
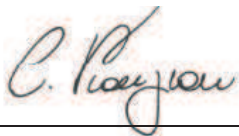



<b>TEST REPORT</b> <b>Performance test</b> <b>Power measurement</b>	
Report Number.....	R2872017_3_01
Date of issue.....	2017-08-09
Total number of pages .....	23
Name of Testing Laboratory preparing the Report .....	Analytical S.r.l. (CETACE) Via dei Cadolingi 6 50018 Scandicci (FI), Italy
Applicant's name .....	CREE Europe S.r.l. a S.U.
Address.....	Via Sandro Pertini, 122 50019 Sesto Fiorentino (FI), Italy
<b>Test specification:</b> Standard ..... : N/A Test procedure ..... : Performance test Non-standard test method ..... : Power measurement – CREE Europe internal procedure	
Test Report Form No. ....	Power_meas_a
Test Report Form(s) Originator ....	Analytical S.r.l. (CETACE)
Master TRF .....	2017/06
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<b>General disclaimer:</b> The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the Analytical S.r.l. (CETACE) laboratory, responsible for this Test Report.	

<b>Test item description</b> ..... :	LED luminaires for road and street lighting	
<b>Trade Mark</b> ..... :		
<b>Manufacturer</b> .....	CREE Europe S.r.l. a S.U.	
<b>Model/Type reference</b> .....	XSPM-A-#-#-A-#-#-24-SV-Q-#-#	
<b>Ratings</b> .....	220-240 Vac, 50 Hz, Max 58 W	
<b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b>		
<input checked="" type="checkbox"/>	<b>Testing Laboratory:</b>	
<b>Testing location/ address</b> ..... :		Analytical S.r.l. (CETACE) Via dei Cadolingi 6, 50018 Scandicci (FI), Italy
<b>Tested by (name, function, signature)</b> ..... :		Cosimo Pianigiani (ENG) 
<b>Approved by (name, function, signature)</b> ... :		Lorenzo Signorini (REW) 

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

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**Summary of testing:**

**Tests performed :**

XSPM-A-##-A-##-24-SV-Q-## (EUT 2872017\_001, EUT 2872017\_002, EUT 2872017\_003, EUT 2872017\_004, EUT 2872017\_005)

Requirement test	Results
Performance Test Field adjustable setting = 9	Table 1

XSPM-A-##-A-##-24-SV-Q-## (EUT 2872017\_001, EUT 2872017\_002, EUT 2872017\_003, EUT 2872017\_004, EUT 2872017\_005)

Requirement test	Results
Performance Test Field adjustable setting = 7	Table 2

XSPM-A-##-A-##-24-SV-Q-## (EUT 2872017\_001, EUT 2872017\_002, EUT 2872017\_003, EUT 2872017\_004, EUT 2872017\_005)

Requirement test	Results
Performance Test Field adjustable setting = 5	Table 3

XSPM-A-##-A-##-24-SV-Q-## (EUT 2872017\_001, EUT 2872017\_002, EUT 2872017\_003, EUT 2872017\_004, EUT 2872017\_005)

Requirement test	Results
Performance Test Field adjustable setting = 3	Table 4

**Testing location:**

Analytical S.r.l. (CETACE)  
Via dei Cadolingi 6,  
50018 Scandicci (FI), Italy

XSPM-A-##-A-##-24-SV-Q-## (EUT 2872017_001, EUT 2872017_002, EUT 2872017_003, EUT 2872017_004, EUT 2872017_005)		
Requirement test	Results	
Performance Test Field adjustable setting = Short circuit of LED controlgear dimming wiring	Table 5	

**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.**

No marking plate provided

<b>Test item particulars</b> .....:	LED luminaires for road and street lighting
<b>Classification of installation and use</b> .....:	LED luminaires for road and street lighting
<b>Supply Connection</b> .....	Installation coupler
.....:	
<b>Possible test case verdicts:</b>	
- 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)
<b>Testing</b> .....:	
<b>Date of receipt of test item</b> .....	2017-08-04
<b>Date (s) of performance of tests</b> .....	2017-08-07 – 2017-08-09
<b>General remarks:</b>	
<p>"(See Enclosure #)" refers to additional information appended to the report.          "(See appended table)" refers to a table appended to the report.</p> <p><b>Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.</b></p> <p>Clause numbers between brackets refer to clauses in EN 60068-2-11</p>	
<b>Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60068-2-11:</b>	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....:	<input type="checkbox"/> <b>Yes</b> <input checked="" type="checkbox"/> <b>Not applicable</b>
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>Name and address of factory (ies)</b> .....	CREE Europe S.r.l. a S.U. Via Sandro Pertini, 122 50019 Sesto Fiorentino (FI) Italy

**General product information:**

The purpose of the testing procedure is to provide an accurate indication of the load at the distribution network terminals of a particular equipment under normal conditions. Circuit Watts (W), Volt Ampere (VA), and Power Factor have been measured at five different voltage levels from 210 Vac, increasing in 10 Vac increments, up to 250 Vac (at 50 Hz). For each voltage level, the LED controlgear installed in each LED luminaire has been set using a Field Adjustable dimmer rotary control unit, with dimmer levels as follows:

Dimmer Position (field adjustable device)	Rated output Power [W]
Short circuit of LED controlgear dimming wiring	9 (minimum rated power)
3	28
5	39
7	49
9	58 (maximum rated power)

To perform those measures, a stabilized power source has been used.

All measures have been recorded at ambient temperature of 25 °C.

