
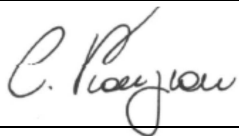
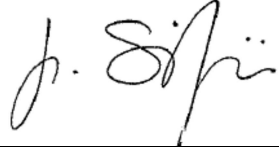


TEST REPORT Performance test Power measurement	
Report Number.....	R2872017_3_02
Date of issue.....	2017-08-10
Total number of pages	22
Name of Testing Laboratory preparing the Report	Analytical S.r.l. (CETACE) Via dei Cadolingi 6 50018 Scandicci (FI), Italy
Applicant's name	CREE Europe S.r.l. a S.U.
Address.....	Via Sandro Pertini, 122 50019 Sesto Fiorentino (FI), Italy
Test specification: 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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General disclaimer: The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing 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.	

Test item description :	LED luminaires for road and street lighting	
Trade Mark :		
Manufacturer	CREE Europe S.r.l. a S.U.	
Model/Type reference	XSPM-A-#-#-B-#-#-24-SV-DL-#-#	
Ratings	220-240 Vac, 50/60 Hz, Max 42 W	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	Testing Laboratory:	
Testing location/ address :		Analytical S.r.l. (CETACE) Via dei Cadolingi 6, 50018 Scandicci (FI), Italy
Tested by (name, function, signature) :		Cosimo Pianigiani (ENG) 
Approved by (name, function, signature) :		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-##-B-##-24-SV-DL-## (EUT 2872017_006, EUT 2872017_007, EUT 2872017_008, EUT 2872017_009, EUT 2872017_010)

Requirement test	Results
Performance Test Dimmer setting = 100%	Table 1

XSPM-A-##-B-##-24-SV-DL-## (EUT 2872017_006, EUT 2872017_007, EUT 2872017_008, EUT 2872017_009, EUT 2872017_010)

Requirement test	Results
Performance Test Dimmer setting = 70%	Table 2

XSPM-A-##-B-##-24-SV-DL-## (EUT 2872017_006, EUT 2872017_007, EUT 2872017_008, EUT 2872017_009, EUT 2872017_010)

Requirement test	Results
Performance Test Dimmer setting = 50%	Table 3

XSPM-A-##-B-##-24-SV-DL-## (EUT 2872017_006, EUT 2872017_007, EUT 2872017_008, EUT 2872017_009, EUT 2872017_010)

Requirement test	Results
Performance Test Dimmer setting = 30%	Table 4

Testing location:

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

XSPM-A-#-#-B-#-#-24-SV-DL-#-# (EUT 2872017_006, EUT 2872017_007, EUT 2872017_008, EUT 2872017_009, EUT 2872017_010)

Requirement test	Results
Performance Test Dimmer setting = 10%	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

Test item particulars:	LED luminaires for road and street lighting
Classification of installation and use:	LED luminaires for road and street lighting
Supply Connection	Installation coupler
.....:	
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	2017-08-04
Date (s) of performance of tests	2017-08-08 – 2017-08-10
General remarks:	
<p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.</p> <p>Clause numbers between brackets refer to clauses in EN 60068-2-11</p>	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60068-2-11:	
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"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies)	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 the Tridonic DALI PS1 and the Master configurator software, with dimmer levels as follows:

Dimmer Position	Rated output Power [W]
10%	4 (minimum rated power)
30%	13
50%	21
70%	29
100%	42 (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 - Dimmer setting = 100%				
Voltage [Vac]	Recordings	EUT 2872017_006	EUT 2872017_007	EUT 2872017_008	EUT 2872017_009	EUT 2872017_010
210	Watt [W]	41,24	40,97	40,94	41,23	41,65
	VA [VA]	41,59	41,50	41,42	41,56	42,08
	Power factor	0,992	0,987	0,988	0,991	0,990
220	Watt [W]	41,18	40,91	40,86	41,16	41,57
	VA [VA]	41,58	41,54	41,38	41,56	42,22
	Power factor	0,989	0,985	0,987	0,990	0,985
230	Watt [W]	41,15	40,89	40,89	41,10	41,47
	VA [VA]	41,63	41,59	41,45	41,61	42,37
	Power factor	0,988	0,983	0,986	0,987	0,980
240	Watt [W]	41,15	40,89	40,79	41,12	41,59
	VA [VA]	41,78	41,71	41,34	41,75	42,32
	Power factor	0,984	0,980	0,986	0,984	0,982
250	Watt [W]	41,13	40,88	40,84	41,07	42,57
	VA [VA]	42,00	41,72	41,79	41,73	41,55
	Power factor	0,979	0,979	0,977	0,983	0,976

