



CERTIFICATE NUMBER  
EFFECTIVE DATE  
EXPIRY DATE  
ABS TECHNICAL OFFICE

23-2432337-PDA  
14-Sep-2023  
13-Sep-2028  
London Engineering Department

# CERTIFICATE OF Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

**RAYTEC LTD**

located at

**UNIT 15 WANSBECK BUSINESS PARK, ROTARY PARKWAY,  
ASHINGTON , NORTHUMBERLAND, United Kingdom, NE63 8QW**

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

**Product:** Lighting Fixtures, LED, Hazardous Area  
**Model:** Model(s): FL12, BL24, FL24, FL48, FL72, WL84, WL168, MP and HP (Standard and Emergency version)  
**Endorsements:**  
**Tier:** 2 - PDA Issued

This Product Design Assessment (PDA) Certificate remains valid until 13/Sep/2028 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping

*SBalakan*

Serkan Balakan,Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

**RAYTEC LTD**

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**Tier: 2 - PDA Issued**

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**Product:** Lighting Fixtures, LED, Hazardous Area  
**Model:** Model(s): FL12, BL24, FL24, FL48, FL72, WL84, WL168, MP and HP (Standard and Emergency version)

**Endorsements:****Intended Service:**

For use on ABS classed Vessels and Offshore Facilities in accordance with the listed ABS Rules.

**Description:**

The SPARTAN &amp; WARRIOR range are designed specifically for Hazardous &amp; Harsh environments which require high performance, reliability, WhiteLight illumination.

Available in both standard (SD) &amp; emergency (EM) versions &amp; using Raytec's LED technology, SPARTAN/WARRIOR floodlights are ATEX &amp; IEC Ex approved for all Zone 1 &amp; Zone 2 applications &amp; rated for T4, T5 &amp; T6 environments.

FL Luminaire are available in four sizes: FL12 (S), FL24 (M), FL48 (L) &amp; FL72 (XL).

LED Linear Luminaires are two size luminaires available WL84 (S) &amp; WL168 (L).

BL24, Bulkhead is designed for mounting in any orientation using steel brackets at the back of luminaire.

MP &amp; HP luminaires are available with floodlight (MPFL - HPFL) or highbay (MPBY - HPBY) mounting brackets &amp; can deliver between 5K lumens to 15K &amp; 10K lumens to 30K light output, respectively.

All variants are offered as LV rated at 18V to 30V AC / 18V to 40V DC or HV rated at 110V to 254V AC. The HV luminaires can be supplied with a battery pack &amp; inverter to enable operation in EM mode.

FL Luminaire, Enclosure: IP66 &amp; IP67 EU Type Cert. (CML 13ATEX3007) &amp; IECEx Cert. (CML 14.0001)

FL12, FL24, FL48, FL72: Ex II 2 GD, Ex eb mb IIC T6 Gb or Ex eb mb IIC T5 Gb or Ex eb mb IIC T4 Gb, Ex tb IIIC T 82°C Db, Ta = -52°C to +55°C

BL24 Bulkhead: Ex II 2 GD, Ex eb mb IIC T6 Gb or Ex eb mb IIC T5 Gb or Ex eb mb IIC T4 Gb, Ex tb IIIC T 98°C Db, Ta = -52°C to +55°C

EU Type Cert. (CML 17ATEX4231) &amp; IECEx Cert. (CML 17.0135)

FL12, FL24, FL48, FL72: Ex II 3 GD, Ex ec mc IIC T4 Gc, Ex tc IIIC T 82°C Dc, Ta = -50°C to +55°C

BL24 Bulkhead: Ex II 3 GD, Ex ec mc IIC T4 Gc, Ex tc IIIC T 98°C Dc, Ta = -50°C to +55°C

WARRIOR Safe Area versions marked in accordance with IEC EN 60598

LED Linear Luminaires, Enclosure: IP66 &amp; 67 EU Type Cert. (CML 14ATEX3119) &amp; IECEx Cert. (CML 15.0001)

