



CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME ANONİM ŞİRKETİ



Kayışdağı Mahallesi Gülçin Sokak No:2/2
Ataşehir/ İstanbul/TURKIYE

Deney Raporu
Test Report

LVD-467-02

01-2020

Müşterinin adı /adresi:

Customer name/address

**GEMAŞ Genel Mühendislik Mekanik San.ve Tic.A.Ş. / İTOB Organize Sanayi Bölgesi 10001 Sok.No:28
Menderes/İZMİR TURKEY**

Üretici/ Üretim Yeri:

Manufacturer/ Manufacturing
Location

**GEMAŞ Genel Mühendislik Mekanik San.ve Tic.A.Ş. / İTOB Organize Sanayi Bölgesi
10001 Sok.No:28 Menderes/İZMİR TURKEY**

İstek Numarası:

Order no.

07112019nkk1

Numunenin Adı ve Tarihi:

Name and identity of test item

051143; SLİM LED 252 MAVİ – SLIM LED 252 BLUE

Numunenin Kabul tarihi:

The date of receipt of test item

13.11.2019

Açıklamalar:

Remarks

**Ürün ilgili testlerden geçmiştir, lütfen raporu inceleyiniz. / The product passes related tests, see report
below.**

Deneyin yapıldığı tarih:

Date of Test

20.11.2019 to 22.01.2020

Deneyin Yapıldığı Yer:

Testing Location

**CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME ANONİM ŞİRKETİ
Kayışdağı Mahallesi Gülçin Sokak No:2/2 Ataşehir/ İstanbul/Turkiye**

Deney Standartı

Test Standard

TS 8707 EN 60598-2-18

Raporun Sayfa Sayısı:

Number of pages of the Report

34 sayfa/ 34 pages

Tarih
Date

Deney Sorumlusu
Person in charge of test

Laboratuvar Müdürü
Head of Testing Laboratory

31.01.2020

Mehtap İrem TANKÜL

Timur GÜSER



Bu rapor laboratuvarın izni olmadan kısmen kopyalanıp çoğaltılamaz.

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Testing reports without signature and seal are not valid.

TEST REPORT

IEC/EN 60598-2-18

Luminaires

Part 2: Particular requirements: Section Eighteen – Luminaires for swimming pools and similar applications

| | |
|--|---|
| Report Reference No: | LVD-467-01 |
| Date of issue | 31-01-2020 |
| Contents.....: | 34 pages |
| Testing Laboratory | CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME ANONİM ŞİRKETİ |
| Address | Kayışdağı Mahallesi Gülçin Sokak No:2/2 Ataşehir/İstanbul/TURKİYE |
| Testing location | CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME ANONİM ŞİRKETİ |
| Address | Kayışdağı Mahallesi Gülçin Sokak No:2/2 Ataşehir/İstanbul/TURKİYE |
| Applicant's name: | GEMAŞ Genel Mühendislik Mekanik San.ve Tic.A.Ş. |
| Address | İTOB Organize Sanayi Bölgesi 10001 Sok.No:28 Menderes/İZMİR TURKEY |
| Test specification: | |
| Standard | IEC 60598-2-18 (Second Edition):1993 + A1:2011 used in conjunction with IEC 60598-1 (Seventh Edition):2008 EN 60598-2-18:1994+A1:2012 used in conjunction with EN 60598-1:2008+A11:2009 |
| Test procedure | Type test |
| Non-standard test method.....: | N/A |
| Test Report Form No: | F510_48_R1.0 |
| Test Report Form(s) Originator .. : | Intertek Semko AB |
| Master TRF | 2012-11 |
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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. | |

| | |
|-----------------------------|---|
| Test item description | SLIM LED 252 BLUE |
| Trade Mark |  |
| Manufacturer | GEMAŞ Genel Mühendislik Mekanik San.ve Tic.A.Ş. |
| Model/Type reference | 051143 |
| Ratings | 12 V AC/DC; 50/60 Hz; 50 W; 4,17 A; IP68 |

Summary of testing:

| Tests performed (name of test and test clause): | Testing location: |
|---|--|
| 18.5 (3.4) Durability Test 18.6 (4.13) Mechanical strength 18.12 (12.3) Endurance test 18.12 (12.4) Thermal test (normal operation) 18.13 (9.2) Resistance to Dust, Solid Objects and Moisture 18.13 (9.3) Humidity test 18.14 (10.2.1) Insulation resistance test 18.14 (10.2.2) Electric strength test 18.14 (10.3) Touch current test 18.15 (13.2.1) Ball-pressure test 18.15 (13.3.2) Glow wire test (650 °C) | CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME ANONİM ŞİRKETİ Kayışdağı Mahallesi Gülçin Sokak No:2/2 Ataşehir/ İstanbul/Türkiye |

Summary of compliance with National Differences:

List of countries addressed:

The product fulfils the requirements of (insert standard number and edition and delete the text in parenthesis or delete the whole sentence if not applicable)

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.

| | |
|--|-------------------|
| ÜRÜN ADI: | SLIM LED 252 MAVİ |
| MODEL NO: | 051143 |
| VOLTAJ: | 12 V AC/DC |
| FREKANS: | 50/60 Hz |
| GÜÇ: | 50 W |
| AKIM: | 4,17 A |
| IP Koruma Sınıfı | IP68 |
| Kategori Bilgisi | Kategori A-C |
| GEMAŞ Genel Mühendislik Mek. San. ve Tic. A.Ş. www.gemas.com.tr , info@gemas.com.tr | |
|  | |
| Yalnızca suya daldırılarak kullanılmalıdır. Made in TURKIYE | |

| | |
|---|------------------------------|
| Test item particulars: | SLIM LED 252 BLUE |
| Classification of installation and use.....: | Class III & fixed connection |
| Supply Connection.....: | Connection with tails |
|: | |
|: | |
| Possible test case verdicts: | |
| - test case does not apply to the test object | N/A |
| - test object does meet the requirement | P (Pass) |
| - test object does not meet the requirement | F (Fail) |
| Testing | |
| Date of receipt of test item.....: | 13.11.2019 |
| Date (s) of performance of tests | 20.11.2019 to 22.01.2020 |

General product information:

Par56 LED luminaire is used for pool lighting.

It could operate both DC and AC voltage source.

The operation voltage is 12 V.