Table 2		Power measures - Dimmer setting = 70%				
Voltage [Vac]	Recordings	EUT 2872017_006	EUT 2872017_007	EUT 2872017_008	EUT 2872017_009	EUT 2872017_010
210	Watt [W]	28,60	28,30	28,32	28,58	28,61
	VA [VA]	29,03	28,97	28,84	29,01	29,31
	Power factor	0,985	0,976	0,982	0,985	0,976
220	Watt [W]	28,59	28,28	28,33	28,56	28,58
	VA [VA]	29,08	29,04	28,88	29,07	29,26
	Power factor	0,983	0,973	0,980	0,982	0,977
230	Watt [W]	28,55	28,25	28,28	28,54	28,52
	VA [VA]	29,26	28,97	29,04	29,24	29,44
	Power factor	0,976	0,974	0,974	0,975	0,969
240	Watt [W]	28,52	28,22	28,26	28,51	28,54
	VA [VA]	29,32	29,03	29,11	29,32	29,53
	Power factor	0,972	0,971	0,970	0,973	0,966
250	Watt [W]	28,48	28,20	28,17	28,47	28,54
	VA [VA]	29,27	29,25	29,04	29,26	29,75
	Power factor	0,973	0,963	0,969	0,972	0,968

Table 3		Power measures - Dimmer setting = 50%				
Voltage [Vac]	Recordings	EUT 2872017_006	EUT 2872017_007	EUT 2872017_008	EUT 2872017_009	EUT 2872017_010
210	Watt [W]	20,66	20,36	20,48	20,62	20,59
	VA [VA]	21,26	21,19	21,26	21,23	21,42
	Power factor	0,972	0,961	0,964	0,971	0,960
220	Watt [W]	20,65	20,40	20,47	20,62	20,59
	VA [VA]	21,37	21,33	21,17	21,36	21,56
	Power factor	0,966	0,956	0,967	0,965	0,955
230	Watt [W]	20,66	20,40	20,49	20,60	20,59
	VA [VA]	21,43	21,38	21,44	21,41	21,63
	Power factor	0,963	0,954	0,955	0,962	0,952
240	Watt [W]	20,68	20,43	20,48	20,62	20,54
	VA [VA]	21,64	21,60	21,66	21,63	22,09
	Power factor	0,955	0,945	0,956	0,953	0,929
250	Watt [W]	20,69	20,42	20,48	20,61	20,59
	VA [VA]	21,79	22,00	21,80	21,78	22,00
	Power factor	0,949	0,928	0,939	0,946	0,937

Table 4		Power measures - Dimmer setting = 30%				
Voltage [Vac]	Recordings	EUT 2872017_006	EUT 2872017_007	EUT 2872017_008	EUT 2872017_009	EUT 2872017_010
210	Watt [W]	12,75	12,58	12,67	12,71	12,62
	VA [VA]	13,68	13,85	13,69	13,66	13,86
	Power factor	0,931	0,908	0,925	0,930	0,910
220	Watt [W]	12,77	12,62	12,66	12,73	12,65
	VA [VA]	13,88	14,08	13,89	13,88	14,07
	Power factor	0,919	0,697	0,911	0,916	0,899
230	Watt [W]	12,78	12,64	12,67	12,75	12,69
	VA [VA]	14,05	14,26	14,07	14,05	14,49
	Power factor	0,910	0,886	0,902	0,907	0,875
240	Watt [W]	12,83	12,65	12,70	12,76	12,62
	VA [VA]	14,19	14,64	14,20	14,18	14,40
	Power factor	0,904	0,864	0,894	0,900	0,876
250	Watt [W]	12,83	12,66	12,71	12,78	12,68
	VA [VA]	14,53	14,74	14,54	14,52	14,75
	Power factor	0,884	0,858	0,874	0,879	0,859

