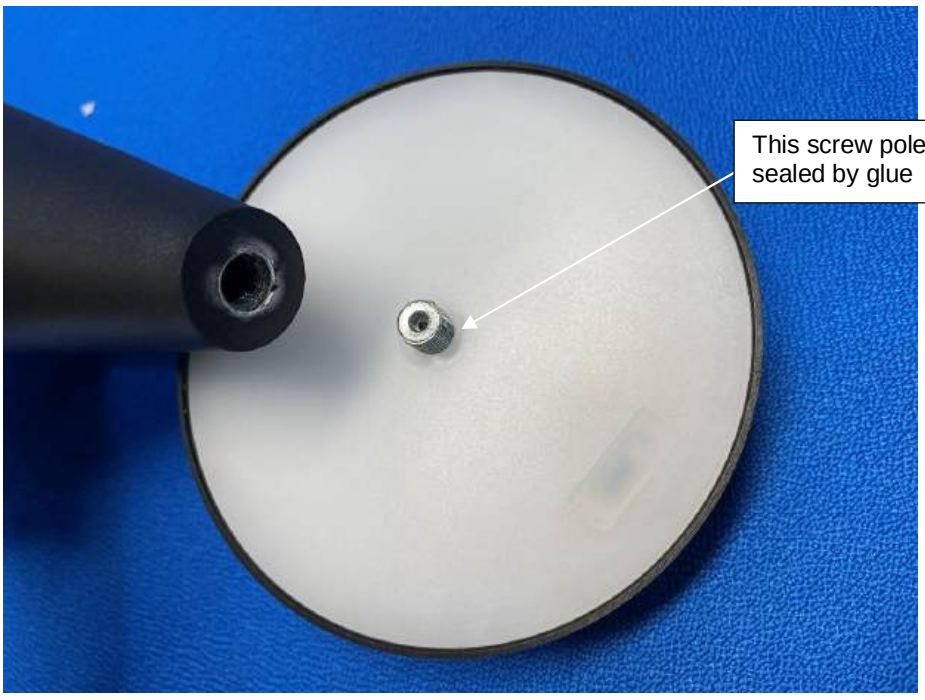
Details of: Outlook for TL-RL-1007-3000mAh, TL-RL-1007-2000mAh

Attachment No. 8

Details of: Base view for TL-RL-1007-3000mAh, TL-RL-1007-2000mAh



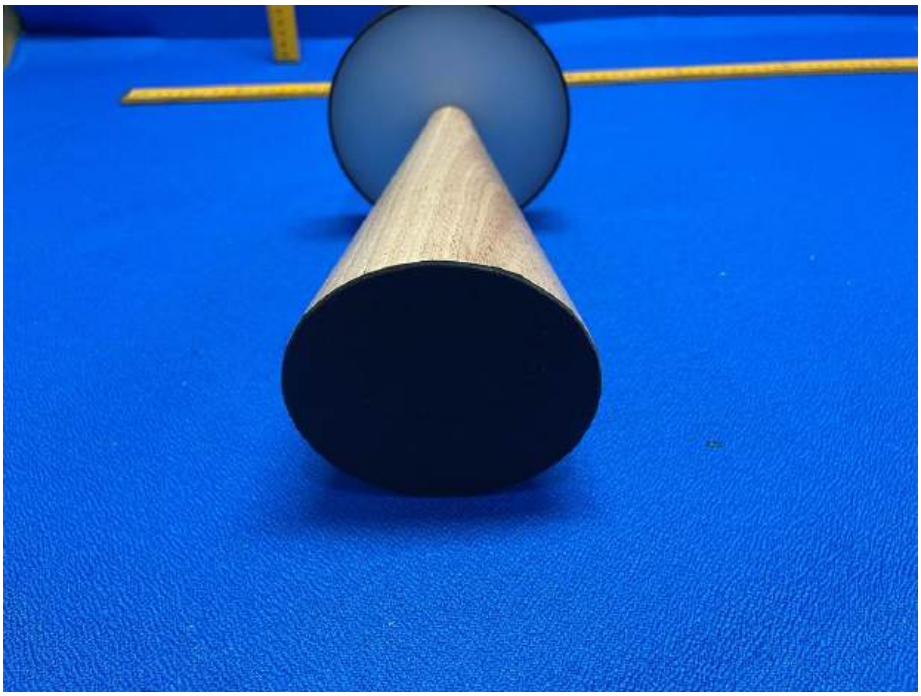
Details of: Detail view for TL-RL-1007-3000mAh, TL-RL-1007-2000mAh



Attachment No. 8

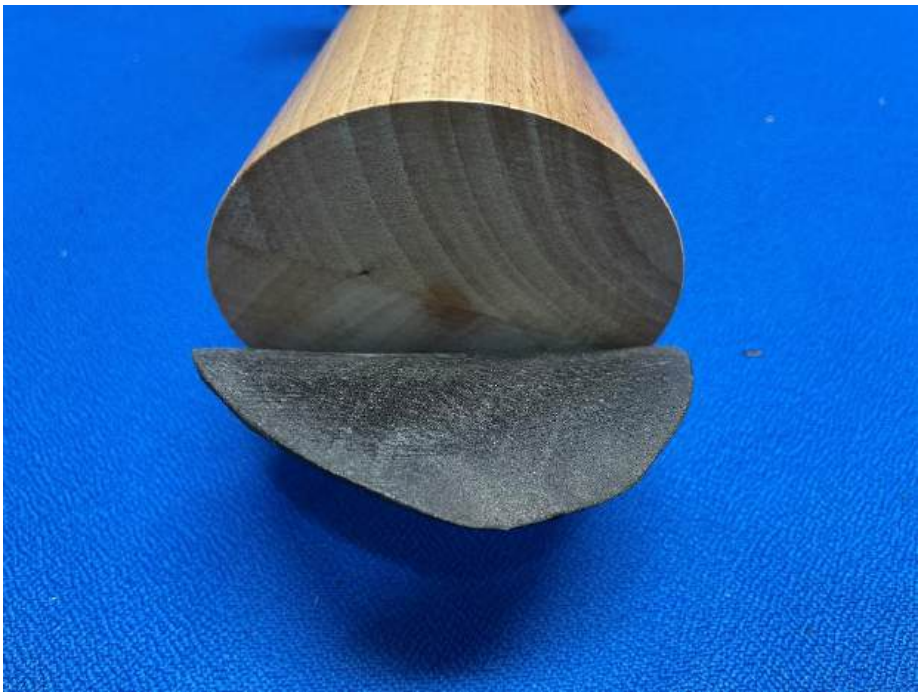
Details of: Outlook for TL-RL-1008-3000mAh, TL-RL-1008-2000mAh