Table 1		Power measures - Field adjustable setting = 9				
Voltage [Vac]	Recordings	EUT 2872017_001	EUT 2872017_002	EUT 2872017_003	EUT 2872017_004	EUT 2872017_005
210	Watt [W]	59,15	59,17	58,91	58,76	57,80
	VA [VA]	59,69	59,74	59,63	59,38	58,37
	Power factor	0,990	0,990	0,987	0,989	0,990
220	Watt [W]	59,10	59,21	58,90	58,75	57,78
	VA [VA]	59,87	59,99	59,63	59,57	58,51
	Power factor	0,987	0,987	0,987	0,986	0,987
230	Watt [W]	59,09	59,17	58,92	58,82	57,78
	VA [VA]	59,85	60,14	59,82	59,76	58,67
	Power factor	0,987	0,983	0,984	0,983	0,985
240	Watt [W]	59,08	59,20	58,90	58,83	57,96
	VA [VA]	60,00	60,30	59,97	59,93	59,03
	Power factor	0,984	0,981	0,982	0,981	0,981
250	Watt [W]	59,10	59,25	58,93	59,07	58,09
	VA [VA]	60,18	60,50	60,15	60,24	59,27
	Power factor	0,982	0,979	0,979	0,979	0,980



Table 2		Power measures - Field adjustable setting = 7				
Voltage [Vac]	Recordings	EUT 2872017_001	EUT 2872017_002	EUT 2872017_003	EUT 2872017_004	EUT 2872017_005
210	Watt [W]	48,93	48,92	48,64	48,47	49,97
	VA [VA]	49,78	49,61	49,30	49,15	48,76
	Power factor	0,983	0,985	0,986	0,984	0,983
220	Watt [W]	48,96	48,97	48,74	48,38	47,98
	VA [VA]	49,94	49,79	49,69	49,29	48,88
	Power factor	0,980	0,983	0,981	0,982	0,981
230	Watt [W]	49,02	49,06	48,87	48,48	48,08
	VA [VA]	50,11	50,19	49,87	49,47	49,11
	Power factor	0,977	0,977	0,979	0,979	0,978
240	Watt [W]	49,00	49,03	48,86	48,47	48,01
	VA [VA]	50,20	50,26	49,53	49,70	49,25
	Power factor	0,976	0,975	0,978	0,975	0,974
250	Watt [W]	49,01	49,03	48,84	48,44	48,04
	VA [VA]	50,30	50,36	50,27	50,02	50,02
	Power factor	0,974	0,973	0,971	0,968	0,969

Table 3		Power measures - Field adjustable setting = 5				
Voltage [Vac]	Recordings	EUT 2872017_001	EUT 2872017_002	EUT 2872017_003	EUT 2872017_004	EUT 2872017_005
210	Watt [W]	38,23	38,98	38,82	38,28	37,59
	VA [VA]	39,06	39,95	39,66	39,26	38,45
	Power factor	0,978	0,975	0,978	0,974	0,977
220	Watt [W]	38,21	38,98	38,82	38,38	37,68
	VA [VA]	39,15	40,10	39,80	39,37	38,75
	Power factor	0,975	0,972	0,975	0,969	0,975
230	Watt [W]	38,23	38,98	38,82	38,45	37,80
	VA [VA]	39,56	40,29	39,99	39,80	39,12
	Power factor	0,966	0,967	0,970	0,966	0,965
240	Watt [W]	38,19	38,98	38,79	38,52	37,87
	VA [VA]	39,61	40,36	40,30	40,10	39,41
	Power factor	0,964	0,965	0,962	0,961	0,960
250	Watt [W]	38,17	38,92	38,74	38,56	37,92
	VA [VA]	40,00	40,79	40,48	40,28	39,81
	Power factor	0,954	0,954	0,957	0,957	0,952

<b>Table 4</b>		<b>Power measures - Field adjustable setting = 3</b>				
Voltage [Vac]	Recordings	EUT 2872017_001	EUT 2872017_002	EUT 2872017_003	EUT 2872017_004	EUT 2872017_005
210	Watt [W]	27,16	26,98	26,91	26,95	26,21
	VA [VA]	28,34	28,16	28,11	28,15	27,54
	Power factor	0,957	0,958	0,957	0,957	0,951
220	Watt [W]	27,16	27,02	26,94	27,05	26,31
	VA [VA]	28,59	28,41	28,37	28,61	27,75
	Power factor	0,950	0,951	0,949	0,946	0,947
230	Watt [W]	27,19	27,07	26,95	27,15	26,36
	VA [VA]	28,75	28,79	28,50	28,76	28,09
	Power factor	0,945	0,940	0,945	0,944	0,938
240	Watt [W]	27,21	27,08	26,96	27,23	26,45
	VA [VA]	29,04	29,07	28,78	29,29	28,35
	Power factor	0,936	0,931	0,936	0,929	0,932
250	Watt [W]	27,18	27,08	26,96	27,21	26,41
	VA [VA]	29,24	29,28	29,23	29,75	29,01
	Power factor	0,930	0,917	0,922	0,914	0,910

Table 5		Power measures - Short circuit of LED controlgear dimming wiring				
Voltage [Vac]	Recordings	EUT 2872017_001	EUT 2872017_002	EUT 2872017_003	EUT 2872017_004	EUT 2872017_005
210	Watt [W]	9,20	9,30	9,00	8,80	8,60
	VA [VA]	12,70	12,40	12,70	12,80	12,70
	Power factor	0,723	0,717	0,723	0,707	0,687
220	Watt [W]	9,30	9,10	8,90	8,80	8,20
	VA [VA]	13,70	13,40	13,50	13,70	13,30
	Power factor	0,686	0,672	0,676	0,663	0,659
230	Watt [W]	9,10	9,00	9,30	8,70	8,10
	VA [VA]	14,50	15,72	14,50	15,70	14,00
	Power factor	0,624	0,599	0,633	0,558	0,577
240	Watt [W]	9,20	9,00	9,10	8,70	8,10
	VA [VA]	15,60	15,40	15,40	16,90	16,10
	Power factor	0,596	0,587	0,591	0,575	0,505
250	Watt [W]	9,30	9,10	9,10	8,80	8,20
	VA [VA]	19,80	20,00	19,20	17,60	17,70
	Power factor	0,465	0,454	0,473	0,498	0,464