SD: Ex II 2 GD, Ex eb mb IIC T4/T5 Gb, Ex tb IIIC T75°C Db, Ta = -40°C to +55°C / Ex eb mb IIC T6 Gb, Ex tb IIIC T65°C Db, Ta = -40°C to +45°C

EM: Ex II 2 GD, Ex eb mb IIC T5 Gb, Ex tb IIIC T76°C Db, Ta = 20°C to +50°C / Ex eb mb IIC T5 Gb, Ex tb IIIC T76°C Db, Ta = -20°C to +50°C

EU Type Cert. (CML 15ATEX4138) &amp; IECEx Cert. (CML 15.0068)

SD: Ex II 3 GD, Ex ec mc IIC T4/T5 Gc, Ex tc IIIC T80°C Dc, Ta = -40°C to +60°C / Ex ec mc IIC T6 Gc, Ex tc IIIC T65°C Dc, Ta = -40°C to +45°C

EM: Ex II 3 GD, Ex ec mc IIC T4/T5 Gb, Ex tc IIIC T75°C Dc, Ta = -20°C to +50°C / Ex ec mc IIC T5 Gc, Ex tb IIIC T65°C Dc, Ta = -20°C to +40°C

WARRIOR Safe Area versions marked in accordance with IEC EN 60598

HP Luminaires, Enclosure: IP66 &amp; IP67: -50°C to +50°C

EU Type Cert. (CML 17ATEX1148),

Marked: Ex II 2 G D, Ex db eb mb IIB+H2 T4 Gb or Ex db eb mb IIB T4 Gb or Ex tb IIIC T104°C Db

EU Type Cert. (CML 17ATEX4149),

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Marked: Ex II 3 G D, Ex ec nR IIC T4 Gc or Ex tc IIIC T104°C Dc

IECEX Cert. (CML 17.0074),

Marked: Zone 1 version Ex db eb mb IIB+H2 T4 Gb or Ex db eb mb IIB T4 Gb or Ex tb IIIC T104°C Db &amp;

Zone 2 version Ex ec nR IIC T4 Gc or Ex tc IIIC T104°C Dc

WARRIOR Safe Area versions marked in accordance with IEC EN 60598

LED MP Luminaires, Enclosure: IP66 &amp; 67

EU Type Cert. (CML 21ATEX3317) &amp; IECEX Cert. (CML 21.0037)

Ex II 2 GD, Ex eb mb IIC T4 Gb, Ex tb IIIC T90°C Db, Ta = -40°C to +60°C

EU Type Cert. (CML 21ATEX3320) &amp; IECEX Cert. (CML 21.0038)

Ex II 3 GD, Ex ec mc IIC T4 Gc, Ex tc IIIC T90°C Dc, Ta = -40°C to +60°C

WARRIOR Safe Area versions marked in accordance with IEC EN 60598

All EM Variants have a lower ambient of 20°C only. Ratings LV rated at 18V to 30V AC/18V to 40V DC HV rated at 110V to 254V AC/110V to 254V

**Rating:**

LV (Low Voltage); rated at 18V to 30V AC / 18V to 40V DC

HV (High Voltage); rated at 110V to 254V AC/110 v to 254 V

Tamb up to -52°C to +55°C

**Service Restriction:**

1. Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.
2. Suitability for installation in hazardous areas is not covered by this PDA. Evidence of suitability for installation in such areas should be submitted for review in each case.

**Comments:**

1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
2. Hazardous area installation to be in accordance with 4-8-4/27 of the Marine Vessels Rules or 4-3-3/9 of the Mobile Offshore Units Rules.
3. Product suitability to each installation location is to be verified per the certification label attached for the hazardous area classification and temperature code requirement.