Details of: Outlook for TL-RL-1008-3000mAh, TL-RL-1008-2000mAh

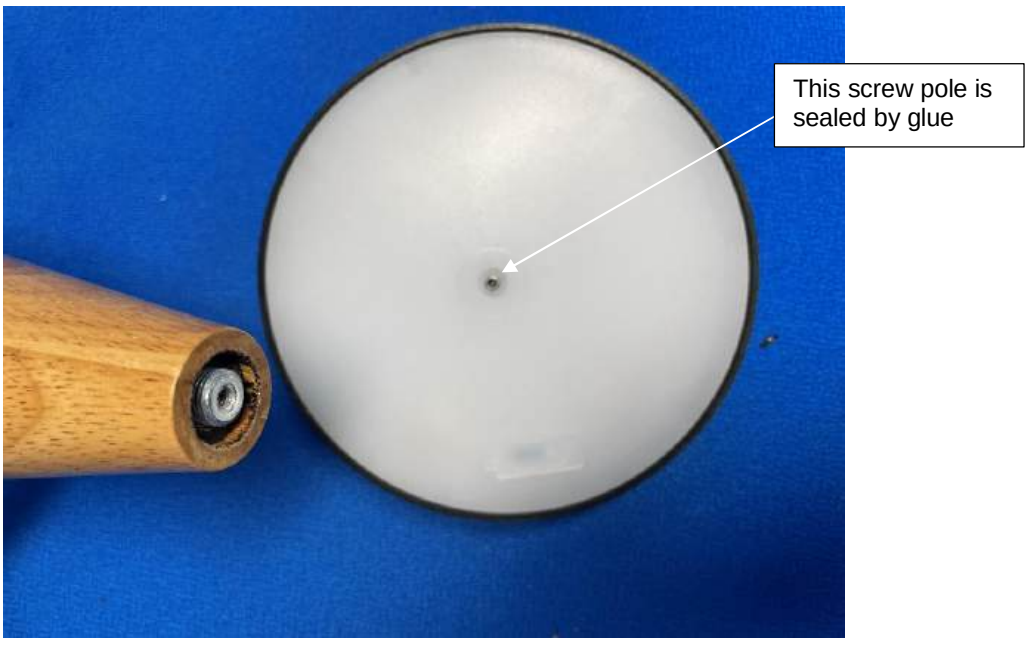


Attachment No. 8

Details of: Base view for TL-RL-1008-3000mAh, TL-RL-1008-2000mAh



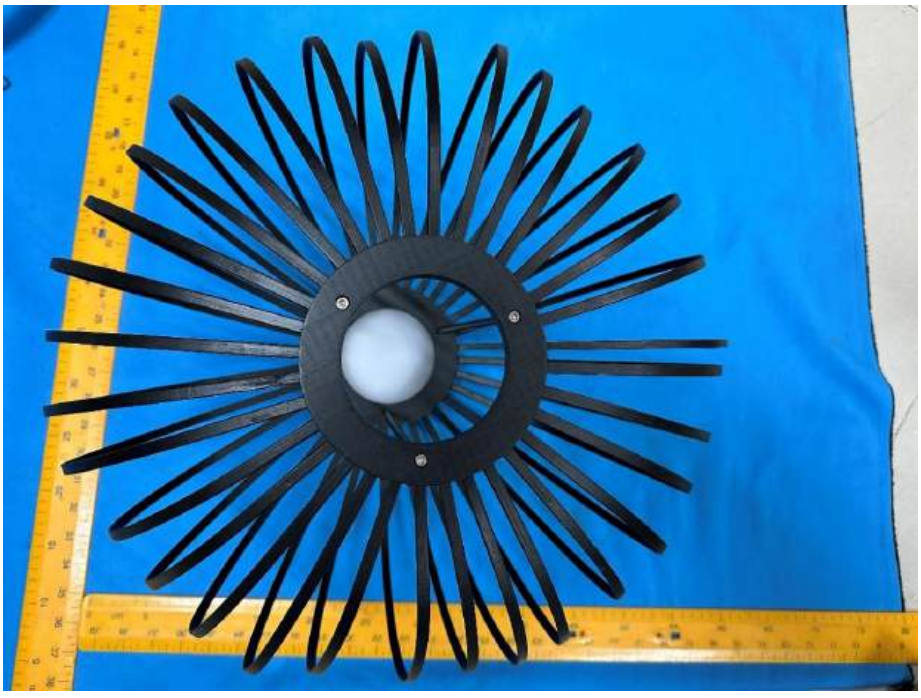
Details of: Detail view for TL-RL-1008-3000mAh, TL-RL-1008-2000mAh



Attachment No. 8

Details of: Outlook for TL-RL-1009-3000mAh, TL-RL-1010-3000mAh, TL-RL-1011-3000mAh, TL-RL-1009-2000mAh, TL-RL-1010-2000mAh, TL-RL-1011-2000mAh

Details of: Outlook for TL-RL-1009-3000mAh, TL-RL-1010-3000mAh, TL-RL-1011-3000mAh, TL-RL-1009-2000mAh, TL-RL-1010-2000mAh, TL-RL-1011-2000mAh



Attachment No. 8

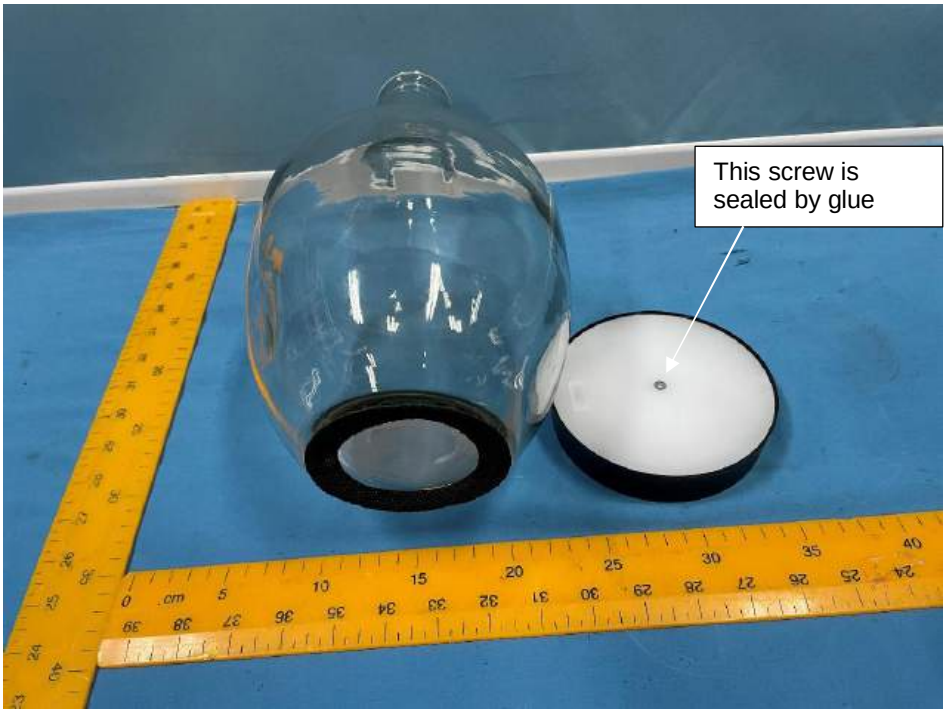
Details of: Exploded view for TL-RL-1009-3000mAh, TL-RL-1010-3000mAh, TL-RL-1011-3000mAh, TL-RL-1009-2000mAh, TL-RL-1010-2000mAh, TL-RL-1011-2000mAh

Details of: Detail view for TL-RL-1009-3000mAh, TL-RL-1010-3000mAh, TL-RL-1011-3000mAh, TL-RL-1009-2000mAh, TL-RL-1010-2000mAh, TL-RL-1011-2000mAh

