





Project No: 10232012  
Report No: 10232012-2  
Issued Date: 2014-FEB-26  
Revision:

## Verification Services Test Report

Customer Company & Address
<b>POLELED B.V</b> Nudepark 146 6702 DX Wageningen

<b>Manufacturer:</b>	POLELED B.V.
<b>Country of Origin:</b>	Nederlands
<b>Country of Export:</b>	N/A
<b>Product Category:</b>	EXTENDED
<b>Product Description:</b>	LED Luminaire
<b>Model Number(s):</b>	EXTENDED
<b>Electrical Ratings:</b>	24 V DC
<b>Test Sample(s) Received Date:</b>	2014-FEB-24
<b>Test Period:</b>	2014-FEB-24 to 2014-FEB-25
<b>The Sample(s) is(are) tested in accordance with the following:</b>	
IES Im-79-08	

Prepared By	Approved By
Giovanni Di Martino 	Walter Parmiani 
Name & Signatory	Name & Signatory

This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.



UL International Italia S.r.l.  
Via XXV Aprile 3/B  
20875 Burago di Molgora (MB) Italy



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### Statement of Results

Test Flow	Test Method	Sample ID	Test Result
1.	Goniophotometer	027737-S001	Evaluated by Customer
2.	Integrating Sphere	027737-S001	Evaluated by Customer

### Measurement Uncertainty

N/A

### Deviation from Test Method *(if any)*

N/A

### Remarks *(if any)*

N/A



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### Test No. 1: Goniophotometer

#### Sample ID / Test Round Number

027737-S001 / 1

#### Environmental Conditions

Ambient Temperature
24 °C

#### Test Equipment

Local ID	Description	Model	Last cal	Next cal
BURVS0063	Goniophotometer system	LSI 6440T	21/jan/2014	By evidence
BURVS0065	Digital power meter	Yokogawa WT210	16/jul/2013	28/jul/2014
BURVS0067	THERMOMETER	OMEGA MDSi8	19/aug/2013	28/aug/2014
BURVS0119	OMNIDIRECTIONAL CALIBRATION LAMP	STS STD-EHD	25/jun/2012	25/jun/2015

#### Test Condition(s)

Input Voltage	Input Current	Input Power	Power Factor
24.11 V	0.99 A	23.83 W	1

#### Test Results

Result Name	Result
Test Date	2014-FEB-24 03:45:00 PM
Luminous Flux	2161.0 lm
Luminous Efficacy	90.7 lm/W
Luminous Opening Length	8.9 in.
Luminous Opening Width	0.0 "
Luminous Opening Height	0.0 "



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### Test No. 2: Integrating Sphere

#### Sample ID / Test Round Number

027737-S001 / 1

#### Environmental Conditions

Ambient Temperature
25.3 °C

#### Test Equipment

Local ID	Description	Model	Last cal	Next cal
BURVS0053	INTEGRATING SPHERE	LABSPHERE 2m INTEGRATING SPHERE	17/jan/2014	By evidence
BURVS0058	SPECTRORADIOMETER	LABSPHERE CDS-1100	17/jan/2014	By evidence
S572	PORTABLE MULTIMETER	FLUKE	28/sept/2013	28/sept/2014
BURVS0054	THERMOMETER	OMEGA MDSi8	19/aug/2013	28/aug/2014
BURVS0060	75W OMNIDIRECTIONAL CALIBRATION LAMP	EYE LIGHTING SCL1400 (JDV28V75W)	11/apr/2012	11/apr/2015

#### Test Condition(s)

Base Orientation	Input Voltage	Input Current	Input Power	Power Factor
Base Up	24 V	0.98 A	23.52 W	1



