Type Examination Certificate CML 15ATEX4138 Issue 11

1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

2 Equipment **Spartan LED Linear Luminaire**

3 Manufacturer **Raytec Ltd.**

4 Address **Unit 15 Wansbeck Business Park,**
Rotary Parkway, Ashington
Northumberland
NE63 8QW, United Kingdom

5 The equipment is specified in the description of this certificate and the documents to which it refers.

6 CML B.V., Chamber of Commerce No 6738671, Koopvaardijweg 32, 4906CV Oosterhout, The Netherlands, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II of Directive 2014/34/EU.

The examination and test results are recorded in the confidential reports listed in Section 12.

7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.

8 This Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Annex VIII apply to the manufacture of the equipment or component and are separately certified.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018 EN IEC 60079-7: 2015+A1:2018 EN 60079-18:2015+A1:2017

EN 60079-31:2014

10 The equipment shall be marked with the following:

Standard		**Emergency**	
Ex II 3 G D	Ex II 3 G D	Ex II 3 G D	Ex II 3 G D
Ex ec mc IIC T5 Gc	Ex ec mc IIC T6 Gc	Ex ec mc IIC T5 Gc	Ex ec mc IIC T6 Gc
Ex ec mc IIC T4 Gc	Ex tc IIIC T65°C Dc	Ex ec mc IIC T4 Gc	Ex tc IIIC T65°C Dc
Ex tc IIIC T80°C Dc	Ta= -40°C to +45°C	Ex tc IIIC T75°C Dc	Ta= -20°C to +40°C
Ta= -40°C to +60°C		Ta= -20°C to +50°C	

11 Description

The Spartan LED Linear Luminaires are a range of LED luminaires. There are four luminaire sizes available varying in length WL84, WL84-1200, WL168 and WL168-1500. LV (Low Voltage) or HV (High Voltage) variants are available with the following ratings. The HV luminaires may also be supplied with a battery pack and inverter to enable operation in 'emergency' mode.

Power Supply Variant	Ratings
HV Standard	110-280 VAC and 154 – 355 VDC
HV Emergency	110-280 VAC
LV Standard	18-48 VAC
HV Dual	110-280 VAC and 154 – 355 VDC
LV DC	18-48 VAC and 18-68 VDC
HV Intelligent Emergency	110-280 VAC

The Spartan LED linear Luminaire enclosure is made from extruded aluminium with a transparent polycarbonate lens. The aluminium enclosure has cast aluminium end sections fitted with cast aluminium covers.

The equipment utilises silicone sponge gaskets to seal the external lens and end covers to the main enclosure and maintain the IP66 rating. Samples of the luminaire have also been independently tested against the requirements of IEC 60529 Ed 2.1 and have passed IPX6 and IPX7.

The end sections house separately certified terminals and a maximum of two separately certified cable entries per end. The end covers house either the encapsulated power supply or the optional emergency mode battery. The covers are fixed to the end sections using two M6 bolts per cover. Alternatively, an option of fitting a blanking cover at one end to provide two cables entries at one end can be used on WL84 and WL84-1200 standard variants only.

The main section of the luminaire is fitted with an encapsulated light engine. This light engine is an extruded aluminium frame fitted with a PCB containing up to 80 surface mounted LED's.

These LED's are fitted with transparent polycarbonate lenses, each lens covering up to 16 LED's. The PCB; complete with fitted lenses, is encapsulated securing the lenses in place and coating the PCB up to the walls of the light engine.

The WL84 and WL84-1200 variants are fitted with one light engine and one external lens. The WL168 and WL168-1500 variants are fitted with two light engines and two external lenses.

The LED's are available in white, coloured or infra-red. The enclosure has fixing holes to the rear, the size, pitch and quantity can be customised to suit customer needs.

All enclosures offer internal and external earthing facilities. An optional replaceable antistatic lens film is available across the range.

Variants of the standard mains voltage luminaires can be supplied which deliver increased light output, these are designated WL84-HO and WL168-HO and can have a maximum power of 46W and 92W respectively. Additionally, an increased light output emergency model WL84-HO-EM (alternately marked WL84-HO-EMX) is available with a maximum power of 60W and battery pack.

Variation 1:
This variation introduces the following modifications:

i. Allow transparent antistatic film to be fitted the lens across the range.
ii. Add a variant WL168-1500 standard & emergency
iii. Add a variant W84-1200 standard & emergency
iv. Allow end blanking cover to be fitted to WL84 standards and WL84-1200 standard.

Variation 2:

This variation introduces the following modification:

i. To allow WL168 and WL168-1500 mains powered (HV) standard variants to be fitted with an alternative dual channel power supply.
ii. To update certificate to reference the 2014/34/EU Directive.
iii. The product description was updated to reflect the changes made by this variation.