Table 5		Power measures - Dimmer setting = 10%				
Voltage [Vac]	Recordings	EUT 2872017_006	EUT 2872017_007	EUT 2872017_008	EUT 2872017_009	EUT 2872017_010
210	Watt [W]	5,33	5,27	5,32	5,36	5,30
	VA [VA]	6,94	7,57	7,17	7,15	7,77
	Power factor	0,768	0,695	0,744	0,748	0,681
220	Watt [W]	5,39	5,34	5,36	5,39	5,30
	VA [VA]	7,49	8,15	7,49	7,49	7,92
	Power factor	0,719	0,653	0,715	0,718	0,669
230	Watt [W]	5,43	5,39	5,39	5,42	5,33
	VA [VA]	7,83	8,74	7,84	7,83	8,51
	Power factor	0,693	0,616	0,688	0,692	0,626
240	Watt [W]	5,49	5,41	5,41	5,45	5,37
	VA [VA]	8,17	9,37	8,42	8,17	8,88
	Power factor	0,668	0,577	0,640	0,667	0,604
250	Watt [W]	5,44	5,42	5,41	5,46	5,39
	VA [VA]	8,76	9,764	8,77	8,15	9,50
	Power factor	0,620	0,546	0,617	0,641	0,567

Annex 1	Critical Components
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ANNEX 1	TABLE: Critical components information				
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	
LED controlgear	-	Philips	Xitanium FP 40W 0.3-1.0A SNLDAE 230V C123 sXt	Uin: 220-240 V, fn: 50/60 Hz, Iout: 350-1050 mA, tc: 85 °C, U-OUT (open-circuit) = 60 Vdc (max), SELV	
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
		Dimmer, Tridonic, DALI PS1	--	Not under calibration
		Software, Tridonic, Master Configurator v. 2.22.0.1596	--	Not under calibration

Appendix 2	Photographs
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Fig. 1: LED luminaire (EUT 2872017_006) – Top view



Fig. 2: LED luminaire (EUT 2872017_006) – Bottom view

Appendix 2 | **Photographs**

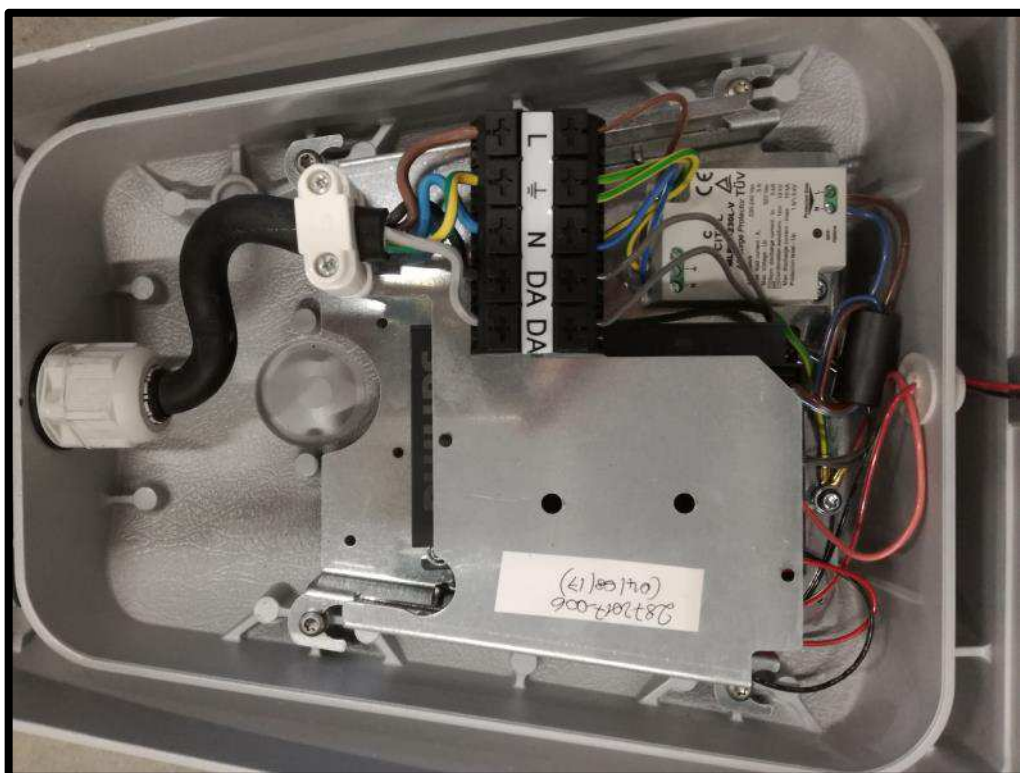


Fig. 3: LED luminaire (EUT 2872017_006) – Internal view



Fig. 4: LED luminaire (EUT 2872017_007) – Top view

Appendix 2	Photographs
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Fig. 5: LED luminaire (EUT 2872017_007) – Bottom view