<b>Annex 1</b>	<b>Critical Components</b>
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<b>ANNEX 1</b>	<b>TABLE: Critical components information</b>				
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	
LED controlgear	-	Philips	XITANIUM 50W 1.5A 1 channel 0-10V GL-H sXt	Uin: 120-277 V, fn: 50/60 Hz, Iout: 1500 mA, tc: 80 °C, U-OUT = 41 Vdc (max)	
LED	-	CREE	MD-A 1450	1500 mA Max, 5700 K Max, Tj = 150 °C	

Appendix 1		List of equipment used		
Clause	Measurement / testing	Testing / measuring equipment / material used	Range used	Expire Calibration date (yyyy/mm/gg)
-	Performance Test	23 – Draught-proof enclosure, A.T.S. Galbusera, AOM	--	2018/02/04
		539 – Stabilized Power Supply, Agilent, 6813B	--	Not under calibration
		228 – Powermeter, AV Power, PA4400-4	--	2018/06/06

Appendix 2	Photographs
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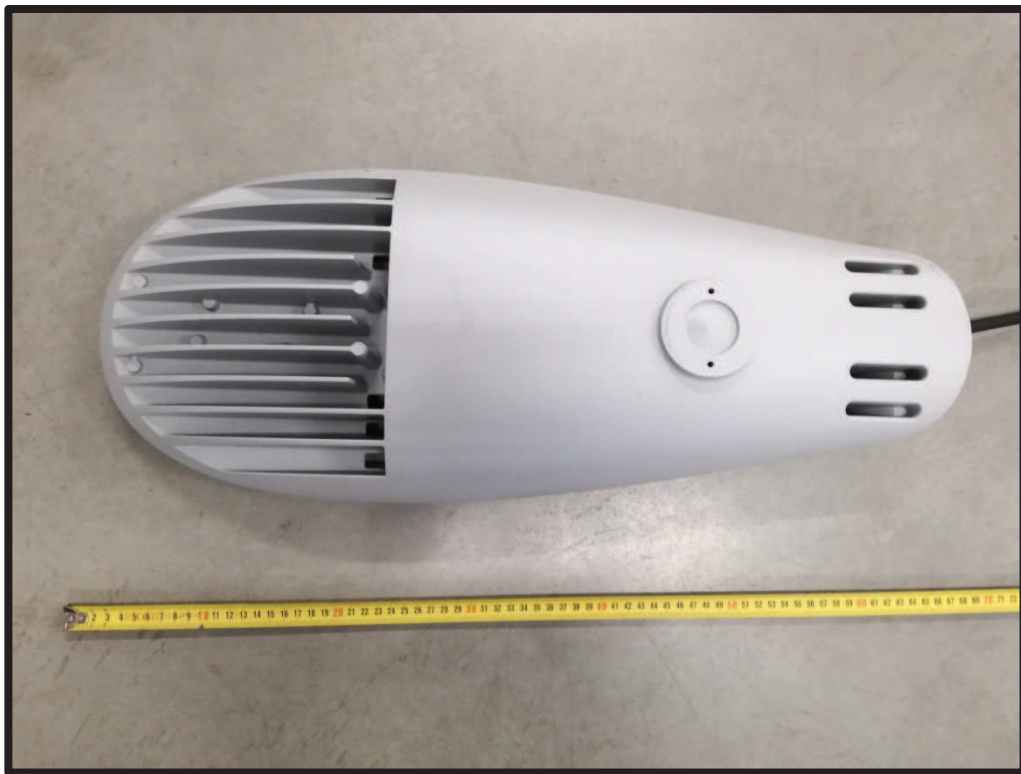