**Notes/Drawing/Documentation:**

Drawing No: CML-13ATEX3007-Iss.-19, CML-13ATEX3007-Iss.-19, Location: -, Revision: 19, Pages: 12

Drawing No: CML-14ATEX3119-Issue-16, CML-14ATEX3119-Issue-16, Location: -, Revision: 16, Pages: 11

Drawing No: CML-15ATEX4138-Issue-11, CML-15ATEX4138-Issue-11, Location: -, Revision: 11, Pages: 11

Drawing No: CML-17ATEX1148-Issue-5, CML-17ATEX1148-Issue-5, Location: -, Revision: 5, Pages: 6

Drawing No: CML-17ATEX4149-Issue-5, CML-17ATEX4149-Issue-5, Location: -, Revision: 5, Pages: 6

Drawing No: CML-17ATEX4231-Iss.-3, CML-17ATEX4231-Iss.-3, Location: -, Revision: 3, Pages: 11

Drawing No: CML-21ATEX3317-Iss.-0-Signed, CML-21ATEX3317-Iss.-0-Signed, Location: -, Revision: -, Pages: 3

Drawing No: CML-21ATEX3320-Iss.-0-Signed, CML-21ATEX3320-Iss.-0-Signed, Location: -, Revision: -, Pages: 3

Drawing No: Correspondence, Details of Updates, Location: -, Revision: -, Pages: -

Drawing No: IECEX-CML-14.0001-Iss.-14, IECEX-CML-14.0001-Iss.-14, Location: -, Revision: 14, Pages: 9

Drawing No: IECEX-CML-15.0001-Iss.-14-Signed, IECEX-CML-15.0001-Iss.-14-Signed, Location: -, Revision: 14, Pages: 7

Drawing No: IECEX-CML-15.0068-Iss.-11-Signed, IECEX-CML-15.0068-Iss.-11-Signed, Location: -,

Revision: 11, Pages: 7

Drawing No: IECEX-CML-17.0074-Issue-6-signed, IECEX-CML-17.0074-Issue-6-signed, Location: -, Revision: 6,

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Pages: 7

Drawing No: IECEX-CML-17.0135-Iss.-2, IECEX-CML-17.0135-Iss.-2, Location: -, Revision: 2, Pages: 13

Drawing No: IECEX-CML-21.0037-Iss.-0-Signed, IECEX-CML-21.0037-Iss.-0-Signed, Location: -, Revision: -, Pages: 4

Drawing No: IECEX-CML-21.0038-Iss.-0-Signed, IECEX-CML-21.0038-Iss.-0-Signed, Location: -, Revision: -, Pages: 4

Drawing No: Installation Guide, Installation Guide, Location: Ashington, Revision: -, Pages: 12

Drawing No: SPARTAN-SPX-Zone-1-MPFL-Datasheet, SPARTAN-SPX-Zone-1-MPFL-Datasheet, Location: Ashington, Revision: -, Pages: 3

Drawing No: SPARTAN-SPZ-Zone-2-MPFL-Datasheet, SPARTAN-SPZ-Zone-2-MPFL-Datasheet, Location: Ashington, Revision: -, Pages: 3

Drawing No: Evaluation Report, Evaluation Report, Location: -, Revision: -, Pages: 12

Drawing No: EMC Test, EMC Test, Location: Durham, Revision: 1, Pages: 1

Drawing No: TL17041 Vibration test SPARTAN LED (1), TL17041 Vibration test SPARTAN LED, Location: MS Testing, Newton Aycliffe, Revision: -, Pages: 15

Drawing No: PDA Changes, PDA Changes, Location: -, Revision: -, Pages: -

Drawing No: TL117107 Raytec Salt Mist, TL117107 Raytec Salt Mist, Location: MS Testing, Newton Aycliffe, Revision: -, Pages: 35

Support documentation from previous reviews:

Drawing No. 910-M-0094, SPX SPARTAN Floodlight Range - Installation Guide, Revision: D, Pages: -

Drawing No. 910-SD-001, Spartan Led Floodlight Ex Em, Revision: D, Pages: -

Drawing No. 920-SD-0007 rev A sht 3, 920-SD-0007 rev A sht 3, Revision: -, Pages: -

Drawing No. 920-SD-0007 rev B sht 1, 920-SD-0007 rev B sht 1, Revision: -, Pages: -

Drawing No. 920-SD-0007 rev B sht 2, 920-SD-0007 rev B sht 2, Revision: -, Pages: -