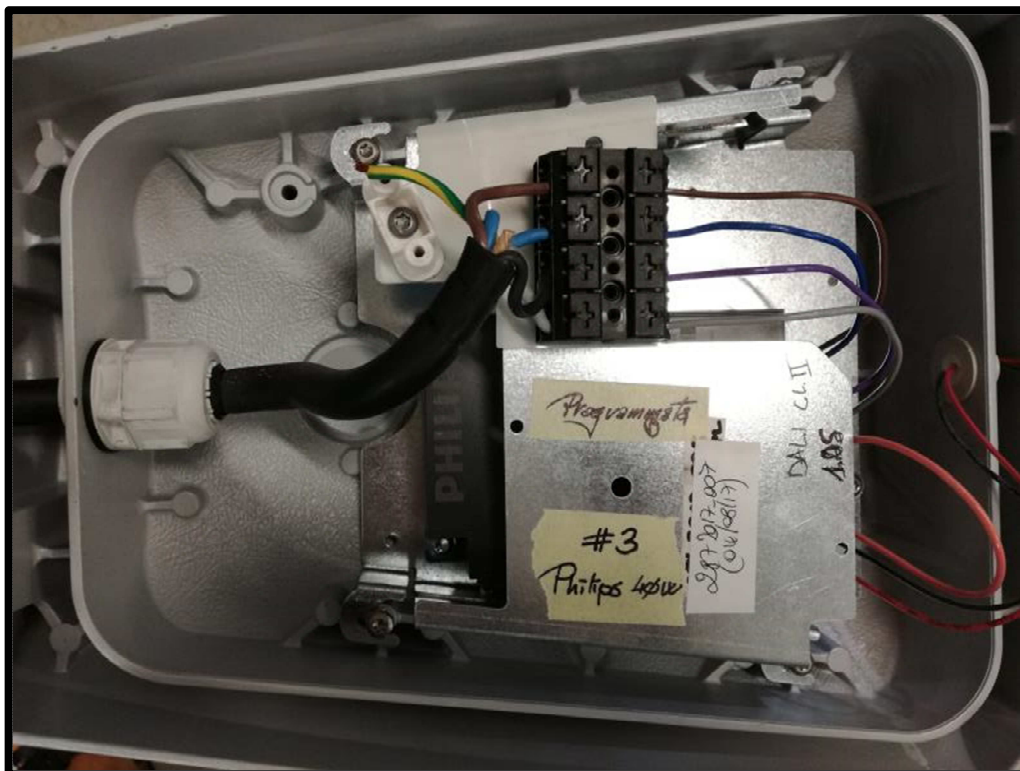


Fig. 6: LED luminaire (EUT 2872017_007) – Internal view

Appendix 2	Photographs
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Fig. 7: LED luminaire (EUT 2872017_008) – Top view