Fig. 1: LED luminaire (EUT 2872017\_001) – Top view

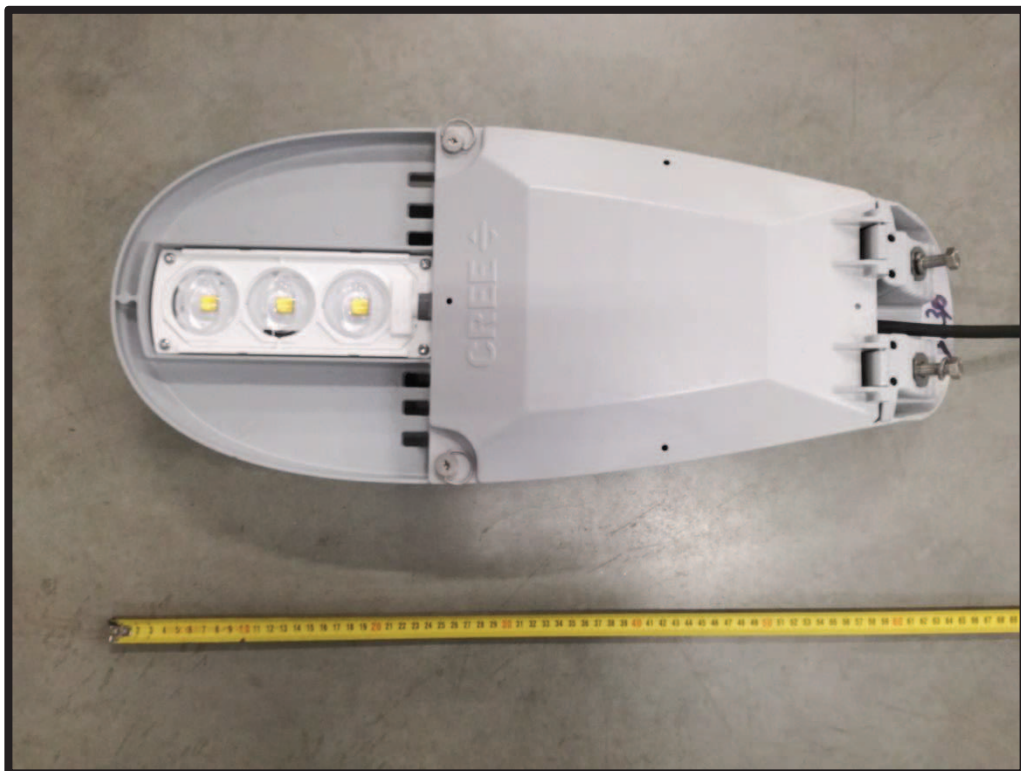


Fig. 2: LED luminaire (EUT 2872017\_001) – Bottom view



**Appendix 2** | **Photographs**

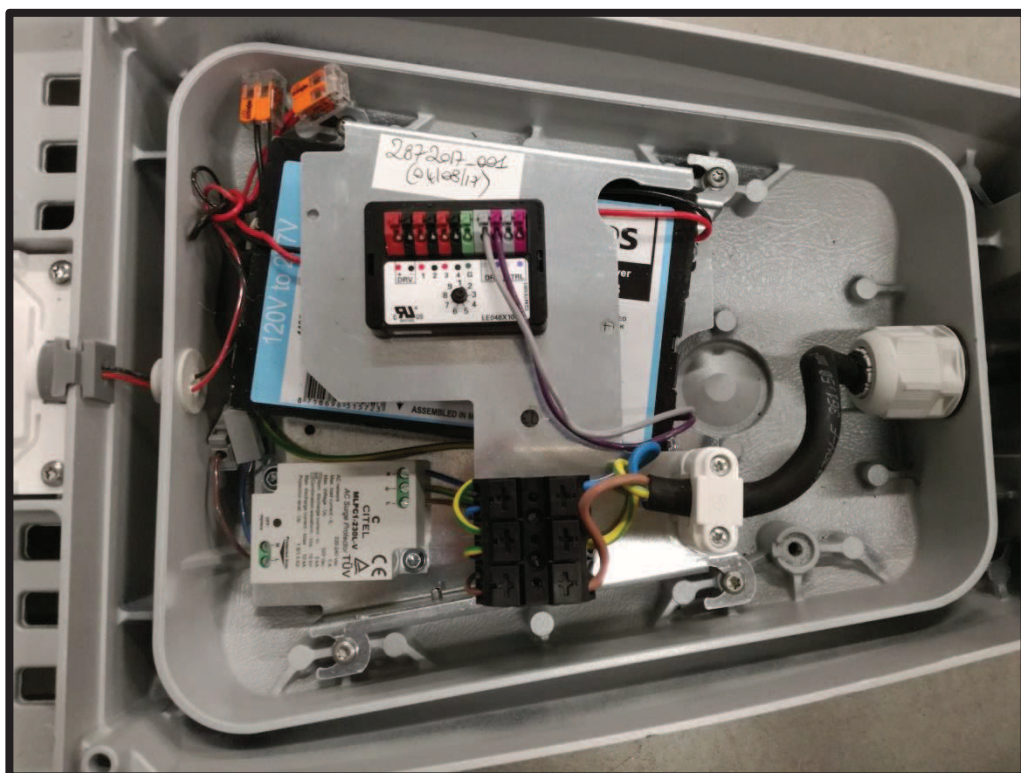