Variation 3

This variation introduces the following modifications:

i. To increase the voltage range for the low voltage options. The product description was updated to reflect the changes made by this variation.

Variation 4

This variation introduces the following modifications:

i. To assess the product against EN 60079-28:2015
ii. To include Ex op is marking in line with EN 60079-28:2015
iii. To update EN 60079-18:2009 to EN 60079-18:2015
iv. To update the conditions of manufacture to reflect updated standards and clause numbers

Variation 5

This variation introduces the following modifications:

i. The replacement of discrete logic components with a microprocessor system.
ii. The addition of 3 indication LEDs.

Variation 6

This variation introduces the following modifications:

i. To include a change of address
ii. To include a minor change to the component values on the Dual PSU circuit
iii. To include a DC option (HV Standard and Dual PSU)
iv. Minor change to marking T4/T5.
v. The description, Conditions of manufacture and marking has been modified in accordance with all the allowable options and the modifications above.

Variation 7

This variation introduces the following modifications:

i. To implement minor changes to the PSU electronic circuit that do not affect the types of protection.
ii. To remove EN 60079-28:2015 / IEC 60079 28:2015 Ed. 2 from the scope and to amend the marking to remove “op is”.
iii. To transfer the CML UK ATEX Certificates to CML BV

Variation 8

This variation introduces the following modifications:

i. To update to the latest edition of the standard
ii. To permit alternate LED arrangement
iii. To permit the inclusion of LED optics
iv. To permit alternate LED driver use with WL84
v. To permit a change to diffuser lens design
vi. To update terminal certificate numbers
vii. To assess and permit a non-metallic paint layer (applied externally to the equipment)
viii. To update the description in line with the above modifications
ix. To update marking in line with latest standards (ex nA to Ex ec)
x. To remove condition of manufacture

Variation 9

This variation introduces the following modifications:

i. Alternative electronic components for power supply unit.
ii. Correction of typographical errors on schedule drawings.

Variation 10

This variation introduces the following modifications:

i. To assess the Universal Power Supply.
ii. To assess the High Output variant of the Spartan LED Linear Luminaires

Variation 11

This variation introduces the following modifications:

i. To provide clarification on product specification on certification documents.
ii. To introduce a High Output Emergency variant of the luminaire.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	23 Oct 2015	R794A/00	Issue of the prime certificate
1	04 Feb 2016	R1022A/00	The issue of variation 1
2	23 Jun 2016	R1203A/00	The issue of variation 2
3	13 Jul 2016	R1424A/00	The issue of variation 3
4	03 Apr 2016	R1869C/00	The issue of variation 4
5	04 Oct 2017	R1870A/00	The issue of variation 5
6	05 Apr 2018	R11641A	The issue of variation 6
7	03 Feb 2020	R12972A/00	The issue of variation 7
8	10 Mar 2021	R13683B/00	The issue of variation 8
9	29 Jun 2021	R14354A/00	The issue of variation 9
10	24 Aug 2022	R15050A/00	The issue of variation 10
11	03 Feb 2023	R16135A/00	The issue of variation 11

Note: Drawings that describe the equipment or component are listed in the Annex.

13 Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.

ii. A dielectric strength test shall be carried out on all units manufactured in accordance with EN 60079-7:2015+A1:2018 clause 7.1 and EN 60079-18:2015+A1:2017, clause 9.2, depending on the power supply type and input rating at the voltages and durations shown in the following table:

Power Supply Type/ Rating	110 to 280 Vac		154 to 355 Vdc
HV	1560V AC for 1 Minute	1810 V for 100 mS	2111 Vdc for 1 minute
Power Supply Type/ Rating	18 to 48 Vdc		28 to 68 Vdc
LV	500 Vac for 1 Minute		700 V for 1 Minute

No breakdown shall occur. Tests shall be carried out between each circuit and earth.

iii. A visual inspection shall be carried out on the encapsulated parts to check for damage, in accordance with EN 60079-18:2015+A1:2017, clause 9.1.

iv. When fitted with universal PSU module, equipment shall only be marked T4 for Gb applications.

14 Specific Conditions of Use (Special Conditions)

None

Certificate Annex

Certificate Number	**CML 15ATEX4138**
Equipment	**Spartan LED Linear Luminaire**
Manufacturer	**Raytec Ltd.**