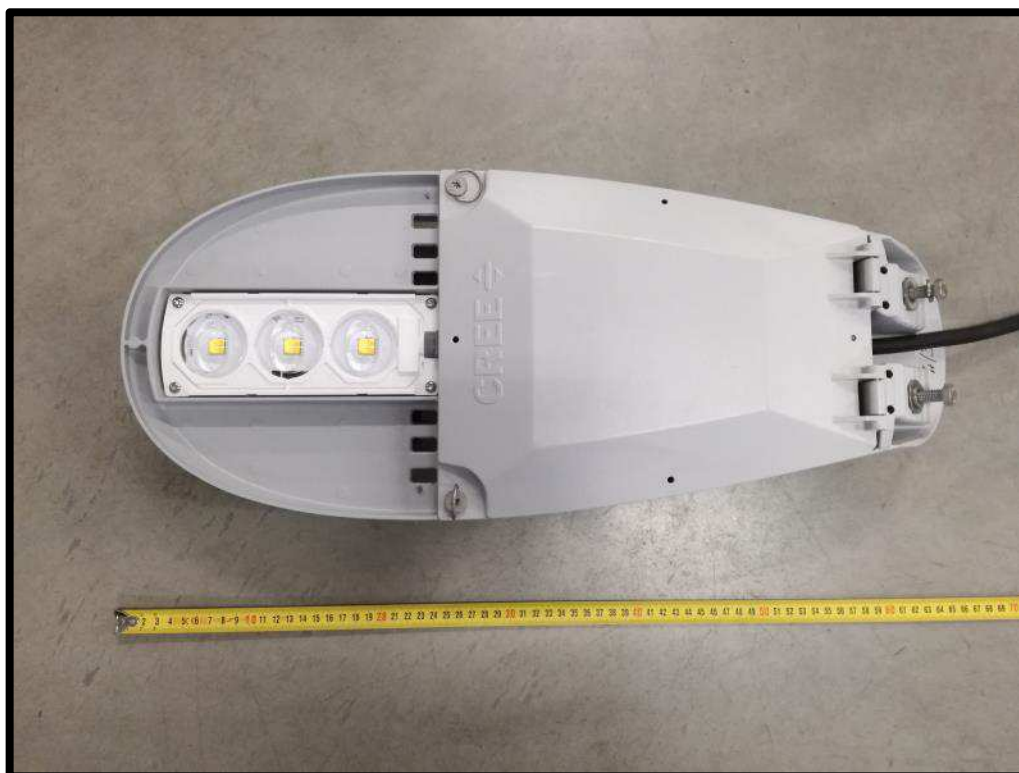


Fig. 8: LED luminaire (EUT 2872017_008) – Bottom view

Appendix 2	Photographs
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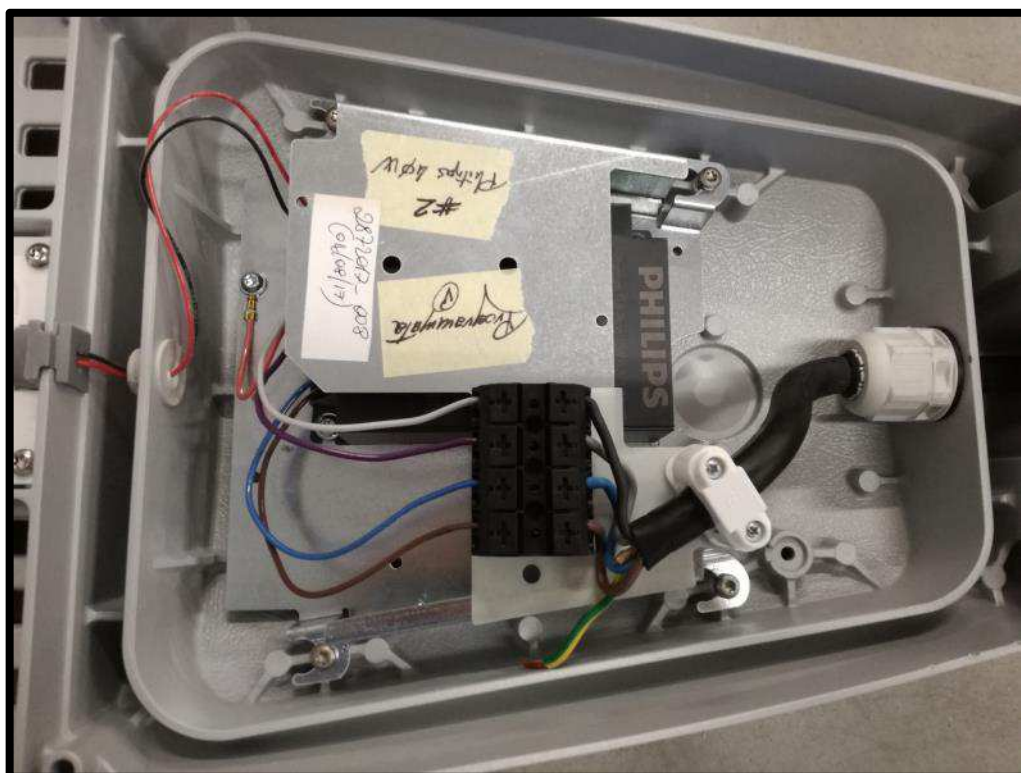