It is intended for underwater use only.

| 18.2 (0) | GENERAL TEST REQUIREMENTS | | P |
|------------|---|---|---|
| 18.2 (0.1) | Information for luminaire design considered | Standard Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | — |
| 18.2 (0.3) | More sections applicable | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | — |

| 18.4 (2) | CLASSIFICATION | | P |
|--------------|--|---|---|
| 18.4 (2.2) | Type of protection | Class III | — |
| 18.4 (2.3) | Degree of protection | IP68 | — |
| 18.4 (2.4) | Luminaire suitable for direct mounting on normally flammable surfaces | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | — |
| | Luminaire not suitable for direct mounting on normally flammable surfaces..... | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | — |
| 18.4 (2.5) | Luminaire for normal use | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | — |
| | Luminaire for rough service | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | — |
| 18.4.1 (-) | Class III and external and internal voltages $\leq 12V$ AC or $\leq 30V$ DC | | P |
| 18.4.2 (-) | Degree of protection: | | P |
| 18.4.2.1 (-) | Parts in contact with water IP X8 | IPX8 | P |
| 18.4.2.2 (-) | Parts not in contact with water at least IP 54 | IP6X | P |
| 18.4.3 (-) | Classification of mounting, lamp changing and supply connection: | | P |
| 18.4.3.1 (-) | Category A. Supply connection and lamp replacement on the side not in contact with water : | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | — |
| 18.4.3.2 (-) | Category B. Lamp replacement on the side in contact with water..... | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | — |
| 18.4.3.3 (-) | Category C. Luminaire removed from water for lamp replacement..... | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | — |

| 18.5 (3) | MARKING | | P |
|--------------|--------------------------|-------------------------|-----|
| 18.5 (3.2) | Mandatory markings | | P |
| | Position of the marking | On the enclosure | P |
| | Format of symbols/text | Symbols >5mm; Text >2mm | P |
| 18.5 (3.3) | Additional information | | P |
| | Language of instructions | In Turkish | P |
| 18.5 (3.3.1) | Combination luminaires | | N/A |
| 18.5 (3.3.2) | Nominal frequency in Hz | 50/60 Hz | P |
| 18.5 (3.3.3) | Operating temperature | | N/A |
| 18.5 (3.3.4) | Symbol or warning notice | Warning notice | P |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 18.5 (3.3.5) | Wiring diagram | | N/A |
| 18.5 (3.3.6) | Special conditions | No special condition | N/A |
| 18.5 (3.3.7) | Metal halide lamp luminaire – warning | No metal halide lamp | N/A |
| 18.5 (3.3.8) | Limitation for semi-luminaires | No semi-luminaire | N/A |
| 18.5 (3.3.9) | Power factor and supply current | | N/A |
| 18.5 (3.3.10) | Suitability for use indoors | | N/A |
| 18.5 (3.3.11) | Luminaires with remote control | No remote control | N/A |
| 18.5 (3.3.12) | Clip-mounted luminaire – warning | | N/A |
| 18.5 (3.3.13) | Specifications of protective shields | | N/A |
| 18.5 (3.3.14) | Symbol for nature of supply | AC/DC | P |
| 18.5 (3.3.15) | Rated current of socket outlet | | N/A |
| 18.5 (3.3.16) | Rough service luminaire | | N/A |
| 18.5 (3.3.17) | Mounting instruction for type Y, type Z and some type X attachments | | N/A |
| 18.5 (3.3.18) | Non-ordinary luminaires with PVC cable | | N/A |
| 18.5 (3.3.19) | Protective conductor current in instruction if applicable | | N/A |
| 18.5 (3.3.20) | Provided with information if not intended to be mounted within arm's reach | | N/A |
| 18.5 (3.4) | Test with water | Applied | P |
| | Test with hexane | Applied | P |
| | Legible after test | Inspected | P |
| | Label attached | Inspected | P |
| 18.5.1 (-) | Marking of luminaires for use only in water | | P |
| 18.5.2 (-) | Marking of luminaires for use only with safety isolating transformer | | N/A |
| | Output in voltamperes on the luminaire or in leaflet with the luminaire | | N/A |
| 18.5.3 (-) | Installation instructions with the luminaire | | N/A |
| 18.5.4 (-) | Instruction provide advice regard to corrosion | | N/A |
| | Information of correct installation according IEC 364-7-702 | | N/A |
| 18.6 (4) | CONSTRUCTION | | P |
| 18.6 (4.2) | Components replaceable without difficulty | | P |

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|-------------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 18.6 (4.3) | Wireways smooth and free from sharp edges | | P |
| 18.6 (4.4) | Lampholders | | N/A |
| 18.6 (4.4.1) | Integral lampholder | | N/A |
| 18.6 (4.4.2) | Wiring connection | | N/A |
| 18.6 (4.4.3) | Lampholder for end-to-end mounting | | N/A |
| 18.6 (4.4.4) | Positioning | | N/A |
| | - pressure test (N) | | N/A |
| | 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) | | N/A |
| | After test the lampholder have not moved from its position and show no permanent deformation | | N/A |
| 18.6 (4.4.5) | Peak pulse voltage | | N/A |
| 18.6 (4.4.6) | Centre contact | | N/A |
| 18.6 (4.4.7) | Parts in rough service luminaires resistant to tracking | | N/A |
| 18.6 (4.4.8) | Lamp connectors | | N/A |
| 18.6 (4.4.9) | Caps and bases correctly used | | N/A |
| 18.6 (4.5) | Starter holders | | N/A |
| | Starter holder in luminaires other than class II | | N/A |
| | Starter holder class II construction | | N/A |
| 18.6 (4.6) | Terminal blocks | | N/A |
| | Tails | | N/A |
| | Unsecured blocks | | N/A |
| 18.6 (4.7) | Terminals and supply connections | | N/A |
| 18.6 (4.7.1) | Contact to metal parts | No metal part | N/A |
| 18.6 (4.7.2) | Test 8 mm live conductor | | N/A |
| | Test 8 mm earth conductor | | N/A |
| 18.6 (4.7.3) | Terminals for supply conductors | | N/A |
| 18.6 (4.7.3.1) | Welded connections: | | N/A |
| | - stranded or solid conductor | | N/A |