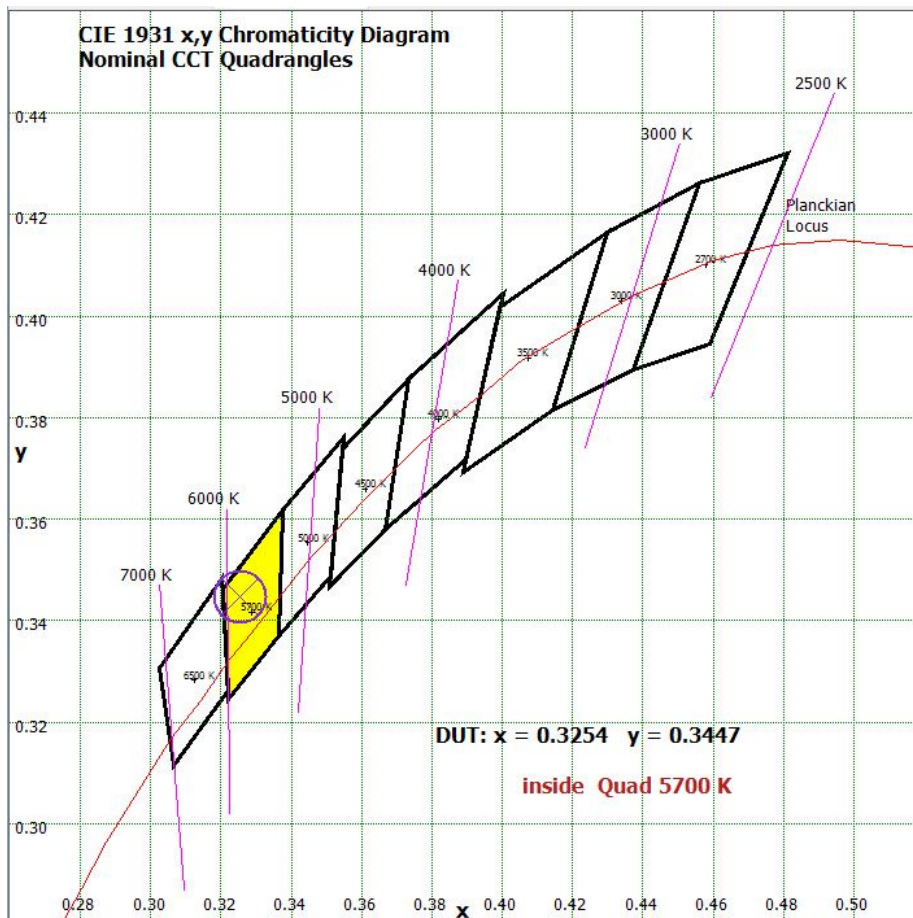
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### Test Results

Result Name	Result
Test Time Point	2014-FEB-24 12:00:00 PM Hrs
CCT	5804 K
CRI (Ra)	69.88
CRI (R9)	-29
Duv	0.0043
x	0.3254
y	0.3447
u'	0.2007
v'	0.4783