Fig. 9: LED luminaire (EUT 2872017_008) – Internal view



Fig. 10: LED luminaire (EUT 2872017_009) – Top view

Appendix 2	Photographs
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Fig. 11: LED luminaire (EUT 2872017_009) – Bottom view

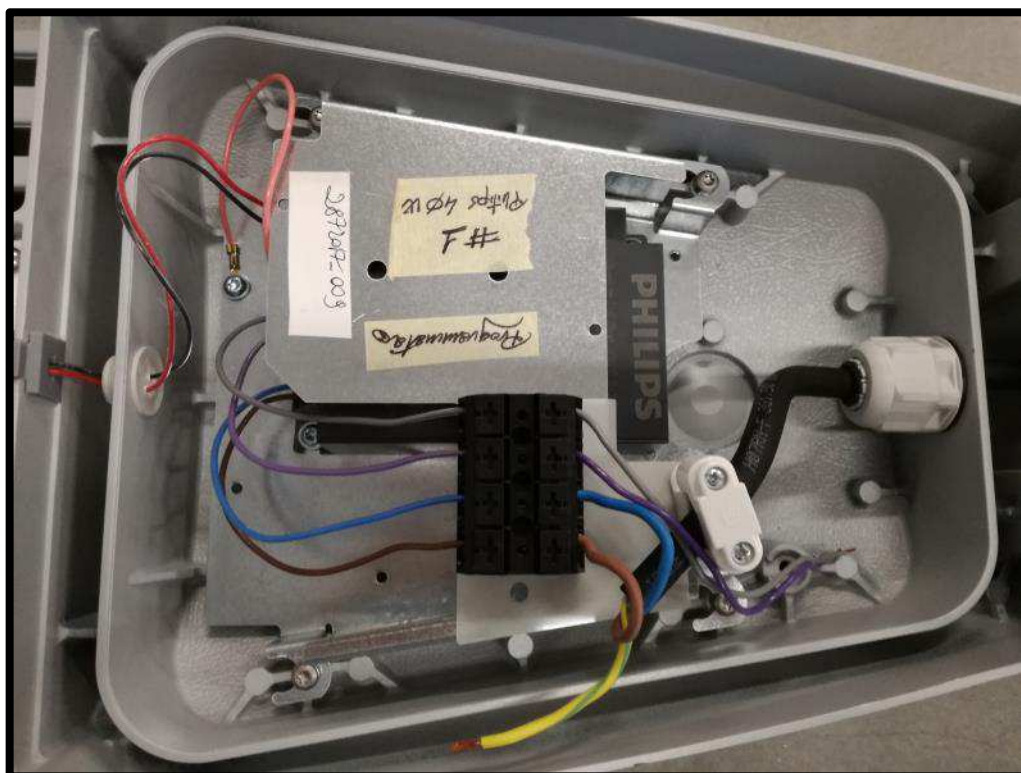


Fig. 12: LED luminaire (EUT 2872017_009) – Internal view

Appendix 2	Photographs
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Fig. 13: LED luminaire (EUT 2872017_010) – Top view