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|-------------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - spot welding | | |
| | - welding between wires | | N/A |
| | - Type Z attachment | | N/A |
| | - mechanical test according to 15.8.2 | | N/A |
| | - electrical test according to 15.9 | | N/A |
| | - heat test according to 15.9.2.3 and 15.9.2.4 | | N/A |
| 18.6 (4.7.4) | Terminals other than supply connection | | N/A |
| 18.6 (4.7.5) | Heat-resistant wiring/sleeves | | N/A |
| 18.6 (4.7.6) | Multi-pole plug | | N/A |
| | - test at 30 N | | N/A |
| 18.6 (4.8) | Switches: | | N/A |
| | - adequate rating | | N/A |
| | - adequate fixing | | N/A |
| | - polarized supply | | N/A |
| | - compliance with 61058-1 for electronic switches | | N/A |
| 18.6 (4.9) | Insulating lining and sleeves | | N/A |
| 18.6 (4.9.1) | Retainment | | N/A |
| | Method of fixing | | N/A |
| 18.6 (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 |
| 18.6 (4.10) | Insulation of Class II luminaires | | N/A |
| 18.6 (4.10.1) | No contact, mounting surface – accessible metal parts – wiring of basic insulation | | N/A |
| | Safe installation fixed luminaires | | N/A |
| | Capacitors and switches | | N/A |
| | Interference suppression capacitors according to IEC 60384-14 | | N/A |
| 18.6 (4.10.2) | Assembly gaps: | | N/A |
| | - not coincidental | | N/A |
| | - no straight access with test probe | | N/A |
| 18.6 (4.10.3) | Retainment of insulation: | | N/A |

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|-------------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - fixed | | N/A |
| | - unable to be replaced; luminaire inoperative | | N/A |
| | - sleeves retained in position | | N/A |
| | - lining in lampholder | | N/A |
| 18.6 (4.11) | Electrical connections | | N/A |
| 18.6 (4.11.1) | Contact pressure | | N/A |
| 18.6 (4.11.2) | Screws: | | N/A |
| | - self-tapping screws | | N/A |
| | - thread-cutting screws | | N/A |
| 18.6 (4.11.3) | Screw locking: | | N/A |
| | - spring washer | | N/A |
| | - rivets | | N/A |
| 18.6 (4.11.4) | Material of current-carrying parts | | N/A |
| 18.6 (4.11.5) | No contact to wood or mounting surface | | P |
| 18.6 (4.11.6) | Electro-mechanical contact systems | | N/A |
| 18.6 (4.12) | Mechanical connections and glands | | N/A |
| 18.6 (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 |
| 18.6 (4.12.2) | Screws with diameter < 3 mm screwed into metal | | N/A |
| 18.6 (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 |
| 18.6 (4.12.5) | Screwed glands; force (Nm) | | N/A |
| 18.6 (4.13) | Mechanical strength | | P |
| 18.6 (4.13.1) | Impact tests: | | P |
| | - fragile parts; energy (Nm) | 0,7 Nm | P |
| | - other parts; energy (Nm) | 0,7 Nm | P |
| | 1) live parts | | P |
| | 2) linings | | P |

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|-------------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | 3) protection | | P |
| | 4) covers | | P |
| 18.6 (4.13.3) | Straight test finger | | P |
| 18.6 (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 |
| | d) for temporary installations and suitable for mounting on a stand | | N/A |
| 18.6 (4.13.6) | Tumbling barrel | | N/A |
| 18.6 (4.14) | Suspensions and adjusting devices | | N/A |
| 18.6 (4.14.1) | Mechanical load: | | N/A |
| | A) four times the weight | | N/A |
| | 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 |
| 18.6 (4.14.2) | Load to flexible cables | | N/A |
| | Mass (kg) | | N/A |
| | Stress in conductors (N/mm ²) | | N/A |
| | Mass (kg) of semi-luminaire | | N/A |
| | Bending moment (Nm) of semi-luminaire | | N/A |
| 18.6 (4.14.3) | Adjusting devices: | | N/A |
| | - flexing test; number of cycles | | N/A |
| | - strands broken | | N/A |
| | - electric strength test afterwards | | N/A |
| 18.6 (4.14.4) | Telescopic tubes: cords not fixed to tube; no strain on conductors | | N/A |
| 18.6 (4.14.5) | Guide pulleys | | N/A |

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|-------------------|--|------------------------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 18.6 (4.14.6) | Strain on socket-outlets | | N/A |
| 18.6 (4.15) | Flammable materials: | | P |
| | - glow-wire test 650 °C | | P |
| | - spacing \geq 30 mm | | N/A |
| | - screen withstanding test of 13.3.1 | | N/A |
| | - screen dimensions | | N/A |
| | - no fiercely burning material | | P |
| | - thermal protection | | N/A |
| | - electronic circuits exempted | | N/A |
| 18.6 (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 |
| 18.6 (4.16) | Luminaires for mounting on normally flammable surfaces | | P |
| | No lamp control gear | (compliance with Section 12) | P |
| 18.6 (4.16.1) | Lamp control gear spacing: | | N/A |
| | - spacing 35 mm | | N/A |
| | - spacing 10 mm | | N/A |
| 18.6 (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 |
| 18.6 (4.16.3) | Design to satisfy the test of 12.6 | (see 12.6) | N/A |
| 18.6 (4.17) | Drain holes | | N/A |
| | Clearance at least 5 mm | | N/A |
| 18.6 (4.18) | Resistance to corrosion: | | N/A |
| 18.6 (4.18.1) | - rust-resistance | | N/A |
| 18.6 (4.18.2) | - season cracking in copper | | N/A |
| 18.6 (4.18.3) | - corrosion of aluminium | | N/A |
| 18.6 (4.19) | Igniters compatible with ballast | | N/A |
| 18.6 (4.20) | Rough service vibration | | N/A |

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|-------------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 18.6 (4.21) | Protective shield: | | N/A |
| 18.6 (4.21.1) | Shield fitted | | N/A |
| | Shield of glass if tungsten halogen lamps | | N/A |
| 18.6 (4.21.2) | Particles from a shattering lamp not impair safety | | N/A |
| 18.6 (4.21.3) | No direct path | | N/A |
| 18.6 (4.21.4) | Impact test on shield | | N/A |
| | Glow-wire test on lamp compartment | | N/A |
| 18.6 (4.22) | Attachments to lamps | | N/A |
| 18.6 (4.23) | Semi-luminaires comply Class II | | N/A |
| 18.6 (4.24) | UV radiation for tungsten halogen lamps and metal halide lamps (Annex P) | | N/A |
| 18.6 (4.25) | No sharp point or edges | | N/A |
| 18.6 (4.26) | Short-circuit protection: | | N/A |
| 18.6 (4.26.1) | Uninsulated accessible SELV parts | | N/A |
| 18.6 (4.26.2) | Short-circuit test | | N/A |
| 18.6 (4.26.3) | Test chain according to Figure 29 | | N/A |
| 18.6 (4.27) | Terminal blocks with integrated screwless earthing contacts tested according Annex V | | N/A |
| | Pull test of terminal fixing (20 N) | | N/A |
| | After test, resistance < 0,05 Ω | | N/A |
| | Pull test of mechanical connection (50 N) | | N/A |
| | After test, resistance < 0,05 Ω | | N/A |
| | Voltage drop test, resistance < 0,05 Ω | | N/A |
| 18.6.1 (-) | Impact test with the energy 0,7 Nm of parts in contact with water | | P |
| 18.6.2 (-) | Corrosion test of parts in contact with water | | N/A |