### CCT quadrangles

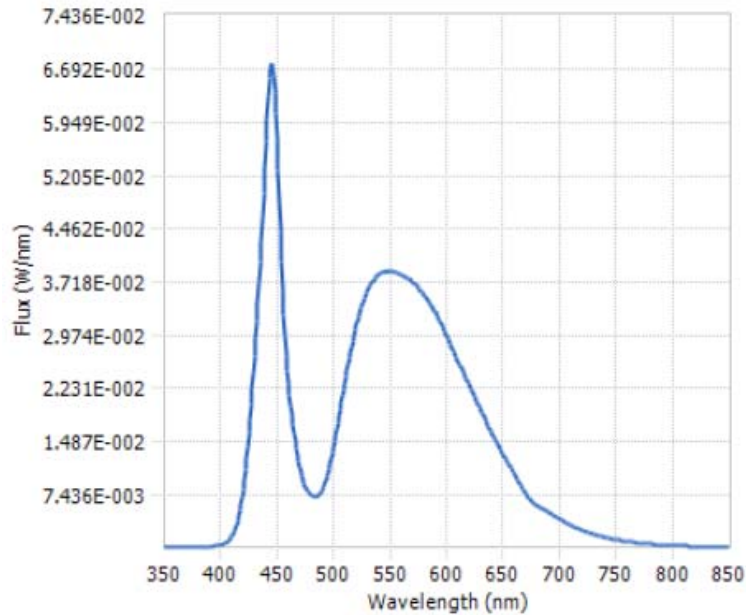




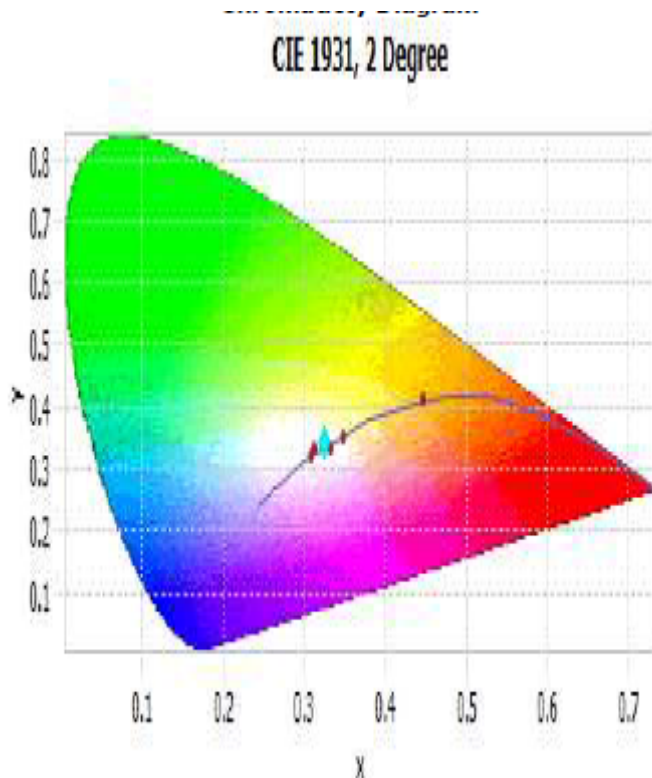
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### Spectral power distribution