Attachment No. 8

Details of: Outlook for TL-RL-1012-3000mAh, TL-RL-1012-2000mAh

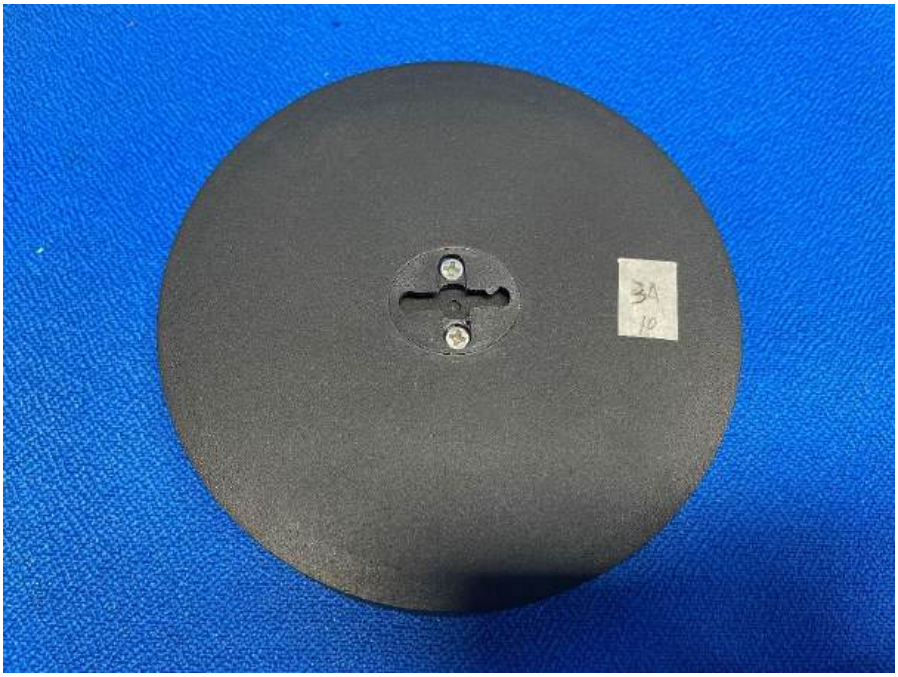
Details of: Outlook for TL-RL-1012-3000mAh, TL-RL-1012-2000mAh



Attachment No. 8

Details of: Outlook for TL-RL-1012-3000mAh, TL-RL-1012-2000mAh

Details of: Detail view for TL-RL-1012-3000mAh, TL-RL-1012-2000mAh



Attachment No. 8

Details of: Outlook for TL-RL-1013-3000mAh, TL-RL-1014-3000mAh, TL-RL-1013-2000mAh, TL-RL-1014-2000mAh

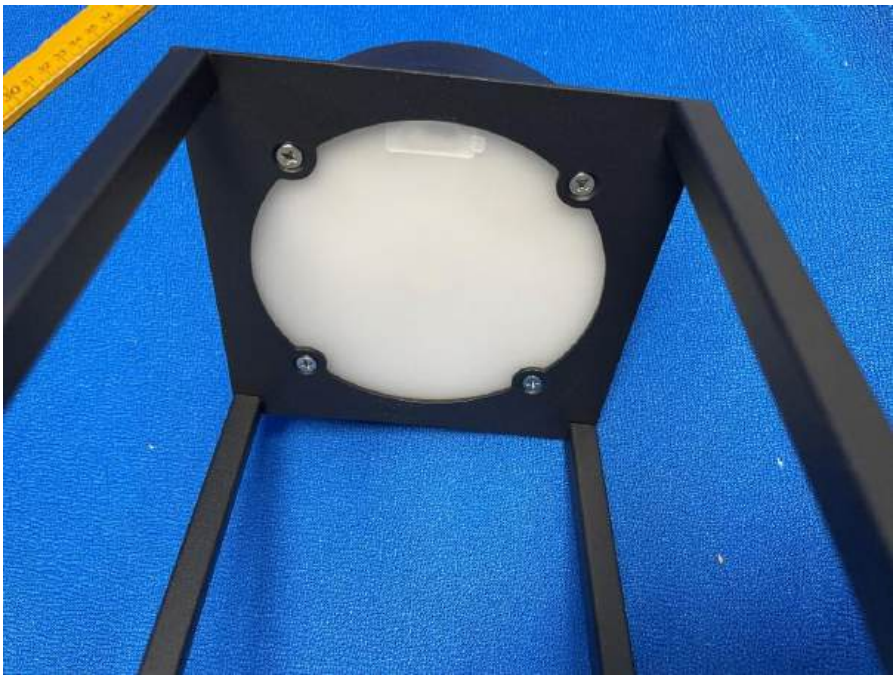
Representative model TL-RL-1014-3000mAh

Details of: Outlook for TL-RL-1020-3000mAh, TL-RL-1021-3000mAh, TL-RL-1020-2000mAh, TL-RL-1021-2000mAh

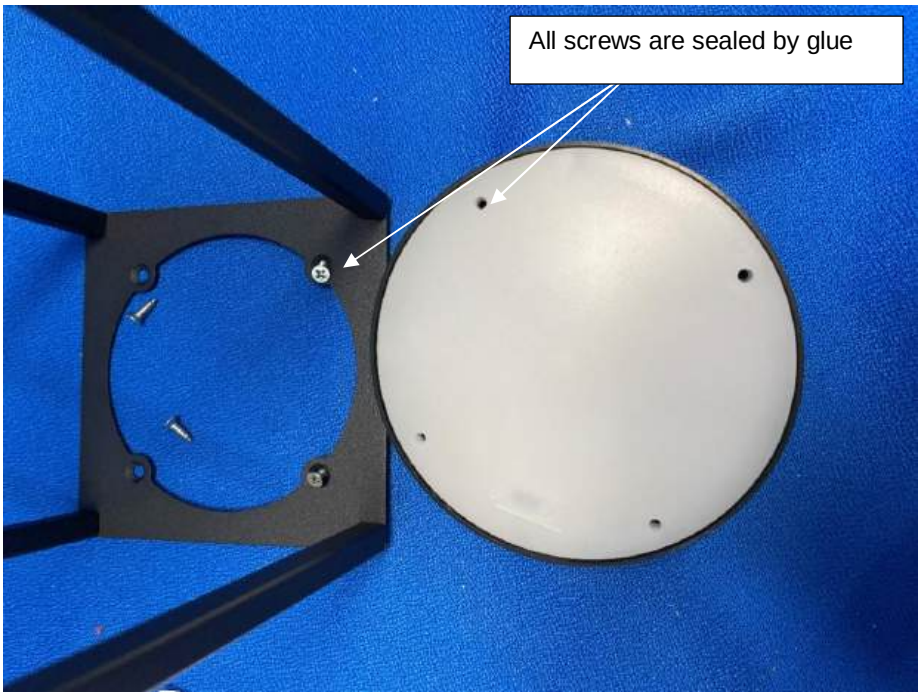
Representative model TL-RL-1021-3000mAh

Attachment No. 8

Details of: Detail view for TL-RL-1013-3000mAh, TL-RL-1014-3000mAh, TL-RL-1020-3000mAh, TL-RL-1021-3000mAh, TL-RL-1013-2000mAh, TL-RL-1014-2000mAh, TL-RL-1020-2000mAh, TL-RL-1021-2000mAh

