

PHOTOMETRIC TESTING & EVALUATION TO IES LM-79-19

Sample Tested

Pru1-STD-LED35-SO-04-SAL-NU

Prepared for:

Prudential Lighting

1774 East 21st
Los Angeles, CA 90058

Technical Report Number

801502237-3

December 1, 2022

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Program Description

Photometric and electrical testing of a Pru1-STD-LED35-SO-04-SAL-NU Type C LED Luminaire to IES LM-79-19.

Executive Summary

Sample Tested = Pru1-STD-LED35-SO-04-SAL-NU

Sample Number = 44002765-3

Driver = OSRAM OPTOTRONIC OTi30/120-277/1A0 DIM-1L-G2

Luminous Efficacy (Lumens/Watt)	Luminous Flux (Lumens)	Input Power (Watts)	Power Factor	ATHD
87.81	2447.16	27.87	0.9856	7.62%

Spacing Criterion (0-180°)	Spacing Criterion (90-270°)	Stabilization Time (Light & Power)
1.2	1.3	30

* The above results are recorded / derived from measurements made using an Integrating Sphere

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Test Sample Pictures

The following sample was submitted for evaluation:



Prudential Lighting : Pru1-STD-LED35-SO-04-SAL-NU

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Test Result

The following results were measured after stabilization of the sample in the Integrating Sphere (unless otherwise stated). Stability shall be achieved when the variation (Maximum to minimum) of at least three readings of the light output and electrical power consumption, taken at a maximum of 10 minute intervals over a period of 20 minutes and divided by the last of these measurements chronologically, is less than 0.5%.

Key Photometric Results	Sample Reference
	Pru1-STD-LED35-SO-04-SAL-NU
	Goniophotometer
Luminous Efficacy (Lumens/Watt)	88.00
Total Luminous Flux (Lumens)	2447.16
Stabilization Time (Light and Power)	30 minutes
Total Run Time (Integrating Sphere)	85 minutes
Spacing Criteria (0°-180°)/(90°-270°)	1.2 / 1.28

Electrical Input Results:	Sample Reference
	Pru1-STD-LED35-SO-04-SAL-NU
Input Power (Watts)	27.87
Input Voltage (Volts AC)	120.10
Input Current (Amps)	0.24
Input Frequency (Hertz)	60.0
Power Factor	0.9856
Total Harmonic Distortion (THD A)%	7.62

Additional Information	Sample Reference
	Pru1-STD-LED35-SO-04-SAL-NU
Ambient Temperature	26
Date Tested	11/22/2022

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Photometric Test Results

Characteristics		Luminance Data (cd/sq.m)			
Total Lumens:	2447.16	Angle In Degrees	Average		
Input Wattage (W):	27.87		0°	45°	90°
Efficacy(lm/W):	87.81	45	17279	15648	15585
Spacing Criterion (0-180°):	1.2	55	15706	14161	14927
Spacing Criterion (90-270°):	1.28	65	13898	12791	13980
Spacing Criterion (Diagonal):	1.4	75	11520	11691	13361
Luminous Length (0-180°):	4.00 ft	85	7984	11530	13534
Luminous Width (90-270°):	0.10 ft				
Luminous Height:	0.03 ft				

Zonal Lumen Summary												
Zone	Lumens	%Fixt		Zone	Lumens	%Fixt		Zone	Lumens		Zone	Lumens
0-20°	269.33	11.0		60-80°	501.67	20.5		0-10°	69.99		90-100°	77.92
0-30°	568.48	23.2		70-80°	211.01	8.6		10-20°	199.34		100-110°	41.34
0-40°	925.68	37.8		80-90°	134.60	5.5		20-30°	299.15		110-120°	18.99
0-60°	1664.12	68.0		90-110°	119.26	4.9		30-40°	357.20		120-130°	6.77
0-80°	2165.79	88.5		90-120°	138.25	5.6		40-50°	383.46		130-140°	1.62
0-90°	2300.39	94.0		90-130°	145.02	5.9		50-60°	354.98		140-150°	0.12
10-90°	2230.40	91.1		90-150°	146.76	6.0		60-70°	290.66		150-160°	0.00
20-40°	656.35	26.8		90-180°	146.76	6.0		70-80°	211.01		160-170°	0.00
20-50°	1039.81	42.5		110-180°	27.50	1.1		80-90°	134.60		170-180°	0.00
40-70°	1029.10	42.1		0-180°	2447.16	100.0		0-90°	2300.39		90-180°	146.76