### Chromaticity diagram



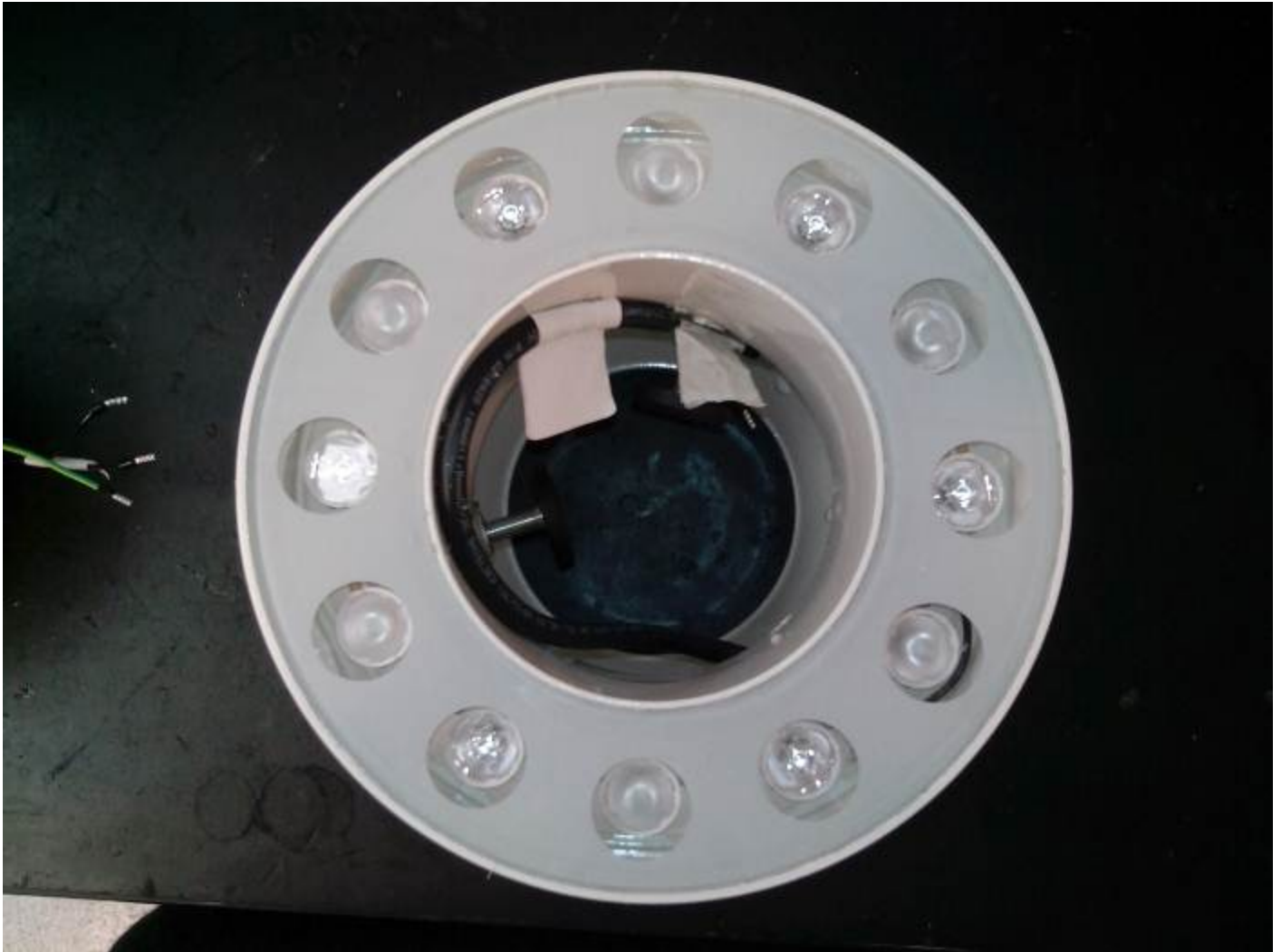


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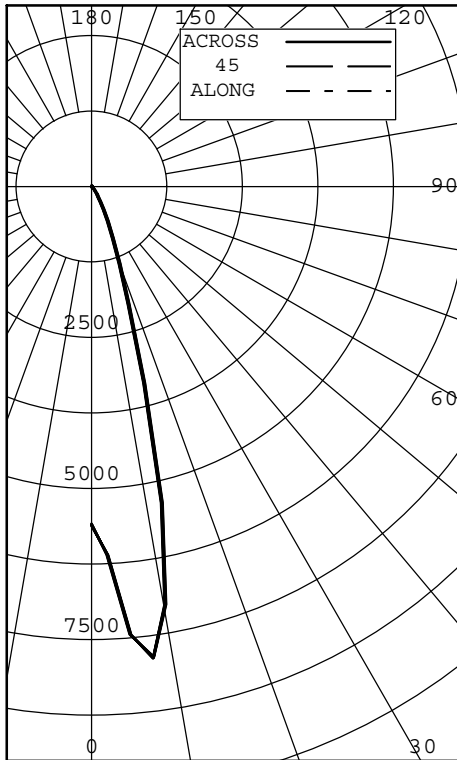
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### Photo of Sample(s)



POLELED B.V, CAT# EXTENDED  
EXTENDED  
LED, CAT# LED. LUMINAIRE OUTPUT = 2161 LMS  
OPERATING AT 24 V DC

INTENSITY (CANDLEPOWER) SUMMARY



ANGLE	MEAN CP	LUMENS
0	5602	
5	7448	708
10	7027	
15	3370	956
20	1365	
25	633	309
30	291	
35	150	101
40	90	
45	55	45
50	38	
55	25	24
60	19	
65	12	13
70	9	
75	6	6
80	1	
85	0	0
90	0	

ZONAL LUMENS AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	1973	91.31
0-40	2074	95.96
0-60	2142	99.12
0-90	2161	100.00
40-90	87	4.04
60-90	19	0.88
90-180	0	0.00
0-180	2161	100.00

EFFICACY (LUMENS PER WATT): 90.8

\*\*\* THIS IS AN ABSOLUTE TEST \*\*\*

LUMINOUS DIAMETER: 8.850 INS

LUMINANCE SUMMARY - CD./SQ.M.

ANGLE	MEAN CD/SQ M
45	1962
55	1120
65	747
75	602
85	99

CERTIFIED BY:

DATE:  
FEB 25, 2014

PREPARED FOR:

POLELED  
B.V

TESTED IN ACCORDANCE WITH IES PROCEDURES.



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OPERATING AT 24 V DC

INTENSITY (CANDLEPOWER) DATA  
IN 2.5 DEGREE STEPS

ANGLE	INTENSITY (CANDLEPOWER)	LUMENS
0.0	5602	
2.5	6110	
5.0	7448	708
7.5	7867	
10.0	7027	
12.5	5361	
15.0	3370	956
17.5	2044	
20.0	1365	
22.5	930	
25.0	633	309
27.5	430	
30.0	291	
32.5	204	
35.0	150	101
37.5	114	
40.0	90	
42.5	70	
45.0	55	45
47.5	46	
50.0	38	
52.5	30	
55.0	25	24
57.5	22	
60.0	19	
62.5	15	
65.0	12	13
67.5	11	
70.0	9	
72.5	7	
75.0	6	6
77.5	4	
80.0	1	
82.5	1	
85.0	0	0
87.5	0	
90.0	0	

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AVERAGE LUMINANCE DATA

CD./SQ.M (FOOTLAMBERTS)