Fig. 3: LED luminaire (EUT 2872017\_001) – Internal view

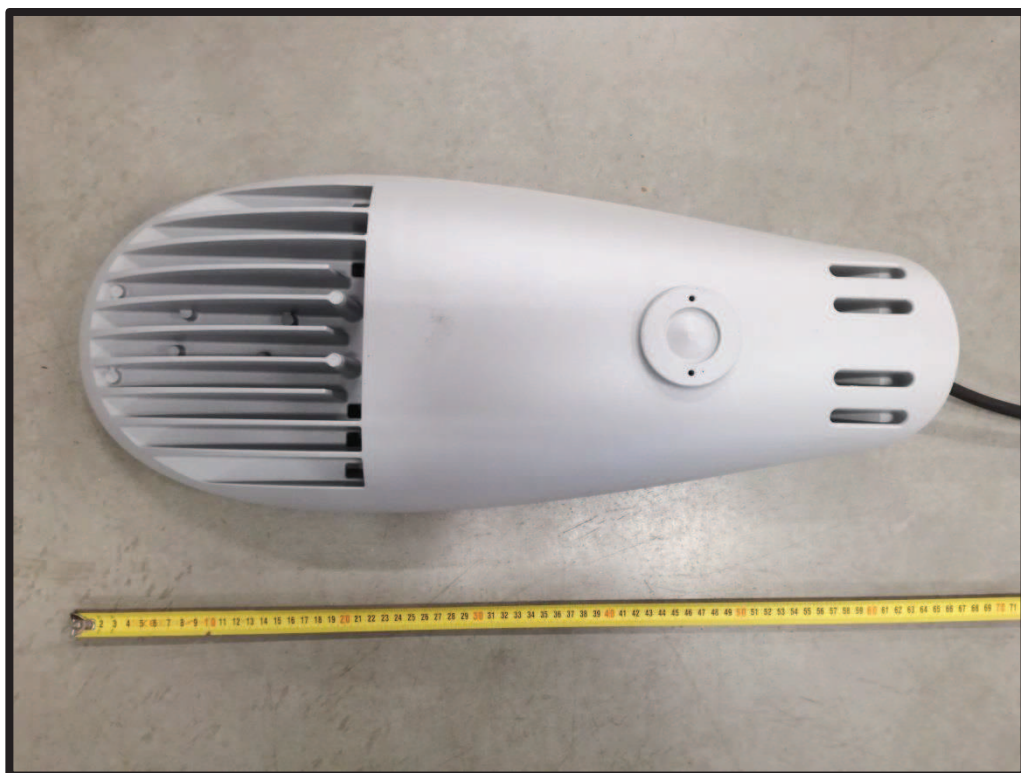


Fig. 4: LED luminaire (EUT 2872017\_002) – Top view



**Appendix 2** | **Photographs**

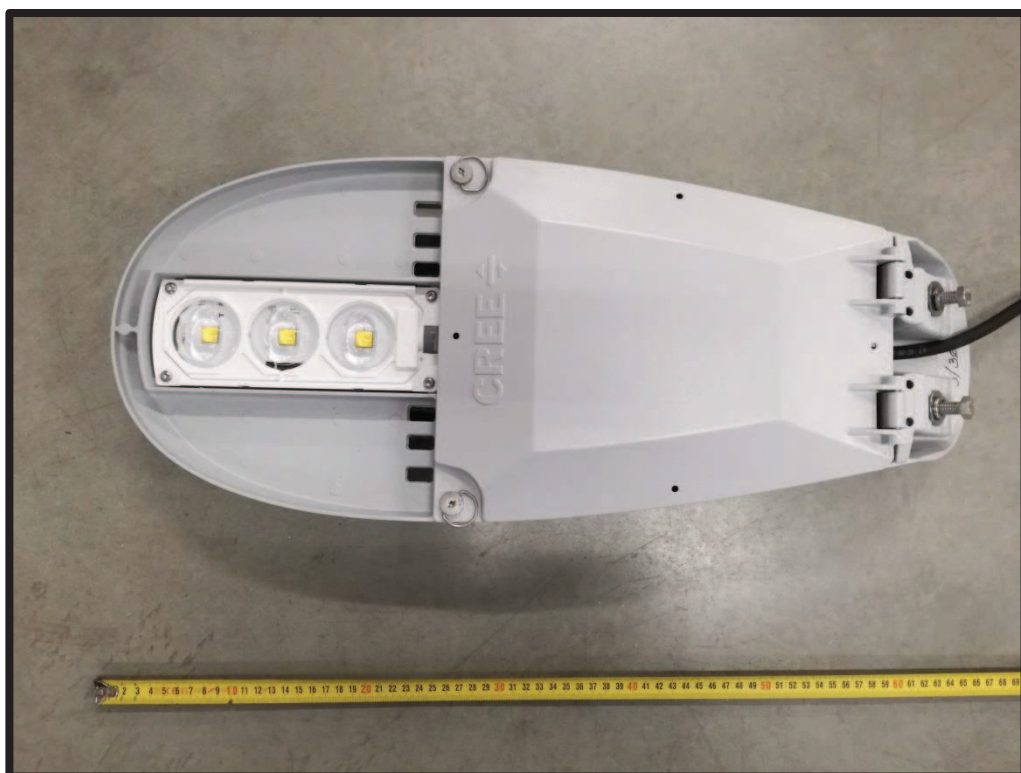


Fig. 5: LED luminaire (EUT 2872017\_002) – Bottom view