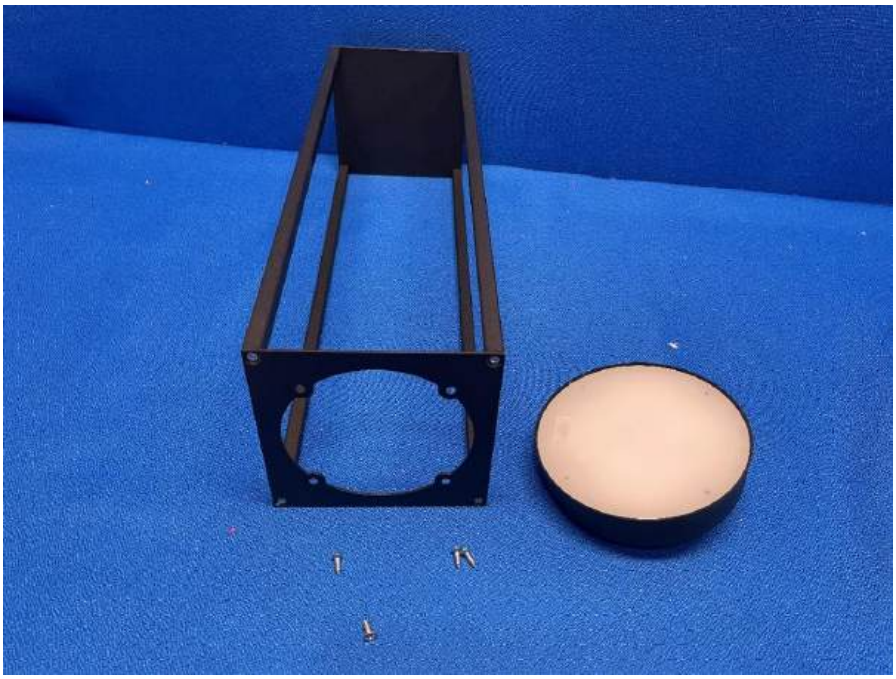


Details of: Detail view for TL-RL-1013-3000mAh, TL-RL-1014-3000mAh, TL-RL-1020-3000mAh, TL-RL-1021-3000mAh, TL-RL-1013-2000mAh, TL-RL-1014-2000mAh, TL-RL-1020-2000mAh, TL-RL-1021-2000mAh

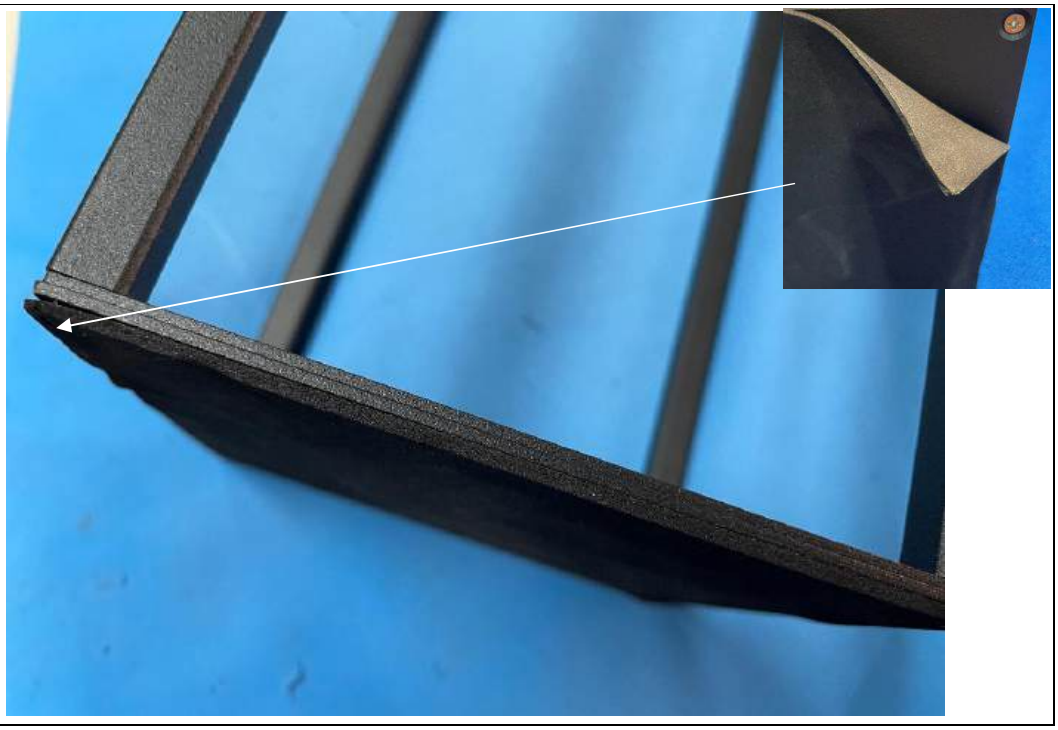


Attachment No. 8

Details of: Detail view for TL-RL-1013-3000mAh, TL-RL-1014-3000mAh, TL-RL-1020-3000mAh, TL-RL-1021-3000mAh, TL-RL-1013-2000mAh, TL-RL-1014-2000mAh, TL-RL-1020-2000mAh, TL-RL-1021-2000mAh

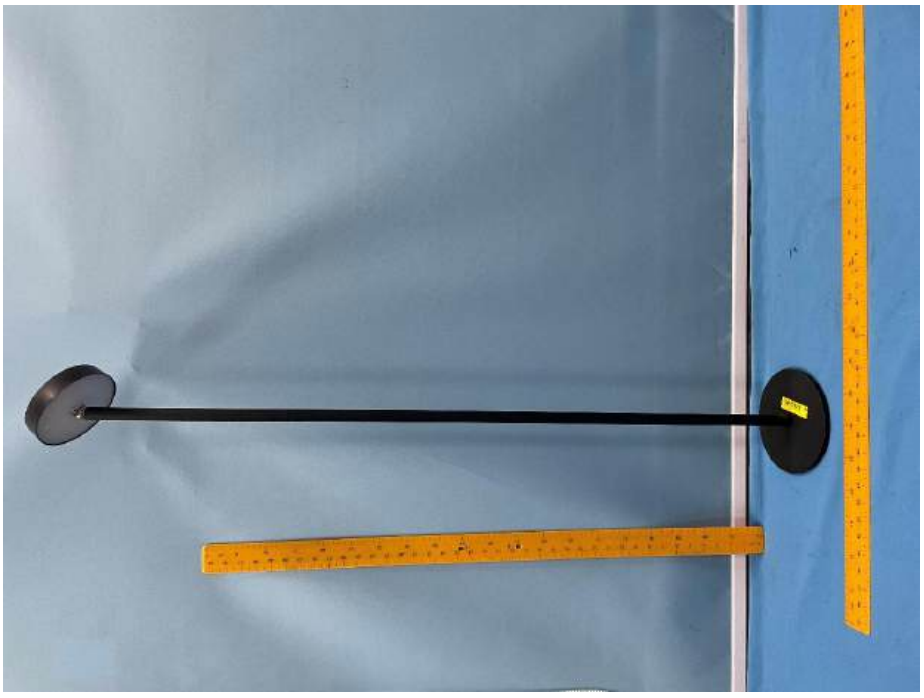


Details of: Detail view for TL-RL-1013-3000mAh, TL-RL-1014-3000mAh, TL-RL-1020-3000mAh, TL-RL-1021-3000mAh, TL-RL-1013-2000mAh, TL-RL-1014-2000mAh, TL-RL-1020-2000mAh, TL-RL-1021-2000mAh