Fig. 14: LED luminaire (EUT 2872017_010) – Bottom view

Appendix 2 | Photographs

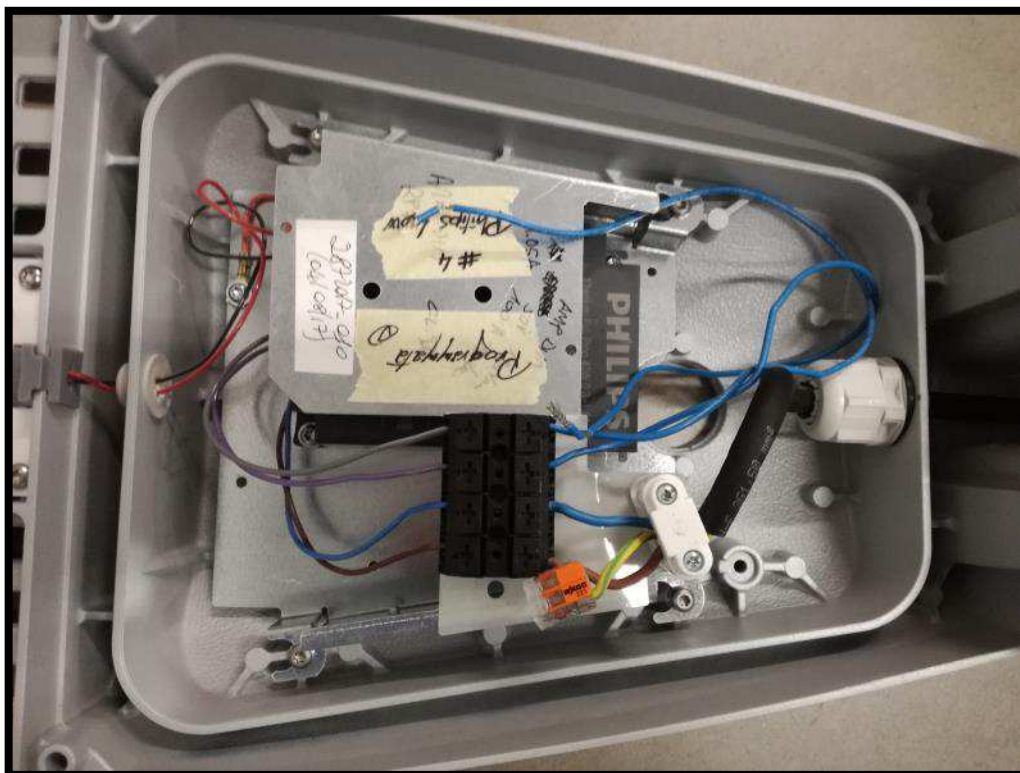


Fig. 15: LED luminaire (EUT 2872017_010) – Internal view

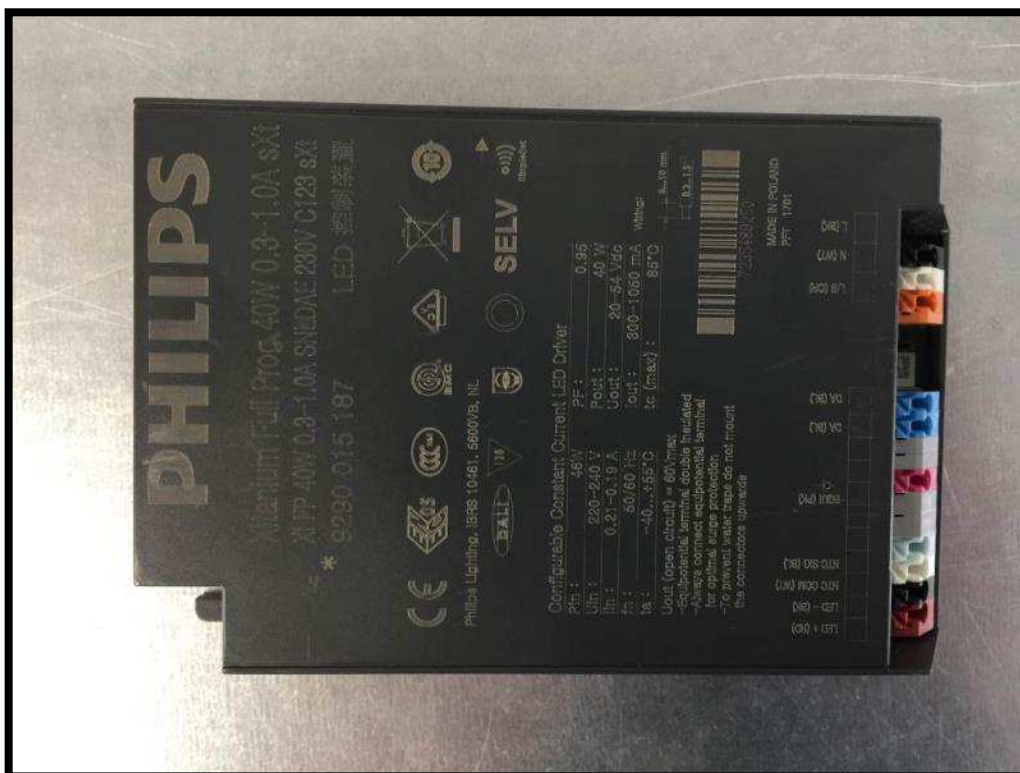


Fig. 16: LED controlgear used

Appendix 2	Photographs
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Fig. 17: LED module view