| | | | |
|------------------|--|--|-----|
| 18.7 (11) | CREEPAGE DISTANCES AND CLEARANCES | | N/A |
| | Working voltage (V) | 12 V AC/DC | — |
| | Voltage form | Sinusoidal <input checked="" type="checkbox"/> Non-sinusoidal <input checked="" type="checkbox"/> | — |
| | PTI | < 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/> | — |
| | Impulse withstand category (Normal category II) (Category III Annex U) | Category II <input type="checkbox"/> Category III <input type="checkbox"/> | — |

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|-------------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Rated pulse voltage (kV) | | — |
| | (1) Current-carrying parts of different polarity: cr (mm); cl (mm)..... | | N/A |
| | (2) Current-carrying parts and accessible parts: cr (mm); cl (mm)..... | | N/A |
| | (3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm) | | N/A |
| | (4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm)..... | | N/A |
| | (6) Current-carrying parts and supporting surface: cr (mm); cl (mm) | | N/A |

| | | | |
|------------------|--|---------------|-----|
| 18.9 (14) | SCREW TERMINALS | | N/A |
| | Separately approved; component list | (see Annex 1) | N/A |
| | Part of the luminaire | (see Annex 3) | N/A |
| 18.9.1 (-) | Allow conductors 1,5 – 4 mm ² | | N/A |

| | | | |
|------------------|---|---------------|-----|
| 18.9 (15) | SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS | | N/A |
| | Separately approved; component list | (see Annex 1) | N/A |
| | Part of the luminaire | (see Annex 4) | N/A |
| 18.9.1 (-) | Allow conductors 1,5 – 4 mm ² | | N/A |

| | | | |
|------------------|--|-----------------------|---|
| 18.10 (5) | EXTERNAL AND INTERNAL WIRING | | P |
| 18.10 (5.2) | Supply connection and external wiring | | P |
| 18.10 (5.2.1) | Means of connection..... | Connection with tails | P |
| 18.10 (5.2.2) | Type of cable | Rubber | P |
| | Nominal cross-sectional area (mm ²)..... | 2X1,5 mm ² | P |
| | Cables equal to IEC 60227 or IEC 60245 | EN 50525-2-11 | P |
| 18.10 (5.2.3) | Type of attachment, X, Y or Z | Type Z | P |
| 18.10 (5.2.5) | Type Z not connected to screws | | P |
| 18.10 (5.2.6) | Cable entries: | | P |
| | - suitable for introduction | | P |
| | - adequate degree of protection | | P |

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|-------------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 18.10 (5.2.7) | Cable entries through rigid material have rounded edges | | N/A |
| 18.10 (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 |
| 18.10 (5.2.9) | Locking of screwed bushings | | N/A |
| 18.10 (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 |
| 18.10 (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 |
| 18.10 (5.2.10.2) | Adequate cord anchorage for type Y and type Z attachment | | N/A |
| 18.10 (5.2.10.3) | Tests: | | N/A |
| | - impossible to push cable; unsafe | | N/A |
| | - pull test: 25 times; pull (N) : | | N/A |
| | - torque test: torque (Nm) : | | N/A |
| | - displacement \leq 2 mm | | N/A |

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|--------------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - no movement of conductors | | N/A |
| | - no damage of cable or cord | | N/A |
| 18.10 (5.2.11) | External wiring passing into luminaire | | N/A |
| 18.10 (5.2.12) | Looping-in terminals | | N/A |
| 18.10 (5.2.13) | Wire ends not tinned | | N/A |
| | Wire ends tinned: no cold flow | | N/A |
| 18.10 (5.2.14) | Mains plug same protection | | N/A |
| | Class III luminaire plug | | N/A |
| 18.10 (5.2.16) | Appliance inlets (IEC 60320) | | N/A |
| | Appliance couplers of class II type | | N/A |
| 18.10 (5.2.17) | No standardized interconnecting cables properly assembled | | N/A |
| 18.10 (5.2.18) | Used plug in accordance with | | N/A |
| | - IEC 60083 | | N/A |
| | - other standard | | N/A |
| 18.10 (5.3) | Internal wiring | | N/A |
| 18.10 (5.3.1) | Internal wiring of suitable size and type | | N/A |
| | Through wiring | | N/A |
| | - not delivered/ mounting instruction | | N/A |
| | - factory assembled | | N/A |
| | - socket outlet loaded (A) | | N/A |
| | - temperatures | (see Annex 2) | N/A |
| | Green-yellow for earth only | | N/A |
| 18.10 (5.3.1.1) | Internal wiring connected directly to fixed wiring | | N/A |
| | Cross-sectional area (mm ²) | | N/A |
| | Insulation thickness | | N/A |
| | Extra insulation added where necessary | | N/A |
| 18.10 (5.3.1.2) | Internal wiring connected to fixed wiring via internal current-limiting device | | N/A |

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|-------------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Adequate cross-sectional area and insulation thickness | | N/A |
| 18.10 (5.3.1.3) | Double or reinforced insulation for class II | | N/A |
| 18.10 (5.3.1.4) | Conductors without insulation | | N/A |
| 18.10 (5.3.1.5) | SELV current-carrying parts | | N/A |
| 18.10 (5.3.1.6) | Insulation thickness other than PVC or rubber | | N/A |
| 18.10 (5.3.2) | Sharp edges etc. | | N/A |
| | No moving parts of switches etc. | | N/A |
| | Joints, raising/lowering devices | | N/A |
| | Telescopic tubes etc. | | N/A |
| | No twisting over 360° | | N/A |
| 18.10 (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 |
| 18.10 (5.3.4) | Joints and junctions effectively insulated | | N/A |
| 18.10 (5.3.5) | Strain on internal wiring | | N/A |
| 18.10 (5.3.6) | Wire carriers | | N/A |
| 18.10 (5.3.7) | Wire ends not tinned | | N/A |
| | Wire ends tinned: no cold flow | | N/A |
| 18.10.1 (-) | Not connecting leads (tails) | | N/A |
| 18.10.2 (-) | No switches in flexible cables or cords | | N/A |
| 18.10.3 (-) | Conductors in external cables or cords not less than (mm ²) | | N/A |
| 18.10.4 (-) | Provided with non-detachable flexible cable or cord at least equivalent to 60245 IEC 57 in category B luminaire | | N/A |
| 18.10.5 (-) | Any non-detachable flexible cable or cord at least equivalent to 60245 IEC 57 in category C luminaire | | N/A |