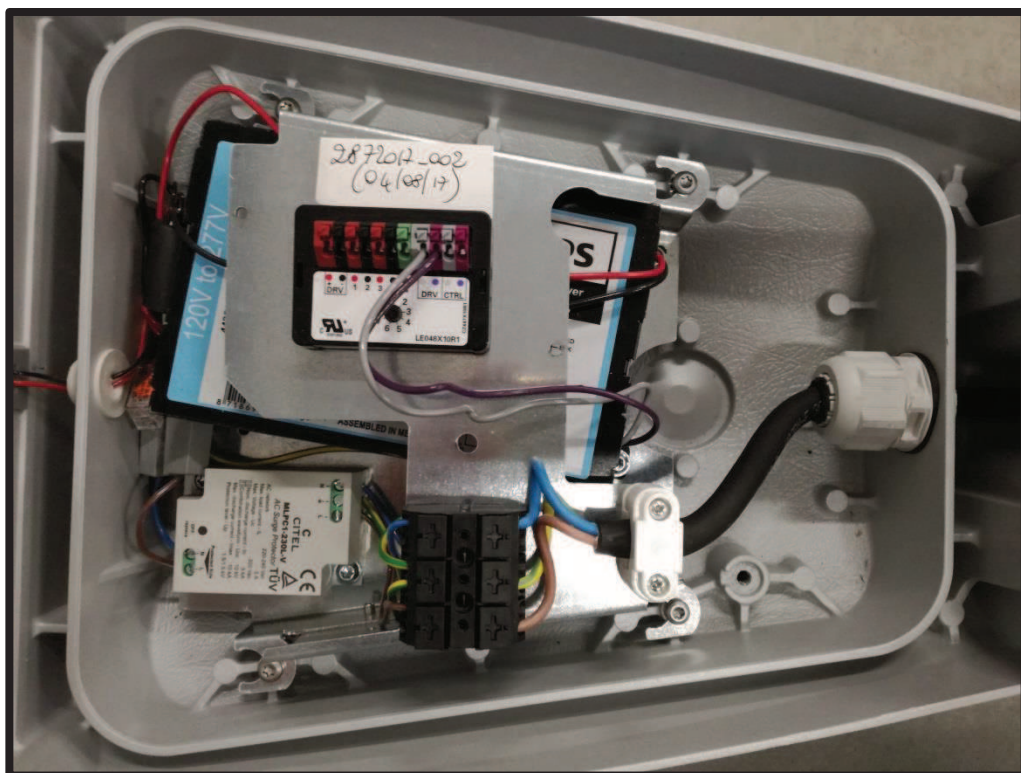


Fig. 6: LED luminaire (EUT 2872017\_002) – Internal view

Appendix 2	Photographs
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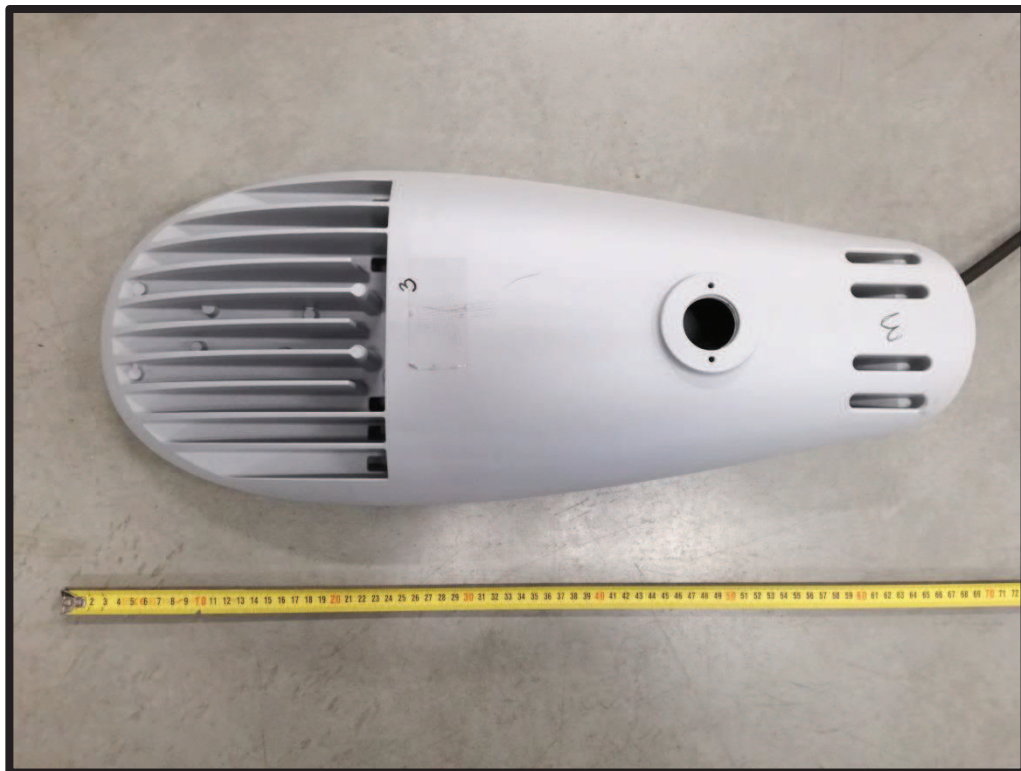