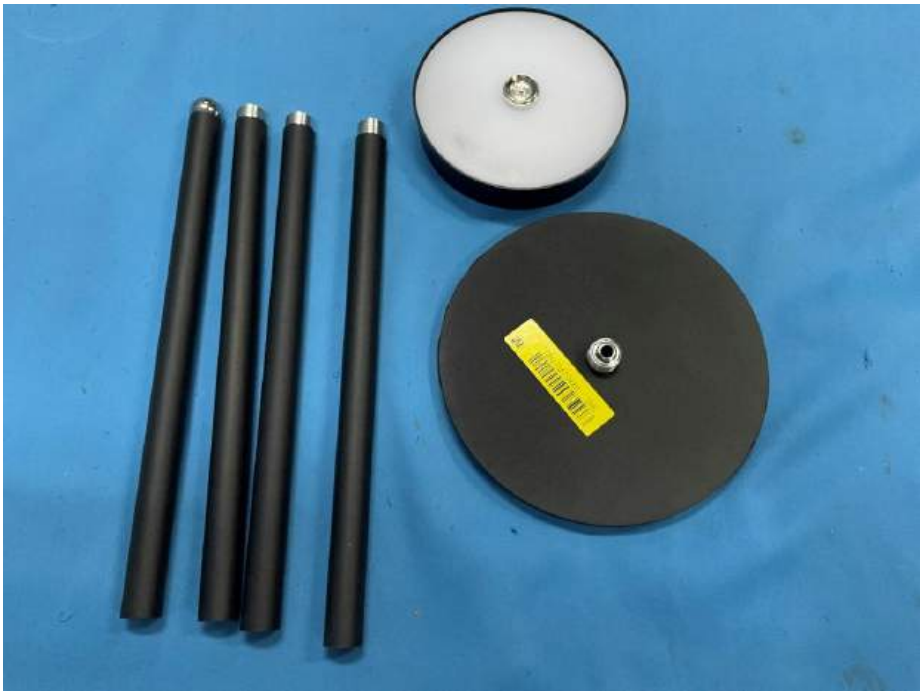


Attachment No. 8

Details of: Outlook for TL-RL-1015-3000mAh, TL-RL-1015-2000mAh

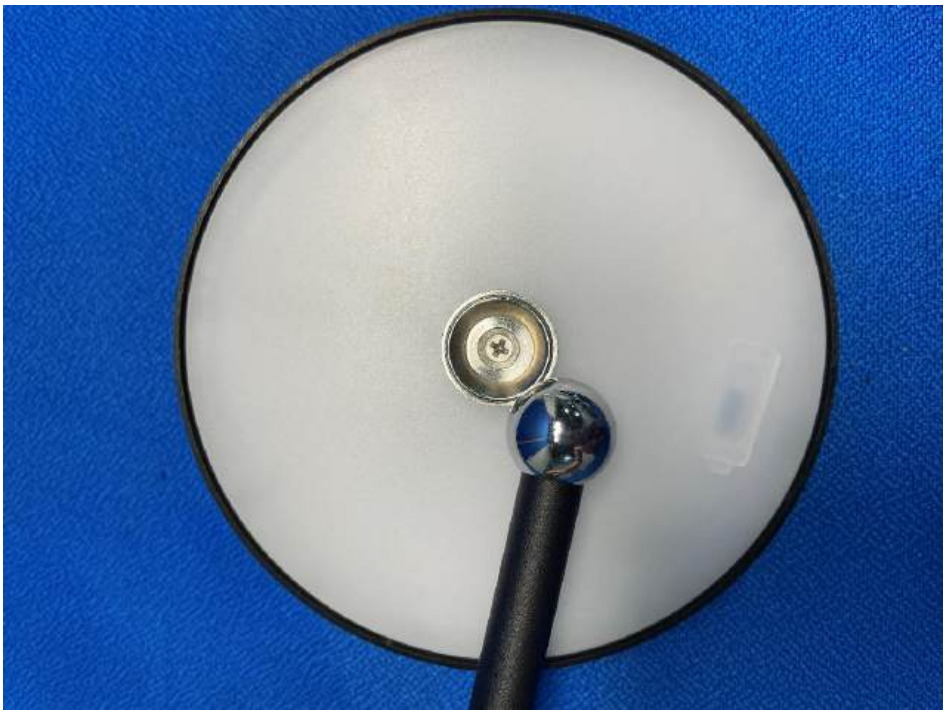


Details of: Exploded view for TL-RL-1015-3000mAh, TL-RL-1015-2000mAh

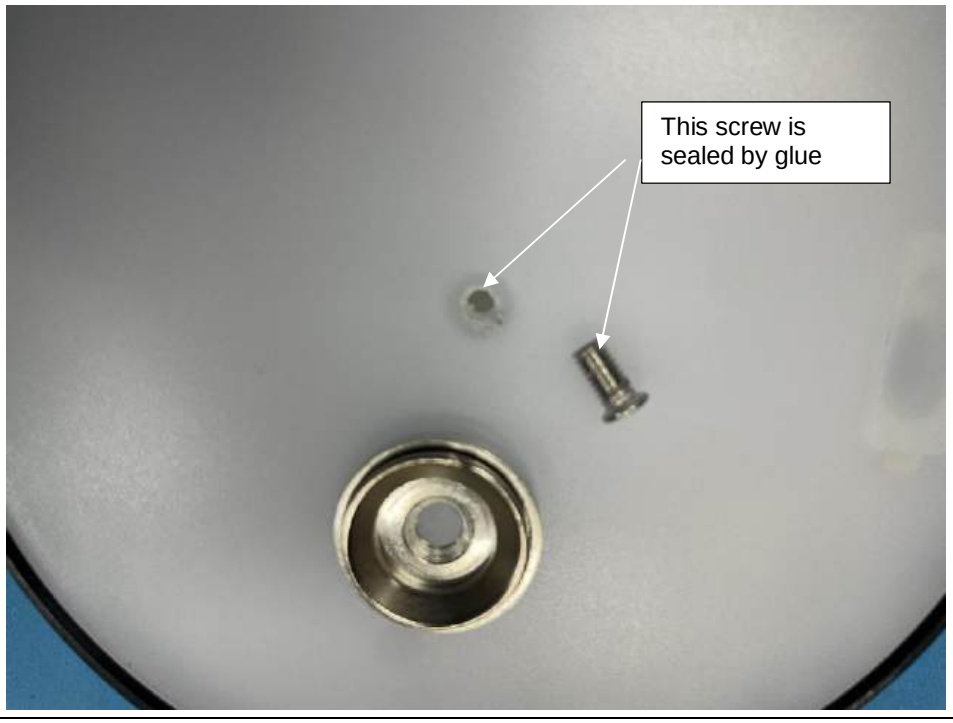


Attachment No. 8

Details of: Detail view for TL-RL-1015-3000mAh, TL-RL-1015-2000mAh



Details of: Detail view for TL-RL-1015-3000mAh, TL-RL-1015-2000mAh



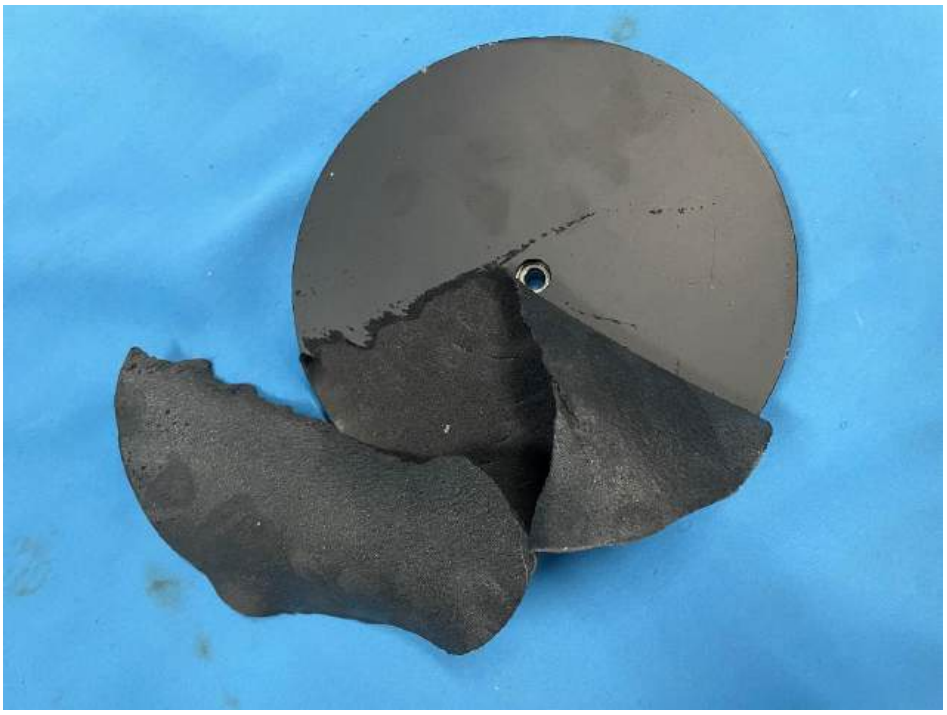
Attachment No. 8

Details of: Detail view for TL-RL-1015-3000mAh, TL-RL-1015-2000mAh

Details of: Base view for TL-RL-1015-3000mAh, TL-RL-1015-2000mAh