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|-------------------|---|---------------------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 18.11 (8) | PROTECTION AGAINST ELECTRIC SHOCK | | P |
| 18.11 (8.2.1) | Live parts not accessible | | P |
| | Basic insulated parts not used on the outer surface without appropriate protection | | P |
| | Basic insulated parts not accessible with standard test finger on portable and adjustable luminaires | | P |
| | Basic insulated parts not accessible with Ø 50 mm probe from outside, within arm's reach, on wall-mounted luminaires | | P |
| | Lamp and starter holders in portable and adjustable luminaires comply with double or reinforced insulation requirements | No lamp or starter holder | N/A |
| | Basic insulation only accessible under lamp or starter replacement | | N/A |
| | Protection in any position | | P |
| | Double-ended tungsten filament lamp | | N/A |
| | Insulation lacquer not reliable | | N/A |
| | Double-ended high pressure discharge lamp | | N/A |
| | Relevant warning according to 3.2.18 fitted to the luminaire | | N/A |
| 18.11 (8.2.2) | Portable luminaire adjusted in most unfavourable position | No portable | N/A |
| 18.11 (8.2.3.a) | Class II luminaire: | | N/A |
| | - basic insulated metal parts not accessible during starter or lamp replacement | | N/A |
| | - basic insulation not accessible other than during starter or lamp replacement | | N/A |
| | - glass protective shields not used as supplementary insulation | | N/A |
| 18.11 (8.2.3.b) | BC lamp holder of metal in class I luminaires shall be earthed | | N/A |
| 18.11 (8.2.3.c) | Class III luminaires with exposed SELV parts: | | P |
| | Ordinary luminaire: | | P |
| | - touch current | 0,01 mA | P |
| | - no-load voltage | | P |
| | Other than ordinary luminaire: | | N/A |

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|-------------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - nominal voltage | | N/A |
| 18.11 (8.2.4) | Portable luminaire has protection independent of supporting surface | | N/A |
| 18.11 (8.2.5) | Compliance with the standard test finger or relevant probe | | P |
| 18.11 (8.2.6) | Covers reliably secured | | P |
| 18.11 (8.2.7) | Discharging of capacitors $\geq 0,5 \mu\text{F}$ | | N/A |
| | Portable plug connected luminaire with capacitor | | N/A |
| | Other plug connected luminaire with capacitor | | N/A |
| | Discharge device on or within capacitor | | N/A |
| | Discharge device mounted separately | | N/A |

| | | | |
|-------------------|--|-----------------------|----------|
| 18.12 (12) | ENDURANCE TEST AND THERMAL TEST | | P |
| 18.12 (-) | If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 18.13 | | — |
| 18.12 (12.3) | Endurance test: | | P |
| | - mounting-position | In mechanism | — |
| | - test temperature ($^{\circ}\text{C}$) | 35 $^{\circ}\text{C}$ | — |
| | - total duration (h) | 240h | — |
| | - supply voltage: Un factor; calculated voltage (V): | 13,2 V | — |
| | - lamp used | LED PCB | — |
| 18.12 (12.3.2) | After endurance test: | | P |
| | - no part unserviceable | | P |
| | - luminaire not unsafe | | P |
| | - no damage to track system | | N/A |
| | - marking legible | | P |
| | - no cracks, deformation etc. | | P |
| 18.12 (12.4) | Thermal test (normal operation) | (see Annex 2) | P |
| 18.12 (12.5) | Thermal test (abnormal operation) | (see Annex 2) | N/A |
| 18.12 (12.6) | Thermal test (failed lamp control gear condition): | | N/A |
| 18.12 (12.6.1) | Through wiring or looping-in wiring loaded by a current of (A) | | — |
| | - case of abnormal conditions..... | | — |

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|-------------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - electronic lamp control gear | | N/A |
| | - measured winding temperature (°C): at 1,1 Un .. : | | — |
| | - measured mounting surface temperature (°C) at 1,1 Un .. : | | N/A |
| | - calculated mounting surface temperature (°C) .. : | | N/A |
| | - track-mounted luminaires | | N/A |
| 18.12 (12.6.2) | Temperature sensing control | | N/A |
| | - case of abnormal conditions..... : | | — |
| | - 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 |
| 18.12 (12.7) | Thermal test (failed lamp control gear in plastic luminaires): | | N/A |
| 18.12 (12.7.1) | Luminaire without temperature sensing control | | N/A |
| 18.12 (12.7.1.1) | Luminaire with fluorescent lamp ≤ 70W | | N/A |
| | Test method 12.7.1.1 or Annex W .. : | | — |
| | Test according to 12.7.1.1: | | N/A |
| | - case of abnormal conditions | | — |
| | - Ballast failure at supply voltage (V) .. : | | — |
| | - Components retained in place after the test | | N/A |
| | - Test with standard test finger after the test | | N/A |
| | Test according to Annex V: | | N/A |
| | - case of abnormal conditions | | — |
| | - measured winding temperature (°C): at 1,1 Un... : | | — |
| | - measured temperature of fixing point/exposed part (°C): at 1,1 Un..... : | | — |
| | - calculated temperature of fixing point/exposed part (°C) .. : | | — |
| | Ball-pressure test: | | N/A |
| | - part tested; temperature (°C)..... : | | N/A |