Fig. 7: LED luminaire (EUT 2872017\_003) – Top view

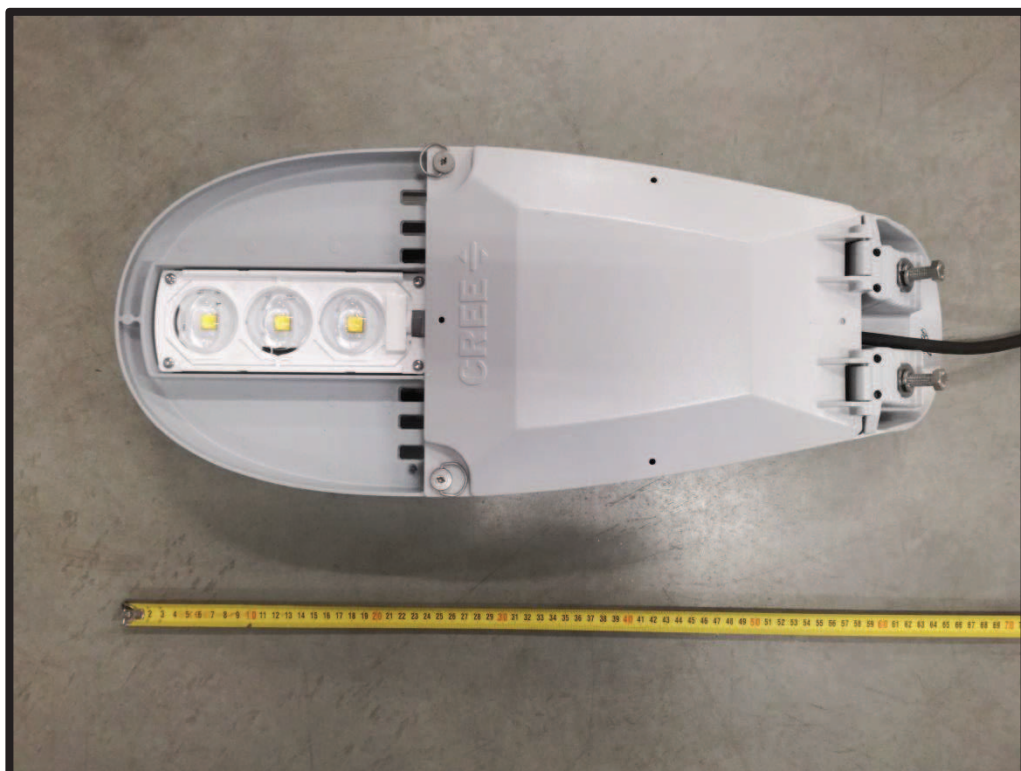


Fig. 8: LED luminaire (EUT 2872017\_003) – Bottom view



**Appendix 2 | Photographs**

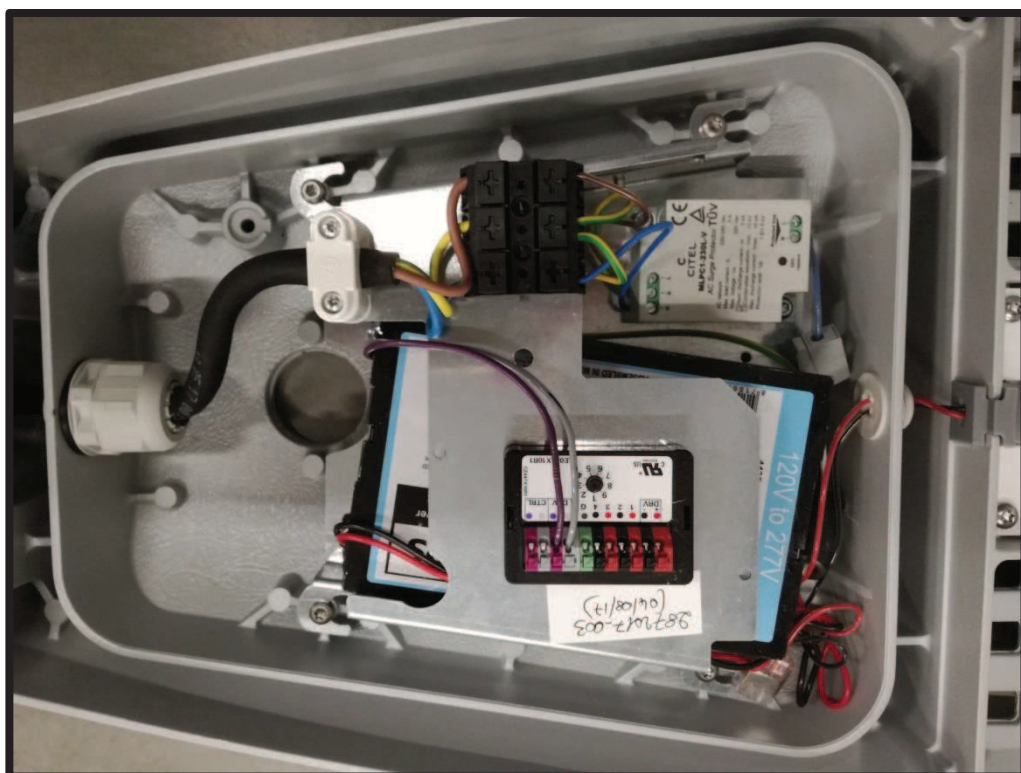


Fig. 9: LED luminaire (EUT 2872017\_003) – Internal view



Fig. 10: LED luminaire (EUT 2872017\_004) – Top view

**Appendix 2** | **Photographs**

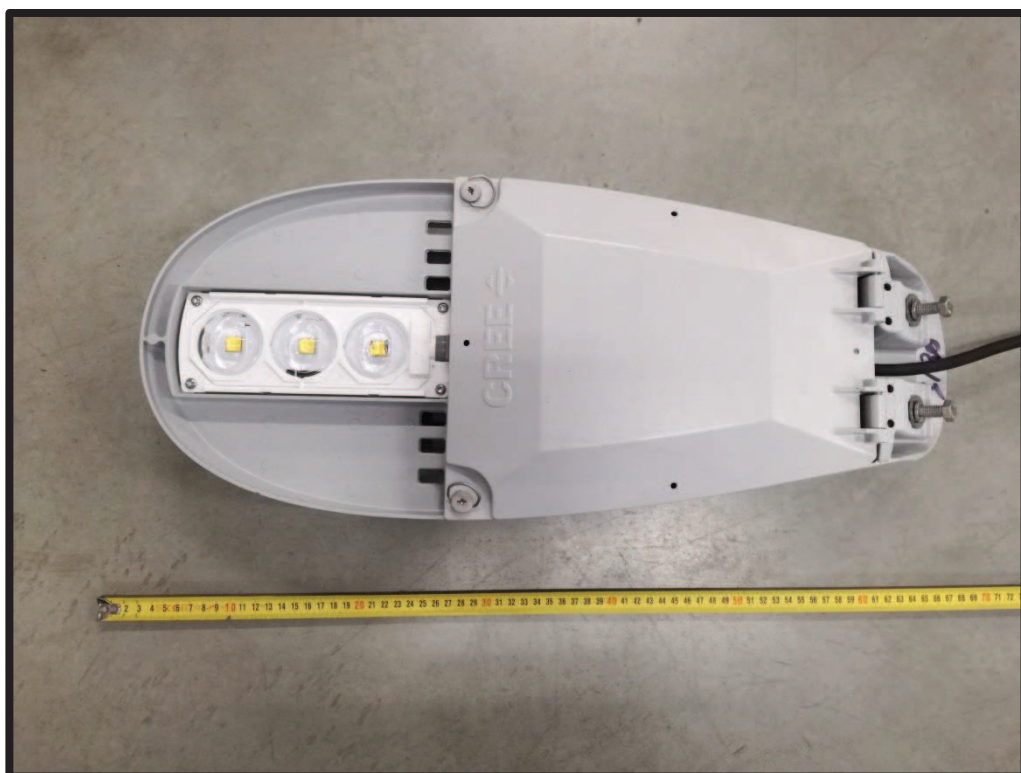


Fig. 11: LED luminaire (EUT 2872017\_004) – Bottom view

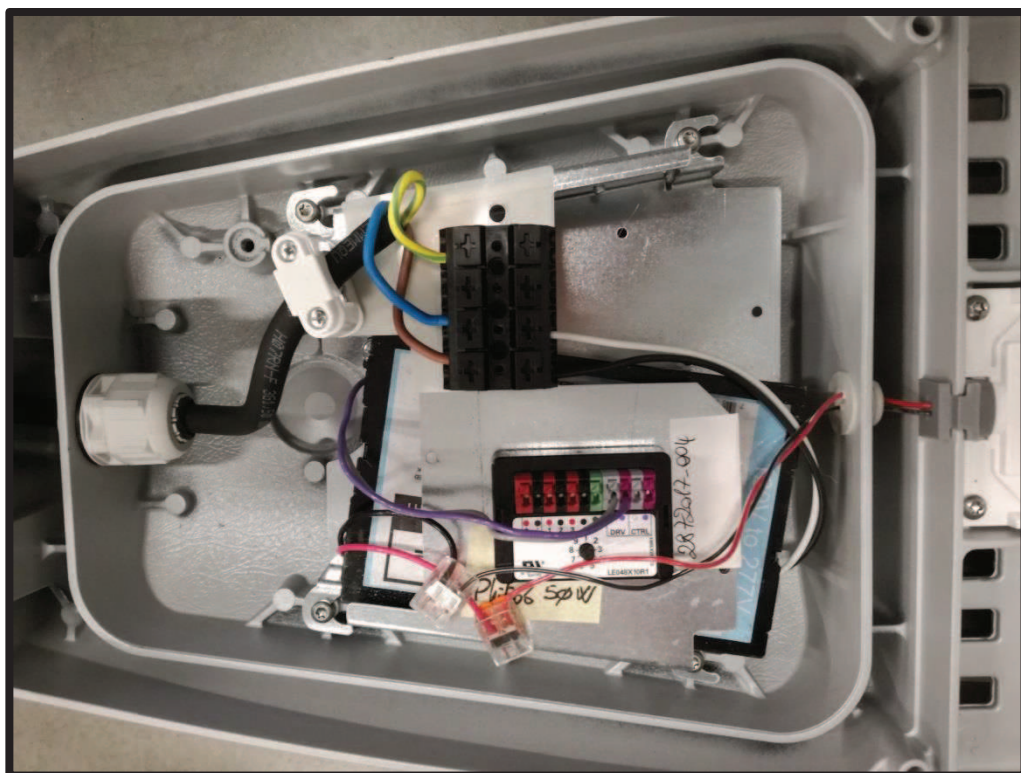


Fig. 12: LED luminaire (EUT 2872017\_004) – Internal view