The following documents describe the equipment or component defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
920-SD-0007	1 of 3	B	23 Oct 2015	Spartan Linear Assembly Drawing
920-SD-0007	2 of 3	B	23 Oct 2015	Spartan Linear Assembly Drawing
920-SD-0007	3 of 3	A	23 Oct 2015	Spartan Linear Assembly Drawing
910-SD-0002	1 to 2	B	23 Oct 2015	HV & HV Emergency PSU Schematics
910-SD-0003	1 to 5	A	23 Oct 2015	HV PSU Fault Assy
910-SD-0004	1 of 5	B	23 Oct 2015	HV Emergency PSU Fault Assy
910-SD-0004	2 of 5	A	23 Oct 2015	HV Emergency PSU Fault Assy
910-SD-0004	3 of 5	B	23 Oct 2015	HV Emergency PSU Fault Assy
910-SD-0004	4 of 5	A	23 Oct 2015	HV Emergency PSU Fault Assy
910-SD-0004	5 of 5	B	23 Oct 2015	HV Emergency PSU Fault Assy
910-SD-0005	1 of 2	A	23 Oct 2015	HV & Emergency PSU Component Tolerance List
910-SD-0005	2 of 2	B	23 Oct 2015	HV & Emergency PSU Component Tolerance List
910-SD-0009	1 of 1	A	23 Oct 2015	LV PSU Schematics
910-SD-0010	1 to 5	A	23 Oct 2015	LV PSU Fault Assy
910-SD-0011	1 of 1	A	23 Oct 2015	LV PSU Component Tolerance List
910-SD-0012	1 of 1	A	23 Oct 2015	Alternative Mains Terminal Block for Spartan Product Range of LED Luminaires
980-SD-0023	1 of 1	A	23 Oct 2015	Spartan LED Linear – Zone 2 (Modifications drawing)

Issue 1

Drawing No	Sheets	Rev	Approved Date	Title
920-SD-0007	1 of 4	C	04 Feb 2016	Spartan Linear Assembly Drawing
920-SD-0007	2 of 4	C	04 Feb 2016	Spartan Linear Assembly Drawing
920-SD-0007	3 of 4	B	04 Feb 2016	Spartan Linear Assembly Drawing
920-SD-0007	4 of 4	A	04 Feb 2016	Spartan Linear Assembly Drawing

Certificate Annex

Certificate Number **CML 15ATEX4138**

Equipment **Spartan LED Linear Luminaire**

Manufacturer **Raytec Ltd.**

Issue 2

Drawing No	Sheets	Rev	Approved Date	Title
920-SD-0007	2 of 4	D	23 Jun 2016	Spartan LED Linear Ex m assembly drawing
920-SD-0007	4 of 4	B	23 Jun 2016	Spartan LED Linear Ex m assembly drawing
920-SD-0026	1 to 4	A	23 Jun 2016	Dual PSU Circuit diagram
920-SD-0027	1 of 1	A	23 Jun 2016	Spartan Dual Certification Parts List
920-SD-0028	1 to 5	A	23 Jun 2016	Dual PSU FMEA
980-SD-0023	1 of 1	B	23 Jun 2016	Spartan LED Linear Zone 2

Issue 3

Drawing No	Sheets	Rev	Approved Date	Title
920-SD-0007	2 of 4	D	13 Jul 2016	Spartan Linear Assembly Drawing
920-SD-0030	1 to 2	A	13 Jul 2016	18-48 AC/18-68V DC PSU Circuit diagram
920-SD-0031	1 of 1	A	13 Jul 2016	Component Tolerance LV Power Supply
920-SD-0032	1 to 4	A	13 Jul 2016	LV PSU Parts List/FMEA
980-SD-0023	1 of 1	B	13 Jul 2016	Spartan LED Linear – Zone 2

Issue 4

Drawing No	Sheets	Rev	Approved Date	Title
980-SD-0023	1 of 1	C	03 Apr 2016	Spartan LED Linear – Zone 2
920-SD-0007	1 of 4	D	03 Apr 2016	Spartan Linear Ex em
920-SD-0007	2 of 4	E	03 Apr 2016	Spartan Linear Ex em

Issue 5

Drawing No	Sheets	Rev.	Approved date	Title
910-SD-0047	1 of 1	A	04 Oct 2017	SPARTAN INTELLIGENT EMERGENCY PCB SCHEMATIC.
910-SD-0048	1 of 1	A	04 Oct 2017	PARTS LIST SPARTAN INTELLIGENT EMERGENCY POWER SUPPLY
910-SD-0049	1 to 8	A	04 Oct 2017	FMEA SPARTAN INTELLIGENT EMERGENCY POWER SUPPLY

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Issue 6

Drawing No	Sheets	Rev	Approved Date	Title
920-SD-0007	1 of 4	E	05 Apr 2018	Spartan LED Linear – Ex em
920-SD-0007	2 of 4	G	05 Apr 2018	Spartan LED Linear – Ex em
920 SD-0027	1 of 1	B	05 Apr 2018	Spartan Dual Certification Parts List Component Tolerance Standard PCB