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|---------------------|--|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - part tested; temperature (°C)..... : | | N/A |
| 18.12 (12.7.1.2) | Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA | | N/A |
| | - case of abnormal conditions | | — |
| | - measured winding temperature (°C): at 1,1 Un.. : | | — |
| | - measured temperature of fixing point/exposed part (°C): at 1,1 Un..... : | | — |
| | - calculated temperature of fixing point/exposed part (°C) | | — |
| | Ball-pressure test: | | N/A |
| | - part tested; temperature (°C)..... : | | N/A |
| | - part tested; temperature (°C)..... : | | N/A |
| 18.12 (12.7.1.3) | Luminaire with short circuit proof transformers ≤ 10 VA | | N/A |
| | - case of abnormal conditions | | — |
| | - Components retained in place after the test | | N/A |
| | - Test with standard test finger after the test | | N/A |
| 18.12 (12.7.2) | Luminaire with temperature sensing control | | N/A |
| | - thermal link | Yes <input type="checkbox"/> No <input type="checkbox"/> | — |
| | - manual reset cut-out | Yes <input type="checkbox"/> No <input type="checkbox"/> | — |
| | - auto reset cut-out | Yes <input type="checkbox"/> No <input type="checkbox"/> | — |
| | - case of abnormal conditions | | — |
| | - highest measured temperature of fixing point/exposed part (°C):..... : | | — |
| | Ball-pressure test: | | N/A |
| | - part tested; temperature (°C)..... : | | N/A |
| | - part tested; temperature (°C)..... : | | N/A |
| 18.12.1 (-) | Luminaire mounted for most unfavourable temperature | | N/A |

| | | |
|------------------|---|----------|
| 18.13 (9) | RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE | P |
| 18.13 (-) | If IP > IP 20 the order of the test specified in clause 18.12 | — |
| 18.13 (9.2) | Tests for ingress of dust, solid objects and moisture: | P |

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|-------------------|--|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - classification according to IP | IP68; Tested on 12,70 kPa water pressure | — |
| | - mounting position during test..... | | — |
| | - fixing screws tightened; torque (Nm) | | — |
| | - tests according to clauses | | — |
| | - electric strength test afterwards | | P |
| | a) no deposit in dust-proof luminaire | | P |
| | b) no talcum in dust-tight luminaire | | P |
| | c) no trace of water on current-carrying parts or SELV parts or where it could become a hazard | | P |
| | d) i) For luminaires without drain holes – no water entry | | P |
| | d) ii) For luminaires with drain holes – no hazardous water entry | | P |
| | e) no water in watertight luminaire | | P |
| | f) no contact with live parts (IP 2X) | | N/A |
| | f) no entry into enclosure (IP 3X and IP 4X) | | N/A |
| | f) no contact with live parts (IP3X and IP4X) | | N/A |
| | g) no trace of water on part of lamp requiring protection from splashing water | | P |
| | h) no damage of protective shield or glass envelope | | P |
| 18.13 (9.3) | Humidity test 48 h | %93 Rh; 25°C | P |
| 18.13.1 (-) | Thermal shock test precede those of (9) | | — |
| 18.13 (-) | Dismantled and reassembled before tests of (9) | | — |

| | | | |
|-------------------|--|------------------------|----------|
| 18.14 (10) | INSULATION RESISTANCE AND ELECTRIC STRENGTH | | P |
| 18.14 (10.2.1) | Insulation resistance test | | P |
| | Cable or cord covered by metal foil or replaced by a metal rod of mm Ø | 100 V DC | — |
| | Insulation resistance (MΩ) | Required at least 1 MΩ | — |
| | SELV: | | P |
| | - between current-carrying parts of different polarity | | N/A |

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|-------------------|--|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - between current-carrying parts and mounting surface | Metal folio – LN > 110 MΩ | P |
| | - between current-carrying parts and metal parts of the luminaire | | 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 |
| | Other than SELV: | | 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 |
| 18.14 (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 |
| | Test voltage (V): | 500 V AC | P |
| | SELV: | | P |
| | - between current-carrying parts of different polarity | | N/A |
| | - between current-carrying parts and mounting surface | Metal folio – LN 1min; No Breakdown | P |
| | - between current-carrying parts and metal parts of the luminaire | | 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 |
| | Other than SELV: | | N/A |
| | - between live parts of different polarity | | N/A |

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|-------------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - 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 |
| 18.14 (10.3) | Touch current or protective conductor current (mA) | 0,01 mA | P |

| | | | |
|-------------------|--|-----------------|----------|
| 18.15 (13) | RESISTANCE TO HEAT, FIRE AND TRACKING | | P |
| 18.15 (13.2.1) | Ball-pressure test: | | P |
| | - part tested; temperature (°C)..... | Diffuser; 75°C | P |
| | - part tested; temperature (°C)..... | Enclosure; 80°C | P |
| 18.15 (13.3.1) | Needle flame test (10 s): | | N/A |
| | - part tested..... | | N/A |
| | - part tested..... | | N/A |
| 18.15 (13.3.2) | Glow-wire test (650°C): | | P |
| | - part tested..... | Diffuser | P |
| | - part tested..... | Enclosure | P |
| 18.15 (13.4.1) | Tracking test: | | N/A |
| | - part tested..... | | N/A |
| | - part tested..... | | N/A |

| | | |
|--|----------------------------|----------|
| | ANNEX 1: components | P |
|--|----------------------------|----------|

| object/part No. | code | manufacturer/ trademark | type/model | technical data | standard | mark(s) of conformity |
|-----------------|------|----------------------------|------------|----------------|----------|--------------------------|
| LED PCB | B | VARIOUS | VARIOUS | -- | -- | -- |
| Diffuser | A | VARIOUS | VARIOUS | -- | -- | --- |

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|-------------------|--------------------|---------|---------|-----------------|---------------|-----------------------------------|
| Clause | Requirement + Test | | | Result - Remark | | Verdict |
| Enclosure | A | VARIOUS | VARIOUS | -- | EN 60598-2-18 | Tested with appliance (CI 13.3.2) |
| External Cable | A | VARIOUS | VARIOUS | Rubber | EN 50525-2-11 | Declaration of Customer |

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

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|-------------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|--|---|--|---|
| | ANNEX 2: temperature measurements, thermal tests of Section 12 | | P |
|--|---|--|---|

| | | | |
|--|--|-----------------------------|---|
| | Type reference | 051143 SLIM LED 252 BLUE | — |
| | Lamp used..... | LED PCB | — |
| | Lamp control gear used | --- | — |
| | Mounting position of luminaire | In mechanism | — |
| | Supply wattage (W) | | — |
| | Supply current (A) | | — |
| | Calculated power factor | | — |
| | Table: measured temperatures corrected for ta = 35 °C: | | P |
| | - abnormal operating mode | | — |
| | - test 1: rated voltage..... | 12 V | — |
| | - test 2: 1,06 times rated voltage or 1,05 times rated wattage..... | 12,72 V | — |
| | - test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage..... | | — |
| | - test 4: 1,1 times rated voltage or 1,05 times rated wattage..... | | — |
| | Through wiring or looping-in wiring loaded by a current of A during the test | | — |

| temperature (°C) of part | Clause 12.4 – normal | | | | Clause 12.5 – abnormal | |
|--------------------------|----------------------|---------|--------|-------|------------------------|-------|
| | test 1 | test 2 | test 3 | limit | test 4 | limit |
| Diffuser (Epoxy Resin) | | 44,1 °C | | 75°C | | |
| Plastic Enclosure | | 36,1 °C | | 75°C | | |
| External Wire AC | | 40,6 °C | | 90°C | | |