ANGLE	LUMINANCE
0	141147 ( 41195)
30	8477 ( 2474)
40	2957 ( 863)
45	1962 ( 572)
50	1489 ( 434)
55	1120 ( 327)
60	936 ( 273)
65	747 ( 218)
70	653 ( 190)
75	602 ( 175)
80	145 ( 42)
85	99 ( 29)

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COEFFICIENTS OF UTILIZATION

ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE = .20

CC WALL	90				80				70				50				30				10				0
	70	50	30	10	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																									
0	1.221	.221	.221	.22	1.191	.191	.191	.19	1.161	.161	.161	.16	1.111	.111	.11	1.061	.061	.06	1.021	.021	.02	1.00			
1	1.181	.151	.141	.12	1.151	.131	.121	.10	1.131	.121	.101	.08	1.071	.061	.05	1.041	.031	.02	1.001	.000	.99	0.97			
2	1.141	.111	.081	.05	1.121	.091	.061	.04	1.101	.071	.051	.03	1.041	.021	.00	1.011	.000	.98	0.990	.980	.96	0.95			
3	1.111	.061	.031	.00	1.091	.051	.020	.99	1.071	.041	.010	.99	1.020	.990	.97	0.990	.970	.96	0.970	.960	.94	0.93			
4	1.081	.030	.990	.97	1.061	.020	.980	.96	1.051	.010	.980	.95	0.990	.960	.94	0.970	.950	.93	0.950	.940	.92	0.91			
5	1.051	.000	.950	.93	1.040	.990	.950	.92	1.020	.980	.940	.92	0.960	.930	.91	0.950	.920	.90	0.930	.920	.90	0.89			
6	1.030	.970	.930	.90	1.020	.960	.920	.90	1.000	.950	.920	.90	0.940	.910	.89	0.930	.900	.89	0.920	.900	.88	0.87			
7	1.000	.940	.900	.88	0.990	.930	.900	.87	0.980	.930	.900	.87	0.920	.890	.87	0.910	.880	.86	0.900	.880	.86	0.85			
8	0.980	.920	.880	.86	0.970	.910	.880	.85	0.960	.900	.870	.85	0.900	.870	.85	0.890	.860	.84	0.880	.860	.84	0.83			
9	0.950	.900	.860	.83	0.950	.890	.860	.83	0.940	.890	.850	.83	0.880	.850	.83	0.870	.840	.82	0.860	.840	.82	0.81			
10	0.940	.870	.840	.81	0.930	.870	.840	.81	0.920	.870	.840	.81	0.860	.830	.81	0.850	.830	.81	0.850	.820	.80	0.80			

THE ABOVE COEFFICIENTS HAVE BEEN CALCULATED BASED ON LUMINAIRE LUMENS  
BECAUSE IN AN ABSOLUTE TEST THE BARE LAMP LUMENS ARE UNKNOWN.  
LIGHTING DESIGN CALCULATIONS MADE USING THESE COEFFICIENTS SHOULD  
THEREFORE USE THE LUMINAIRE LUMENS IN THE CALCULATION FORMULA

LUMINAIRE INPUT WATTS 23.8

LABORATORY RESULTS MAY NOT BE REPRESENTATIVE OF FIELD PERFORMANCE.  
BALLAST AND FIELD FACTORS HAVE NOT BEEN APPLIED.

TEST DISTANCE EXCEEDS FIVE TIMES THE GREATEST  
LUMINOUS OPENING OF LUMINAIRE.

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CONE OF LIGHT

MOUNTING HEIGHT ABOVE WORK PLANE (FT)	INITIAL FC AT NADIR -FCN (FC)	.1*FCN (FC)	10% LIGHTED DIAMETER (FT)	.5*FCN (FC)	50% LIGHTED DIAMETER (FT)
1	5602.0	560.2	0.9	2801.0	0.6
2	1400.5	140.1	1.8	700.2	1.1
3	622.4	62.2	2.7	311.2	1.7
4	350.1	35.0	3.6	175.1	2.2
5	224.1	22.4	4.5	112.0	2.8
6	155.6	15.6	5.4	77.8	3.3
7	114.3	11.4	6.3	57.2	3.9
8	87.5	8.8	7.2	43.8	4.4

10% CONE ANGLE: 48.3 DEGREES  
50% CONE ANGLE: 30.9 DEGREES