Attachment No. 8

Details of: Base view for TL-RL-1015-3000mAh, TL-RL-1015-2000mAh



Details of: Outlook for TL-RL-1016-3000mAh, TL-RL-1016-2000mAh

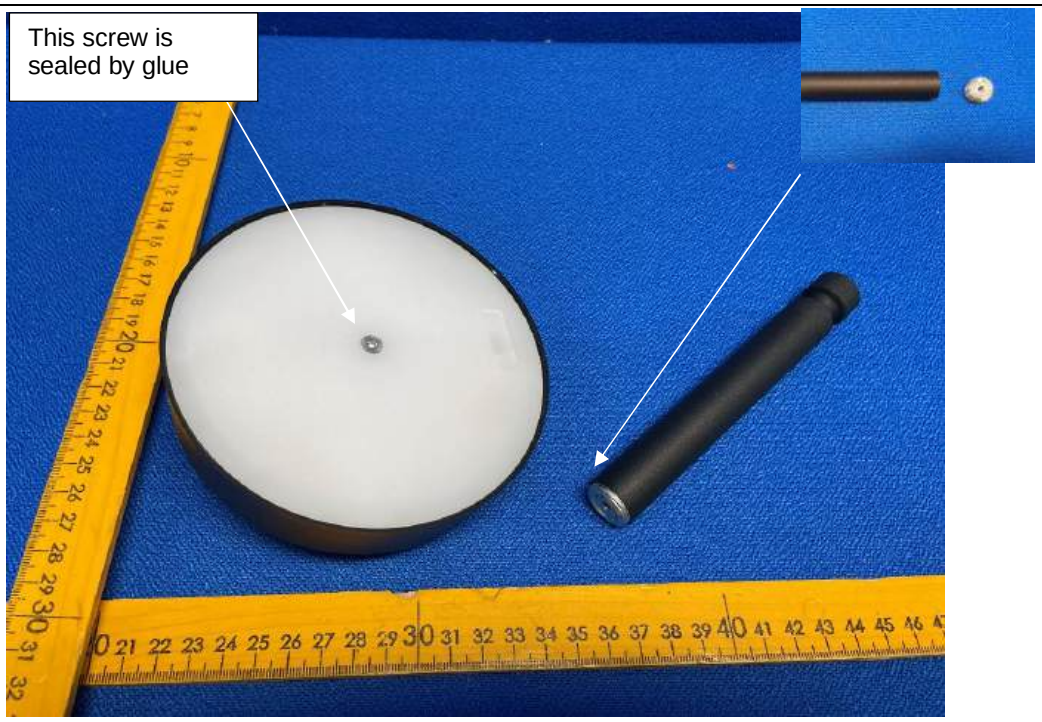
Attachment No. 8

Details of: Outlook for TL-RL-1016-3000mAh, TL-RL-1016-2000mAh

Details of: Outlook for TL-RL-1017-3000mAh, TL-RL-1017-2000mAh

Attachment No. 8

Details of: Outlook for TL-RL-1017-3000mAh, TL-RL-1017-2000mAh



Details of: Outlook for TL-RL-1018-3000mAh, TL-RL-1018-2000mAh

Attachment No. 8

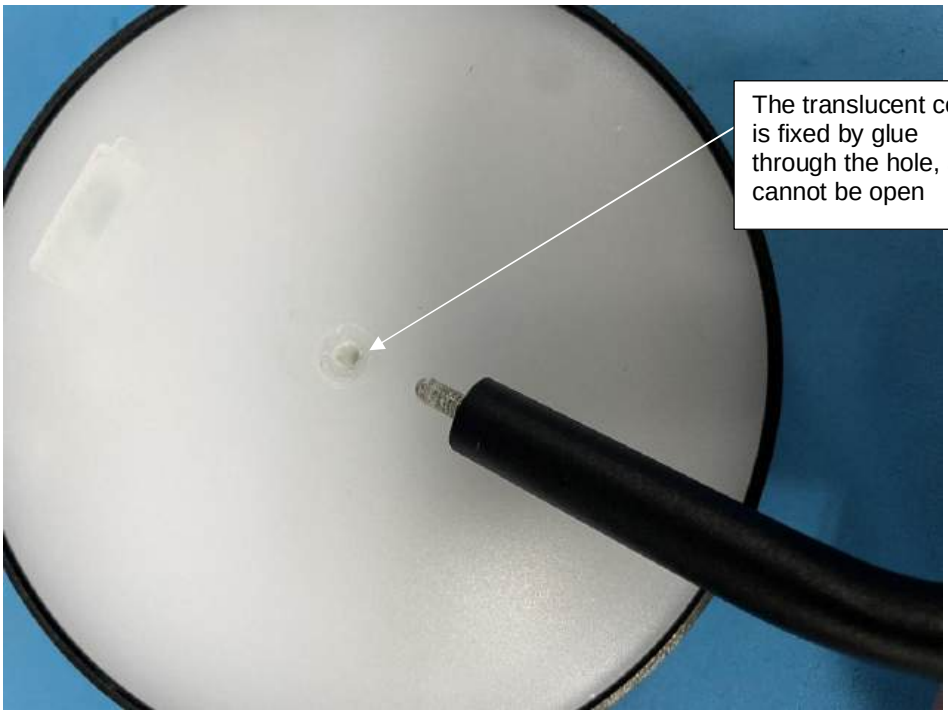
Details of: Outlook for TL-RL-1018-3000mAh, TL-RL-1018-2000mAh