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|-------------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | |
|--|---|--|
| | ANNEX 3: screw terminals (part of the luminaire) | |
|--|---|--|

| | | | |
|-------------|--|---|-----|
| (14) | SCREW TERMINALS | | N/A |
| (14.2) | Type of terminal.....: | | — |
| | Rated current (A).....: | | — |
| (14.3.2.1) | One or more conductors | | N/A |
| (14.3.2.2) | Special preparation | | N/A |
| (14.3.2.3) | Terminal size | | N/A |
| | Cross-sectional area (mm ²).....: | | N/A |
| (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 |

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|-------------------|--------------------|-----------------|---------|
| 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.....: | | — |
| | Rated current (A).....: | | — |
| (15.3.1) | Material | | N/A |
| (15.3.2) | Clamping | | N/A |
| (15.3.3) | Stop | | N/A |
| (15.3.4) | Unprepared conductors | | N/A |
| (15.3.5) | Pressure on insulating material | | N/A |
| (15.3.6) | Clear connection method | | N/A |
| (15.3.7) | Clamping independently | | N/A |
| (15.3.8) | Fixed in position | | N/A |
| (15.3.10) | Conductor size | | N/A |
| | Type of conductor | | N/A |
| (15.5.1) | Terminals internal wiring | | N/A |
| (15.5.1.1) | Pull test spring-type terminals (4 N, 4 samples).....: | | N/A |
| (15.5.1.2) | Pull test pin or tab terminals (4 N, 4 samples).....: | | N/A |
| | Insertion force not exceeding 50 N | | N/A |
| (15.5.2) | Permanent connections: pull-off test (20 N) | | N/A |
| (15.6) | Electrical tests | | N/A |
| | Voltage drop (mV) after 1 h (4 samples).....: | | N/A |
| | Voltage drop of two inseparable joints | | N/A |
| | Number of cycles.....: | | — |
| | Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....: | | N/A |
| | Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....: | | N/A |
| | After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples) | | N/A |
| | After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples) | | N/A |
| (15.7) | Terminals external wiring | | N/A |

| IEC/EN 60598-2-18 | | | | | | | | | | | |
|-------------------|---|---|---|---|---|---|---|---|---|-----------------|---------|
| Clause | Requirement + Test | | | | | | | | | Result - Remark | Verdict |
| | Terminal size and rating | | | | | | | | | | N/A |
| (15.8.1) | Pull test spring-type terminals or welded connections (4 samples); pull (N) | | | | | | | | | | N/A |
| | Pull test pin or tab terminals (4 samples); pull (N) | | | | | | | | | | N/A |
| (15.9) | Contact resistance test | | | | | | | | | | N/A |
| | Voltage drop (mV) after 1 h | | | | | | | | | | N/A |
| 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) | | | | | | | | | | — |
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| voltage drop (mV) | | | | | | | | | | | |
| | Voltage drop after 50th alt. 100th cycle | | | | | | | | | | |
| | Max. allowed voltage drop (mV) | | | | | | | | | | — |
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| voltage drop (mV) | | | | | | | | | | | |
| | Continued ageing: voltage drop after 10th alt. 25th cycle | | | | | | | | | | |
| | Max. allowed voltage drop (mV) | | | | | | | | | | — |
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| voltage drop (mV) | | | | | | | | | | | |
| | Continued ageing: voltage drop after 50th alt. 100th cycle | | | | | | | | | | |
| | Max. allowed voltage drop (mV) | | | | | | | | | | — |
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| voltage drop (mV) | | | | | | | | | | | |

ATTACHMENT 1

Equipment of measurements

| Equipment No | Kind of equipment | Model Type | Manufacturer | Last Cal Date | Next Cal Date | Last Ver Date | Next Ver Date | Test Clause |
|--------------|-----------------------------------|---------------|-----------------------------|---------------|---------------|---------------|---------------|---|
| E-003 | Datalogger | DL40 | CSK elektronik | 9.10.2019 | 9.10.2020 | 14.11.2019 | 14.11.2019 | CI 18.12 (12.4) |
| E-004 | Climatic Chamber | --- | ULMEKA Mekatronik Sistemler | 01.10.2018 | 01.10.2019 | 14.11.2019 | 14.05.2020 | CI 18.13 (9.3) |
| E-005 | Glow Wire Test Equipment | --- | ULMEKA Mekatronik Sistemler | 4.10.2019 | 4.10.2020 | 14.11.2019 | 14.05.2020 | CI 18.15 (13.3.2) |
| E-006 | Dust Cabinet | --- | ULMEKA Mekatronik Sistemler | --- | --- | --- | --- | CI 18.13 (9.2) |
| E-008 | Oscilloscope | UTD2012CEX | UNI-T | 26.10.2019 | 26.10.2020 | 14.11.2019 | 14.05.2020 | CI 18.14 (10.3) |
| E-009 | Oscilloscope Probe | UT-P04 | UNI-T | 26.10.2019 | 26.10.2020 | 14.11.2019 | 14.05.2020 | CI 18.14 (10.3) |
| E-011 | Multimeter | UT61B | UNI-T | 5.10.2019 | 5.10.2020 | 14.11.2019 | 14.05.2020 | --- |
| E-033 | Temperature-Humidity Meter | 30.3166.02.S2 | TFA | 7.10.2019 | 7.10.2020 | --- | --- | --- |
| E-034 | Etüv oven | T12 | Hereaus | 4.10.2019 | 4.10.2020 | --- | --- | CI 18.12 (12.3) & CI 18.12 (12.4) |
| E-039 | Tested Box (EN 60598-1 şekil G.2) | --- | CSK elektronik | --- | --- | 18.11.2019 | 18.05.2020 | CI 18.14 (10.3) |
| E-042 | One Phase Variac | --- | VARSAN | --- | --- | --- | --- | CI 18.12 (12.3) & CI 18.12 (12.4) |
| E-045 | Ball Mass | --- | Teknik Mekatronik | 8.04.2019 | 8.04.2020 | 18.11.2019 | 18.05.2020 | CI 18.15 (13.2.1) |
| E-052 | IPX5 / X6 Device | --- | ULMEKA Mekatronik | 23.04.2019 | 23.04.2020 | 23.10.2019 | 23.04.2020 | CI 18.13 (9.2) |
| E-054 | Ce Compact Tester | C.A 6160 | CHAUVIN ARNOUX | 14.12.2019 | 14.12.2020 | --- | --- | CI 18.14 (10.2.1) & CI 18.14 (10.2.2) & CI 18.14 (10.3) |
| E-060 | Insulation Tester | UT501A | UNI-T | 14.05.2019 | 14.05.2020 | --- | --- | CI 18.14 (10.2.1) |
| E-069 | Tape Measure | --- | --- | 02.12.2019 | 02.12.2020 | --- | --- | CI 18.13 (9.2) |
| E-076 | Stopwatch | DIGITAL | LOYKA | 09.12.2019 | 09.12.2020 | --- | --- | CI 18.13 (9.2) |