Coefficients of Utilization																		
Effective Floor Cavity Reflectance 0.20																		
RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	118	118	118	118	114	114	114	114	108	108	108	102	102	102	97	97	97	94
1	106	100	95	91	102	97	93	89	92	88	85	87	84	81	82	80	77	75
2	95	86	79	73	92	84	77	71	79	74	69	75	70	66	71	67	64	61
3	87	75	67	60	84	73	65	59	69	63	57	66	60	55	62	58	53	51
4	79	66	57	50	76	65	56	50	61	54	48	58	52	47	55	50	46	43
5	73	59	50	43	70	58	49	42	55	47	41	52	46	40	50	44	39	37
6	67	53	44	37	65	52	43	37	50	42	36	47	40	35	45	39	35	32
7	62	48	39	33	60	47	39	33	45	37	32	43	36	31	41	35	31	28
8	58	44	35	29	56	43	35	29	41	34	28	39	33	28	38	32	27	25
9	54	40	32	26	52	39	31	26	38	31	26	36	30	25	35	29	25	23
10	51	37	29	24	49	36	29	24	35	28	23	34	27	23	32	27	22	21

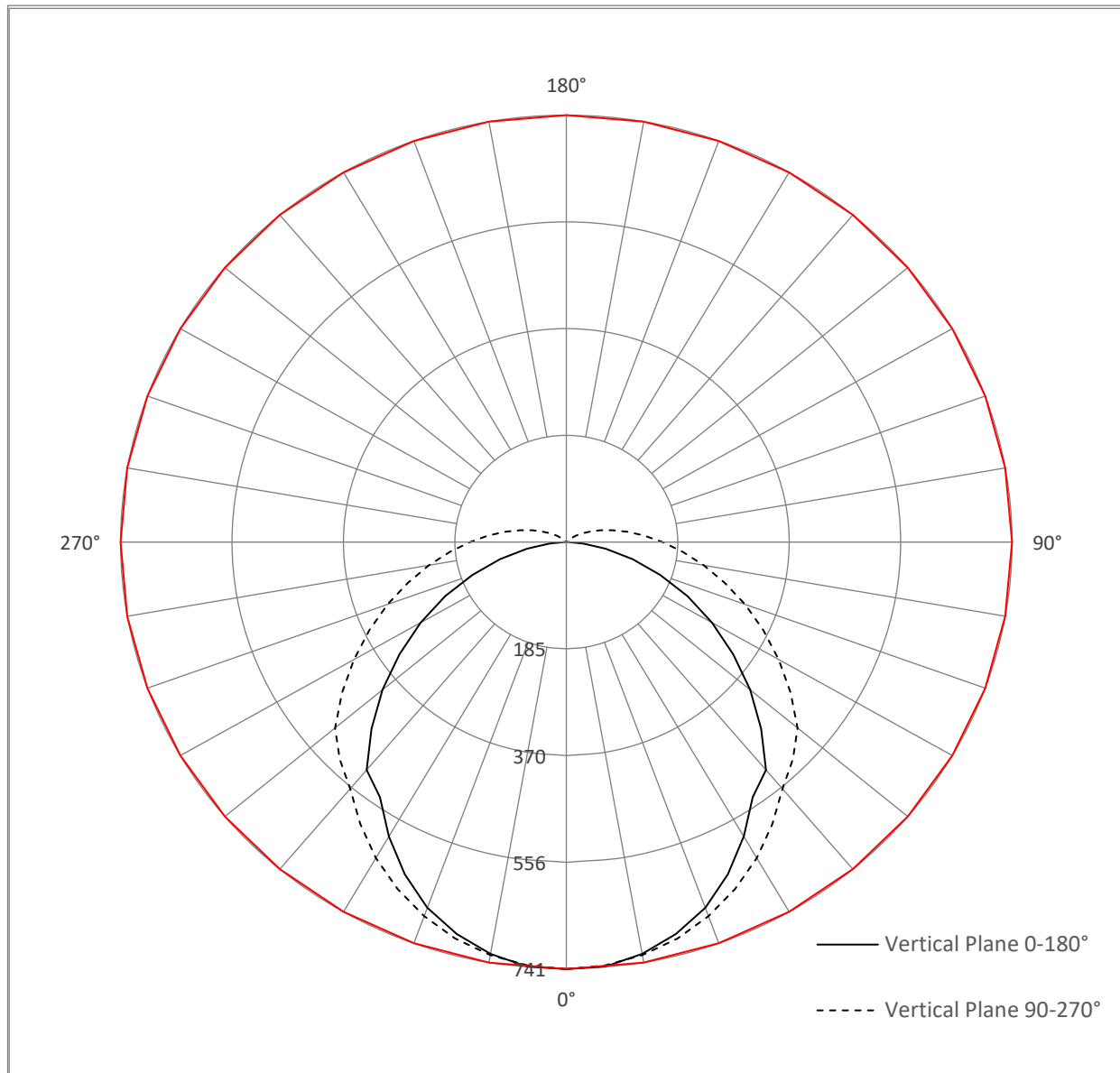
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UGR Table												
		Reflectances						Reflectances				
Ceiling Cavity		70	70	50	50	30		70	70	50	50	30
Walls		50	30	50	30	30		50	30	50	30	30
Floor Cavity		20	20	20	20	20		20	20	20	20	20
Room Size		UGR Viewed Crosswise						UGR Viewed Endwise				
X=2H	Y=2H	19.4	20.9	21.8	23.6	24.5	22.1	23.6	22.5	24.1	24.5	
	3H	20.8	22.2	23.2	26.0	27.0	24.6	26.0	25.1	26.5	27.0	
	4H	21.2	22.6	23.6	27.2	28.2	25.8	27.2	26.3	27.6	28.2	
	6H	21.5	22.8	23.8	28.4	29.4	27.1	28.4	27.6	28.8	29.4	
	8H	21.6	22.8	23.8	29.0	30.0	27.8	29.0	28.3	29.5	30.0	
	12H	21.6	22.7	23.8	29.7	30.8	28.5	29.7	29.1	30.2	30.8	
4H	2H	20.4	21.7	22.7	23.8	24.8	22.5	23.8	23.0	24.3	24.8	
	3H	22.0	23.2	24.2	26.4	27.4	25.2	26.4	25.7	0.0	27.4	
	4H	22.6	23.7	24.8	27.7	28.8	26.6	27.7	27.1	28.2	28.8	
	6H	23.0	23.9	25.1	29.0	30.2	28.1	29.0	28.7	29.6	30.2	
	8H	23.1	24.0	25.1	29.8	30.9	28.9	29.8	29.4	30.3	30.9	
	12H	23.1	23.9	25.1	30.6	31.8	29.8	30.6	30.4	31.2	31.8	
8H	4H	23.4	24.3	25.4	27.7	28.8	26.8	27.7	27.4	28.2	28.8	
	6H	24.0	24.7	25.9	29.2	30.4	28.5	29.2	29.1	29.8	30.4	
	8H	24.2	24.8	26.1	30.1	31.3	29.4	30.1	30.0	30.7	31.3	
	12H	24.3	24.9	26.2	31.1	32.4	30.5	31.1	31.1	31.7	32.4	
12H	4H	23.6	24.4	25.6	27.6	28.8	26.8	27.6	27.4	28.2	28.8	
	6H	24.3	25.0	26.3	29.2	30.4	28.5	29.2	29.1	29.8	30.4	
	8H	24.6	25.2	26.5	30.1	31.4	29.5	30.1	30.1	30.7	31.4	