Details of: Outlook for TL-RL-1019-3000mAh, TL-RL-1019-2000mAh

Attachment No. 8

Details of: Outlook for TL-RL-1019-3000mAh, TL-RL-1019-2000mAh

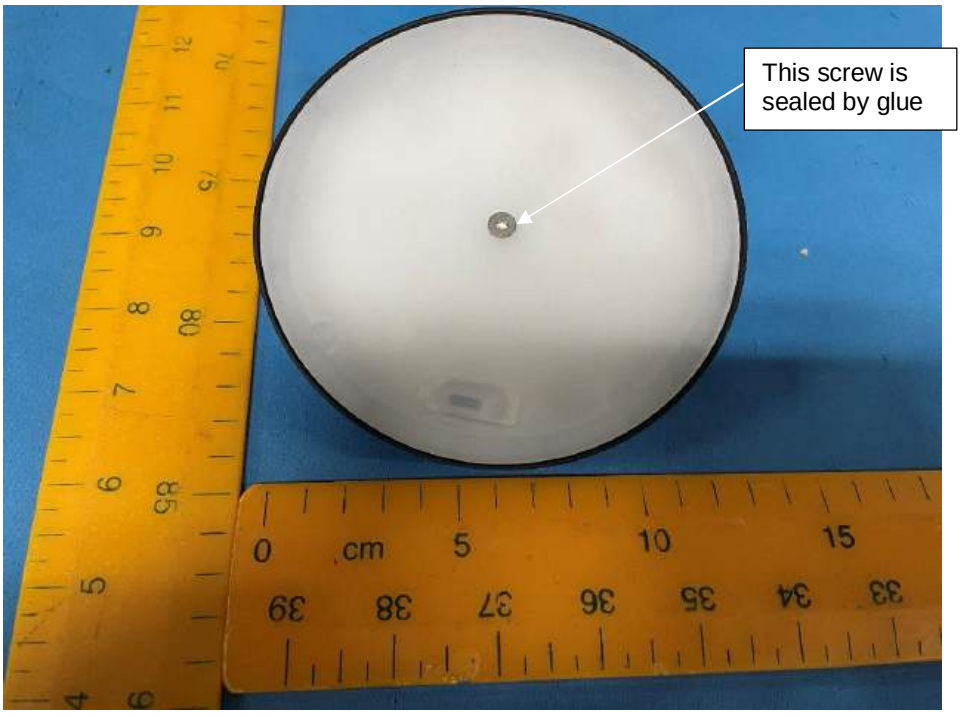
Details of: Outlook for TL-RL-1019-3000mAh, TL-RL-1019-2000mAh



Attachment No. 8

Details of: Outlook for TL-RL-1022-3000mAh, TL-RL-1022-2000mAh

Details of: Outlook for TL-RL-1022-3000mAh, TL-RL-1022-2000mAh



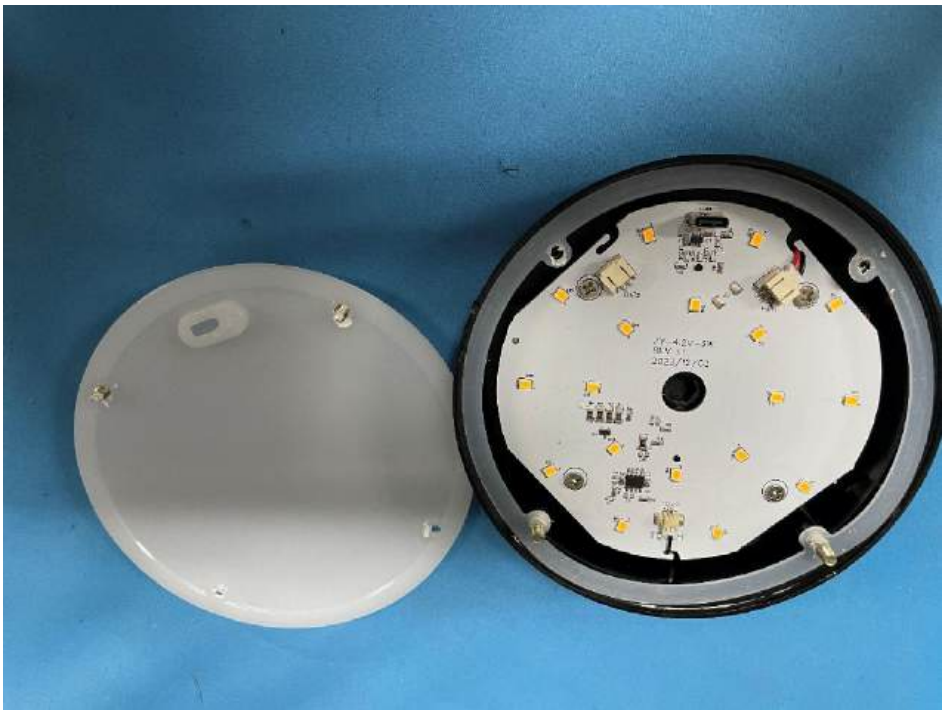
Attachment No. 8

Details of: Detail view for all models

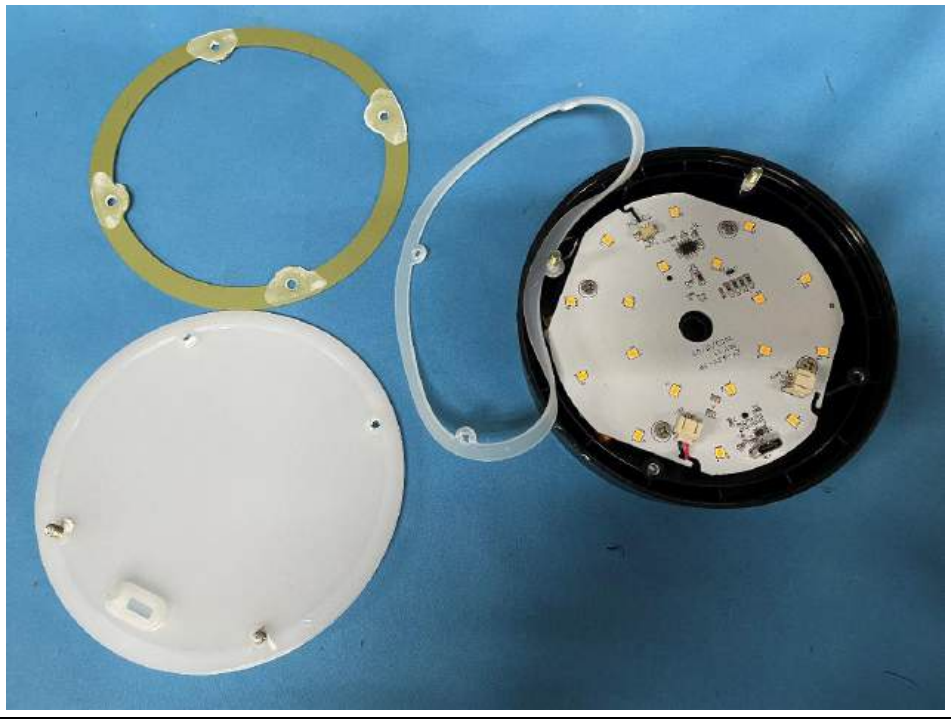
Details of: Detail view for all models

Attachment No. 8

Details of: Internal view for all models
Representative model TL-RL-1006-2000mAh



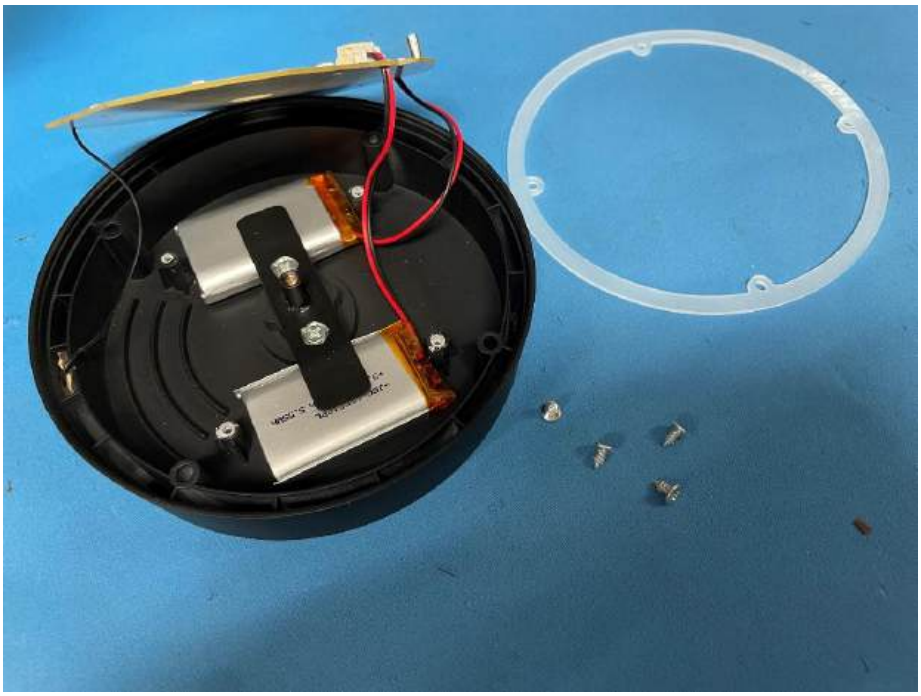
Details of: Internal view for all models
Representative model TL-RL-1006-2000mAh