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CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME ANONİM ŞİRKETİ

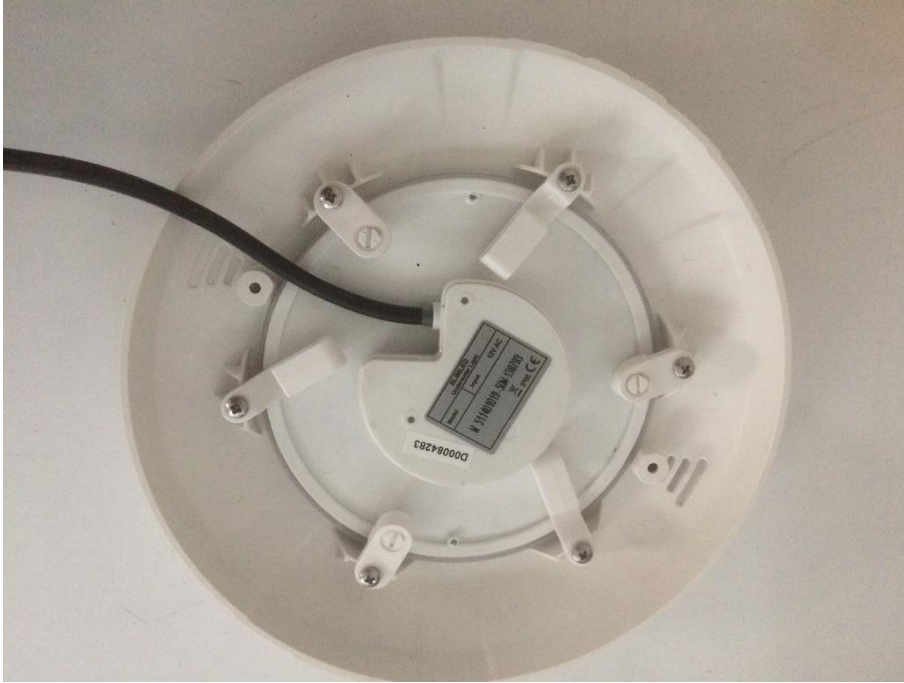
Kayışdağı Mahallesi Gülçin Sokak No:2/2 İSTANBUL/TURKİYE

ATTACHMENT 2
Photo Documentation

Photo documentation



Top View



Back View

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Product View

ATTACHMENT 3 COMPONENT DECLARATION

GEMAŞ GENEL MÜHENDİSLİK MEKANİK SANAYİ VE TİCARET A.Ş.

UNICERT
193 900-1939



CE MARKI
TGA-ZM-00-02



SLİM LED

BİLEŞEN BEYANI

COMPONENT DECLARATION

GEMAŞ GENEL MÜHENDİSLİK SANAYİ VE TİCARET A.Ş. olarak Slim Led Havuz Aydınlatma Armatürü 051130SS, 051130SS01, 051131, 051131SS, 051131SS01, 051132, 051133, 051133SS, 051133SS01, 051134, 051135, 051141SS01, 051142, 051143, 051144, 051145, 051152, 051153, 051153SC, 051153SS, 051153SS01, 051154, 051154SC, 051155, 052150, 052151SC, 052152, 052153, 052155, 0541113, 0541114, 0541115, 0541116, 0541201SC model numaralı ürünlerimizde onaylı H05RN-F tipi kablolaj kullandığımızı beyan ederiz.

We declared that we use approved H05RN-F type cable on our Slim Led Pool Lighting Fixtures defined that 051130SS, 051130SS01, 051131, 051131SS, 051131SS01, 051132, 051133, 051133SS, 051133SS01, 051134, 051135, 051141SS01, 051142, 051143, 051144, 051145, 051152, 051153, 051153SC, 051153SS, 051153SS01, 051154, 051154SC, 051155, 052150, 052151SC, 052152, 052153, 052155, 0541113, 0541114, 0541115, 0541116, 0541201SC as GEMAŞ GENEL MÜHENDİSLİK SANAYİ VE TİCARET A.Ş.

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CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME ANONİM ŞİRKETİ

Kayışdağı Mahallesi Gülçin Sokak No:2/2 İSTANBUL/TURKİYE

ATTACHMENT 3
IDENTITY DECLARATION

GEMAŞ GENEL MÜHENDİSLİK MEKANİK SANAYİ VE TİCARET A.Ş.



SLİM LED

AYNİYET BEYANI

IDENTITY DECLARATION

GEMAŞ GENEL MÜHENDİSLİK SANAYİ VE TİCARET AŞ. olarak 051130SS, 051130SS01, 051131, 051131SS, 051131SS01, 051132, 051133, 051133SS, 051133SS01, 051134, 051135, 051141SS01, 051142, 051143, 051144, 051145, 051152, 051153, 051153SC, 051153SS, 051153SS01, 051154, 051154SC, 051155, 052150, 052151SC, 052152, 052153, 052155, 0541113, 0541114, 0541115, 0541116, 0541201SC kodlu ürünlerin bütün teknik özelliklerinin (örn. Tasarım, özellikler, kritik komponentler) benzer olduğunu beyan ederiz.

We declared that the product(s) is (are) identical in the all technical respects (e.g desing, properties, critical components) 051130SS, 051130SS01, 051131, 051131SS, 051131SS01, 051132, 051133, 051133SS, 051133SS01, 051134, 051135, 051141SS01, 051142, 051143, 051144, 051145, 051152, 051153, 051153SC, 051153SS, 051153SS01, 051154, 051154SC, 051155, 052150, 052151SC, 052152, 052153, 052155, 0541113, 0541114, 0541115, 0541116, 0541201SC as GEMAŞ GENEL MÜHENDİSLİK SANAYİ VE TİCARET AŞ.

Deniz ÜSTÜNES

Genel Müdür Yardımcısı
GEMAŞ GENEL MÜHENDİSLİK
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