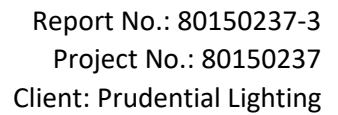
Maximum UGR = 32.4

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Polar Graph



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Vertical Angle

Horizontal Angle

Telephone: 949-733-4300
Fax: 949-733-4320
Version 1.2

Photometric Testing Information

The sample was evaluated for photometric and electrical characteristics using a goniophotometer, located in purpose-built, temperature and humidity-controlled, draft free environments

Luminaire Stabilization.

The results were measured after stabilization of the sample in the Goniophotometer (unless otherwise stated). Stability shall be achieved when the variation (Maximum to minimum) of at least three readings of the light output and electrical power consumption, taken at a maximum of 10-minute intervals over a period of 20 minutes and divided by the last of these measurements chronologically, is less than 0.5%.

The goniophotometer Mayer Engineering Type C is calibrated using a frosted tungsten filament FDS/DZE lamp with the following specifications:

The goniophotometer Mayer Engineering Type C is calibrated using a frosted tungsten filament FDS/DZE lamp with the following specifications:

Manufacturer: GE
Part Number: DZE
Bulb Number: 106-A
Voltage: 16.93 Volts DC reference
Calibration Current: 4.863 Amperes
Luminous Intensity: 168.8 Candelas
Calibration Date: 4/25/12 (NIST traceable)

Manufacturer: GE
Part Number: DZE
Bulb Number: 106-B
Voltage: 16.45 Volts DC reference
Calibration Current: 4.79 Amperes
Luminous Intensity: 145.3 Candelas
Calibration Date: 4/25/12(NIST traceable)

Manufacturer: GE
Part Number: DZE
Bulb Number: 106-C
Voltage: 16.57 Volts DC reference
Calibration Current: 4.829 Amperes
Luminous Intensity: 157.0 Candelas
Calibration Date: 4/25/12 (NIST traceable)

A Yokogawa WT310 Power Analyzer was used to measure all electrical characteristics of the sample.

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Equipment List: Goniophotometer Type C (Mirror 2)

Description	Manufacturer and Model Number	CSA Instrument Reference Number	Calibration Due Date
Optometer	Gigahertz Optik P9801	OPT400	N/A
Programmable DC Power Supply	Chroma Instruments 62012P-80-60	DCP300	N/A
Regulated Power Supply	Chroma Instruments 61602	AC301	N/A
Power Analyzer	Yokogawa WT310-E	POA400	6/27/2023

* All equipment is calibrated to ISO / IEC 17025-2017 guidelines.

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