Drawing No. 940-SD-0001 rev A, 940-SD-0001 rev A, Revision: -, Pages: -

Drawing No. CML 13ATEX3007 issue 7 FL,BL Spartan SPX, CML 13ATEX3007, Revision: 9, Pages: -

Drawing No. CML 13ATEX3007 issue 7 FL,BL Spartan SPX, CML 13ATEX3007, Revision: -, Pages: -

Drawing No. IECEX CML 14\_0001 issue 2 FL,BL Spartan SPX, IECEX CML 14\_0001 issue 2, Revision: 2, Pages: -

Drawing No. R705A\_00, evaluation report, Revision: -, Pages: -

Drawing No. Spartan extra large flood - FL72, Spartan extra large flood - FL72, Revision: -, Pages: -

Drawing No. 910-M-0094, SPX SPARTAN Floodlight Range - Installation Guide, Revision: C, Pages: -

Drawing No. 910-SD-0001 rev A Pages 1 to 4 approved, SPARTAN LED FLOODLIGHT, Em em 910-SD-0001, Revision: -, Pages: -

Drawing No. 920-M-0036, SPX SPARTAN Linear Range - Installation Guide, Revision: B, Pages: -

Drawing No. 940-M-0003, SPX SPARTAN Floodlight Range - Installation Guide, Revision: B, Pages: -

Drawing No. CML 13ATEX3007 issue 7 FL,BL Spartan SPX, CML 13ATEX3007 issue 7, Revision: -, Pages: -

Drawing No. CML 14ATEX3119 Issue 1 LED Linear Spartan, CML 14ATEX3119 Issue 1, Revision: -, Pages: -

Drawing No. IECEX CML 14\_0001 issue 2 FL,BL Spartan SPX, IECEX CML 14\_0001 issue 2, Revision: -, Pages: -

Drawing No. IECEX CML 15\_CML 15.0001, IECEX CML 15.0001 Issue 1, Revision: -, Pages: -

Drawing No. R325A00, Evaluation Report for Spartan FL\*\* Luminaire, Revision: -, Pages: -

Drawing No. R34A\_01 Evaluation Report, Evaluation Report for Spartan FL\*\* Luminaire, Revision: -, Pages: -

Drawing No. R423A\_00, Evaluation Report for both certificates, Revision: -, Pages: -

Drawing No. SPARTAN Bulkhead BL24, BL 24 datasheet, Revision: -, Pages: -

Drawing No. SPARTAN Flood - WL12, WL12 datasheet, Revision: -, Pages: -

Drawing No. SPARTAN Flood - WL24, WL24 datasheet, Revision: -, Pages: -

Drawing No. SPARTAN Flood - WL48, WL48 datasheet, Revision: -, Pages: -

Drawing No. SPARTAN Linear - WL168, WL168 datasheet, Revision: -, Pages: -

Drawing No. SPARTAN Linear - WL84, WL84 datasheet, Revision: -, Pages: -

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**Terms of Validity:**

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**STANDARDS****ABS Rules:**

- Rules for Condition of Classification (2023): 1-1-4/7.7, 1-1-A3 & A4
- Marine Vessel Rules (2023): 4-8-3/1.7, 4-8-3/1.9, 4-8-3/1.11.1, 4-8-3/1.17, 4-8-3/13.3
- Rules for Conditions of Classifications - Offshore Units and Structures (2023): 1-1-4/9.7, 1-1-A2 & A3
- Mobile Offshore Units Rules (2023): 6-1-1/9, 6-1-1/13; 4-3-1/9, 4.3.1/11, 4-3-1/15, 4-3-1/17.1
- Rules for Condition of Classification - High Speed Crafts (2023) 1-1-4/11.9, 1-1-A2 & A3
- High Speed Crafts Rules (2023): 4-6-1/9, 4-6-1/11, 4-8-1/13, 4-6-1/15, 4-6-1/17, 4-6-3/9

**National:**

NA

**International:**

IEC 60068-2-52:2017

IEC 60068-2-6:2007

**Government:**

NA

**EUMED:**

NA

**OTHERS:**

NA