Appendix 2	Photographs
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Fig. 13: LED luminaire (EUT 2872017\_005) – Top view



Fig. 14: LED luminaire (EUT 2872017\_005) – Bottom view

**Appendix 2** | **Photographs**

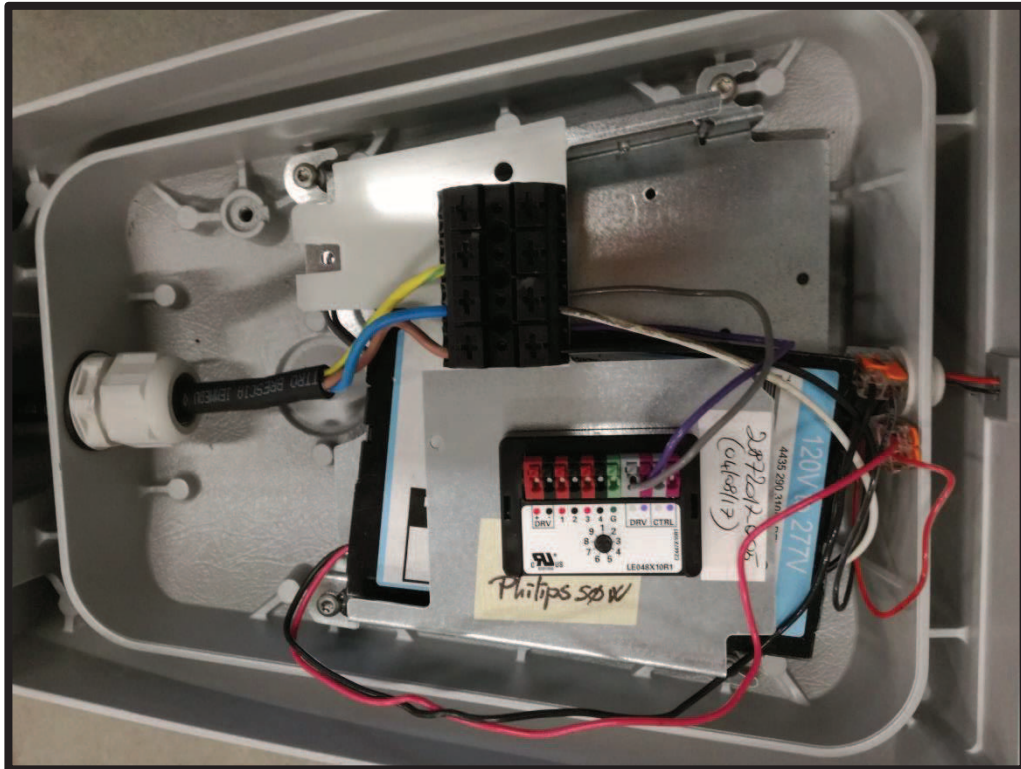


Fig. 15: LED luminaire (EUT 2872017\_005) – Internal view



Fig. 16: Close-up of the Field Adjustable control unit used to dim



Appendix 2 Photographs



Fig. 17: LED controlgear used

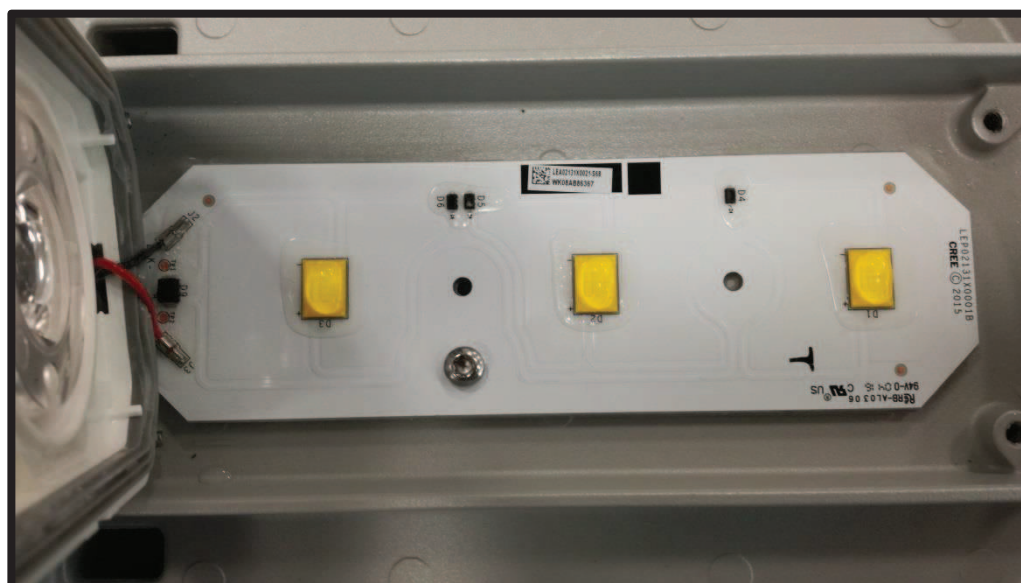


Fig. 18: LED module view