Attachment No. 8

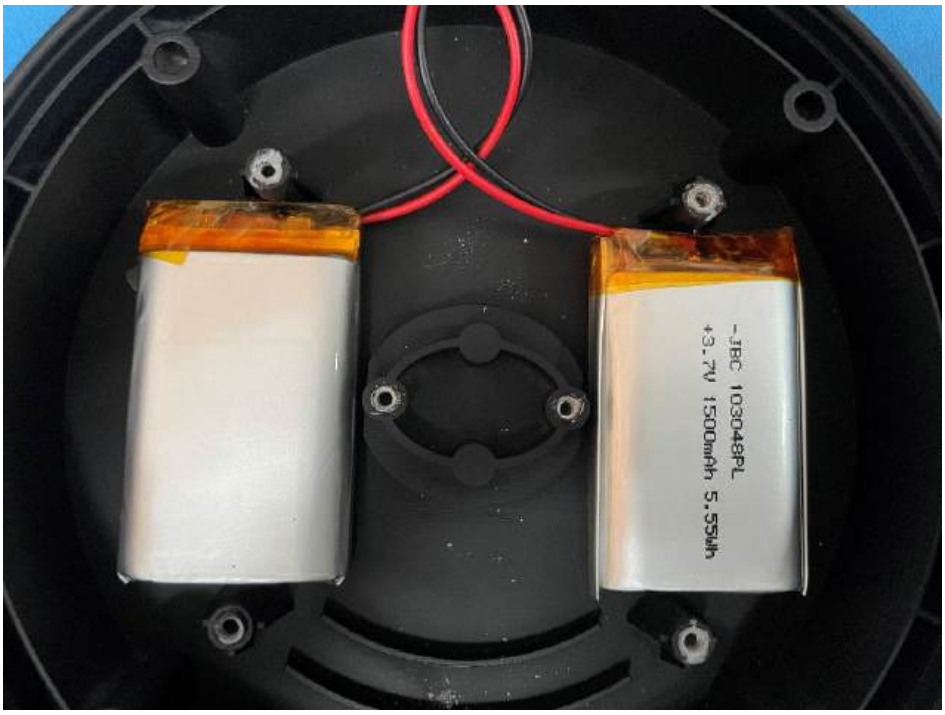
Details of: LED module view for all models

Details of: Battery view (3.7V, 2x1500mAh) for models with suffix ‘3000mAh’

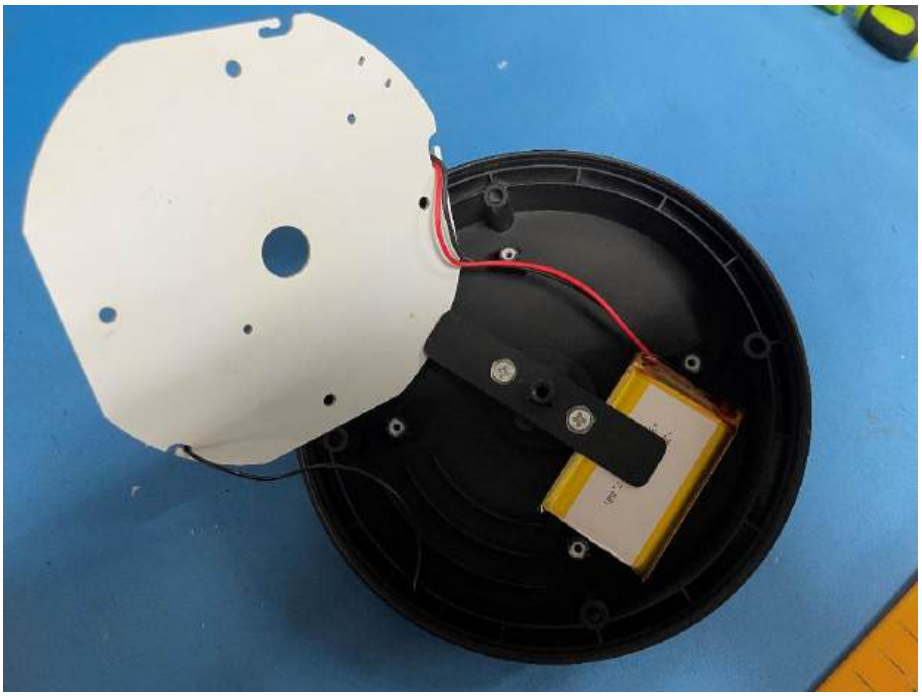


Attachment No. 8

Details of: Battery view (3.7V, 2x1500mAh) for models with suffix ‘3000mAh’

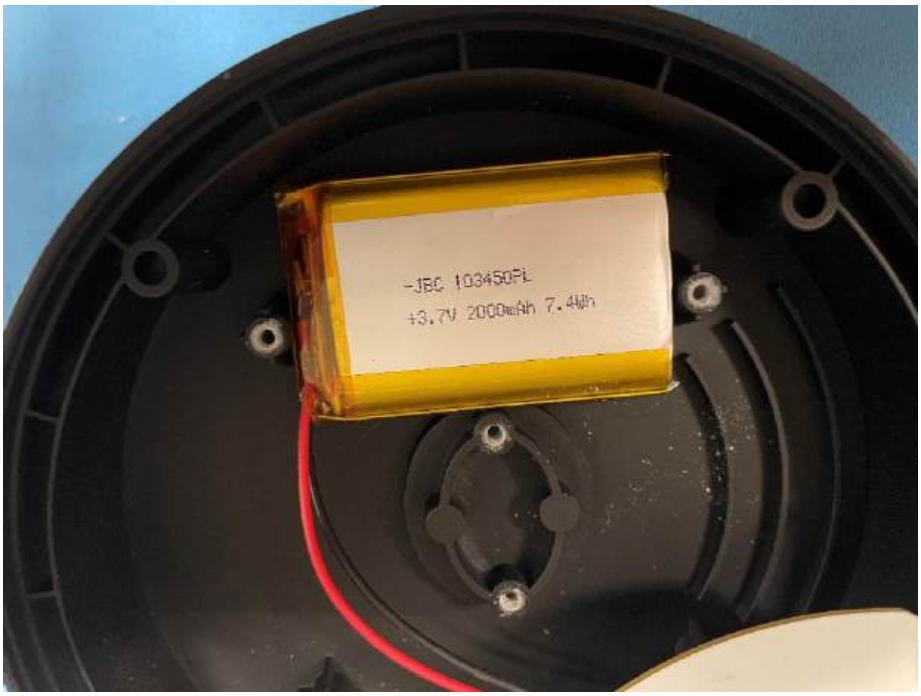


Details of: Battery view (3.7V, 2000mAh) for models with suffix ‘2000mAh’



Attachment No. 8

Details of: Battery view (3.7V, 2000mAh) for models with suffix '2000mAh'



Details of: USB cord

End of Report