Issue 7

Drawing No	Sheets	Rev	Approved date	Title
980-SD-0023	1 of 1	D	03 Feb 2020	Spartan LED Linear – Zone 2
910-SD-0051	1 of 1	A	03 Feb 2020	Spartan Standard Power Supply PCB Schematic
910-SD-0052	1 to 6	A	03 Feb 2020	FMEA Spartan Standard Power Supply
910-SD-0053	1 of 1	A	03 Feb 2020	Parts List Spartan Standard Power Supply
910-SD-0054	1 of 1	A	03 Feb 2020	Spartan Emergency Power Supply PCB Schematic
910-SD-0055	1 to 5	A	03 Feb 2020	FMEA Spartan Emergency Power Supply
910-SD-0056	1 of 1	A	03 Feb 2020	Parts List Spartan Emergency Power Supply
910-SD-0057	1 to 2	A	03 Feb 2020	Spartan Dual Power Supply PCB Schematic
910-SD-0058	1 to 7	A	03 Feb 2020	FMEA Spartan Dual Power Supply
910-SD-0059	1 of 1	A	03 Feb 2020	Parts List
910-SD-0060	1 of 1	A	03 Feb 2020	Spartan Encapsulated Power Supply With Minor Modifications

Issue 8

	Drawing No.	Sheets	Rev	Approved date	Title
01	920-SD-0035	1 to 4	A	10 Mar 2021	Spartan Linear Gen 2
02	920-SD-0036	1 to 2	A	10 Mar 2021	Schematic single stage power supply
03	920-SD-0037	1 to 5	A	10 Mar 2021	FMEA single stage power supply

Certificate Annex

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Manufacturer	**Raytec Ltd.**

Issue 9

	Drawing No.	Sheets	Rev	Approved date	Title
01	920-SD-0035	1 of 4	A	29 Jun 2021	Spartan LED Linear GEN 2
01	920-SD-0035	2 of 4	B	29 Jun 2021	Spartan LED Linear GEN 2
01	920-SD-0035	3 of 4	A	29 Jun 2021	Spartan LED Linear GEN 2
01	920-SD-0035	4 of 4	B	29 Jun 2021	Spartan LED Linear GEN 2
02	910-SD-0057	1 to 3	B	29 Jun 2021	Spartan dual power supply PCB Schematic
03	910-SD-0058	1 to 7	B	29 Jun 2021	FMEA Spartan dual power supply
04	910-SD-0059	1 of 1	B	29 Jun 2021	Part list spartan dual power supply
05	920-SD-0037	Sheet 5	B	29 Jun 2021	FMEA other spartan single stage power supply

Issue 10

	Drawing No.	Sheets	Rev	Approved date	Title
01	920-SD-0035	2 of 4	C	24 Aug 2022	SPARTAN LED LINEAR – GEN 2
02	920-SD-0035	4 of 4	C	24 Aug 2022	SPARTAN LED LINEAR – GEN 2
03	SB SD 4 C 145 75 0	1 to 10	0	24 Aug 2022	Safety assessment for LED ECG 4 C 145 75 0
04	70.03-01	1 to 7	0	24 Aug 2022	Test Report - LED Control Gear (Parts List 4 C 145 75 0 Rev 0)
05	BOM 4 C 145 75 0	1 to 2	0	24 Aug 2022	LED Control Gear 700 mA, 45 W, 110 - 254 V
06	BOM S 002 88 0	1 to 3	0	24 Aug 2022	SMD LED Control Gear 700 mA, 45 W, 110 - 254 V
07	BOM 5 A 003 44 1	1 of 1	0	24 Aug 2022	Lighting, Z.-Nr.: 7 E 00 187 01 0
08	BOM 5 A 003 44 2	1 of 1	0	24 Aug 2022	Lighting, Z.-Nr.: 7 E 00 187 01 0
09	BOM 5 A 003 44 3	1 of 1	0	24 Aug 2022	Lighting, Z.-Nr.: 7 E 00 187 01 0
10	BOM 5 A 003 44 4	1 of 1	0	24 Aug 2022	Lighting, Z.-Nr.: 7 E 00 187 01 0
11	BOM 5 A 003 44 5	1 of 1	0	24 Aug 2022	Lighting, Z.-Nr.: 7 E 00 187 01 0
12	NP2021-15414	1 to 3	G	24 Aug 2022	ICT Approval Application EFD25/16/9 X'Fmr

Certificate Annex

Certificate Number	**CML 15ATEX4138**
Equipment	**Spartan LED Linear Luminaire**
Manufacturer	**Raytec Ltd.**

Issue 11

#	Drawing No.	Sheets	Rev	Approved date	Title
01	920-SD-0035	1 of 4	B	03 Feb 2023	Spartan LED Linear – Gen 2
	920-SD-0035	2 of 4	D	03 Feb 2023	Spartan LED Linear – Gen 2
	920-SD-0035	3 of 4	B	03 Feb 2023	Spartan LED Linear – Gen 2
	920-SD-0035	4 of 4	D	03 Feb 2023	Spartan LED Linear – Gen 2