



Spectra Lux

2750 Sabourin, Saint-Laurent (Quebec) H4S 1M2 Canada
Tel.: (514) 332-0082 Fax: (514) 332-3590 www.spectralux.ca



Lab Code: 200899-0

Moving Mirror Goniophotometer Test Report

Standard(s): IES LM-63, IES LM-79, ANSI C82.77

Customer ANDlight, 1951 Franklin St., Vancouver, British Columbia , Canada, V5L 0C7

General Information		Lamp Details: CY4962		Driver Details: CY2297	
DUT Lab ID	SRIS 2829-52	Seasoning	0 Hour	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	PIP-125-P-41	Manufacturer	Sorensen
Current Mode	AC	Manufacturer	Epistar	Catalog No.	DCS60-18E
Test Report	S2110012-R1	Lamp Catalog No.	(P/N 2016)	Maximum Power	1080 W
Test Date	1 October 2021	Drive Current	663.2 mA	Input Voltage	24.00 V
Report Date	8 October 2021	Nominal Color	4100 K	Drive Current	663.2 mA
Ambient	24.4 °C	Burning Position	Junction Vertical Base Up	Input Power	15.92 W

Luminaire Data

General Information		Optics		Aperture (feet)	
Manufacturer	ANDlight	Reflector	None	X	-0.1250
Name	PIPELINE	Housing	Aluminum Body	Y	3.2917
Catalog No.	PIP-125-P-41	Lens	(1) Cylindrical Acrylic Diffuser	Z	-0.1250

Stabilization Time: 1 hour

Approved Signatory: Chrisnel Blot

Signature:



Luminaire Test Method

Precise installation and alignment of the luminaire to the rotation axis of the photometer is governed by a servomotor controlled via a microcontroller. A laser is used to validate the luminaire positioning. Before photometric measurements are taken, luminaire is operated long enough to reach stabilization and temperature equilibrium.

All movement commands issued to the photometer axes are mediated by the software to ensure the motion is within the limits of operation. The photometric detector used is a silicon detector corrected to closely match the spectral luminous efficiency photopic curve with a quality index less than 1.5%. Proper shielding is incorporated to the photometric test bench such that only the light from the unit under test is measured.

Luminous intensity measurements are performed at a distance great enough so that the inverse-square law applies. During each measurement the computer records the luminous intensity associated to the corresponding angles of radiation, as well as input electrical operational parameters and temperature measurements. Candela values are reported in IES format as per LM-63.

Equipment, reference standards are traceable to National Institute of Standards and Technology (NIST) and National Research Council of Canada (NRC).





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Electrical Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Power Supply	Sorensen	DCS60-18E	0051B1176	N.P.C.R.	N.P.C.R.
Input Power Meter	Yokogawa	WT210	27E116584	2021/09/20	2022/09/22

Photometric Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Photometer	Keithley	6485	4081897	2021/07/20	2022/07/20
Photodetector	INPHORA	IPR-PDET 19	110802	2021/09/05	2022/09/05

Environment Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Temperature Humidity Sensor	Omega	HH311	120504176	2021/07/13	2022/07/13



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Lab Code: 200899-0

Photometric Report: S2110012-R1

Prepared for: ANDlight · Test Date: 01 October 2021

Luminaire: PIPELINE · Lumcat: PIP-125-P-41

Coefficients of Utilization - Zonal Cavity Method

RCR	RC				0.9				0.8				0.7				0.5			0.1			0
	RW	0.7	0.5	0.3	0.1	0.7	0.5	0.3	0.1	0.7	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	0
0		120	120	120	120	115	115	115	115	110	110	110	110	102	102	102	86	86	86	86	86	86	83
1		108	103	97	93	104	98	94	90	99	95	90	87	87	84	81	74	72	70	74	72	70	67
2		99	90	82	76	94	86	79	73	90	83	76	71	76	71	67	65	62	59	65	62	59	56
3		91	79	70	63	86	76	68	62	83	73	66	60	68	62	57	58	54	51	58	54	51	48
4		83	70	61	54	80	68	59	53	76	65	58	51	61	54	49	52	48	44	52	48	44	41
5		77	63	54	47	73	61	52	46	70	59	51	45	55	48	43	48	43	39	48	43	39	36
6		71	57	48	41	68	55	47	41	65	53	45	40	50	43	38	44	39	35	44	39	35	32
7		66	52	43	37	63	50	42	36	61	49	41	35	46	39	34	40	35	31	40	35	31	29
8		62	48	39	33	59	46	38	33	57	45	37	32	42	35	31	37	32	28	37	32	28	26
9		58	44	36	30	55	43	35	30	53	41	34	29	39	33	28	35	30	26	35	30	26	24
10		54	41	33	27	52	39	32	27	50	38	31	26	36	30	26	32	27	24	32	27	24	22

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	28	3.64	3.64
10 - 20	76	9.95	9.95
20 - 30	100	13.22	13.22
30 - 40	102	13.45	13.45
40 - 50	91	12.01	12.01
50 - 60	77	10.07	10.07
60 - 70	63	8.23	8.23
70 - 80	51	6.69	6.69
80 - 90	42	5.49	5.49
90 - 120	90	11.84	11.84
90 - 130	108	14.24	14.24
90 - 150	128	16.79	16.79
90 - 180	131	17.27	17.27
0 - 180	760	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	1024	629	538
55.0	906	565	527
65.0	763	602	600
75.0	613	819	860
85.0	494	2100	2259

Luminaire Luminous Flux: 760

Measured Input Power: 15.92 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 47.7 lm/W

Luminaire Spacing Criterion (0 Degree): 1.2132

Luminaire Spacing Criterion (90 Degree): 0.8875

Category: Up and Down

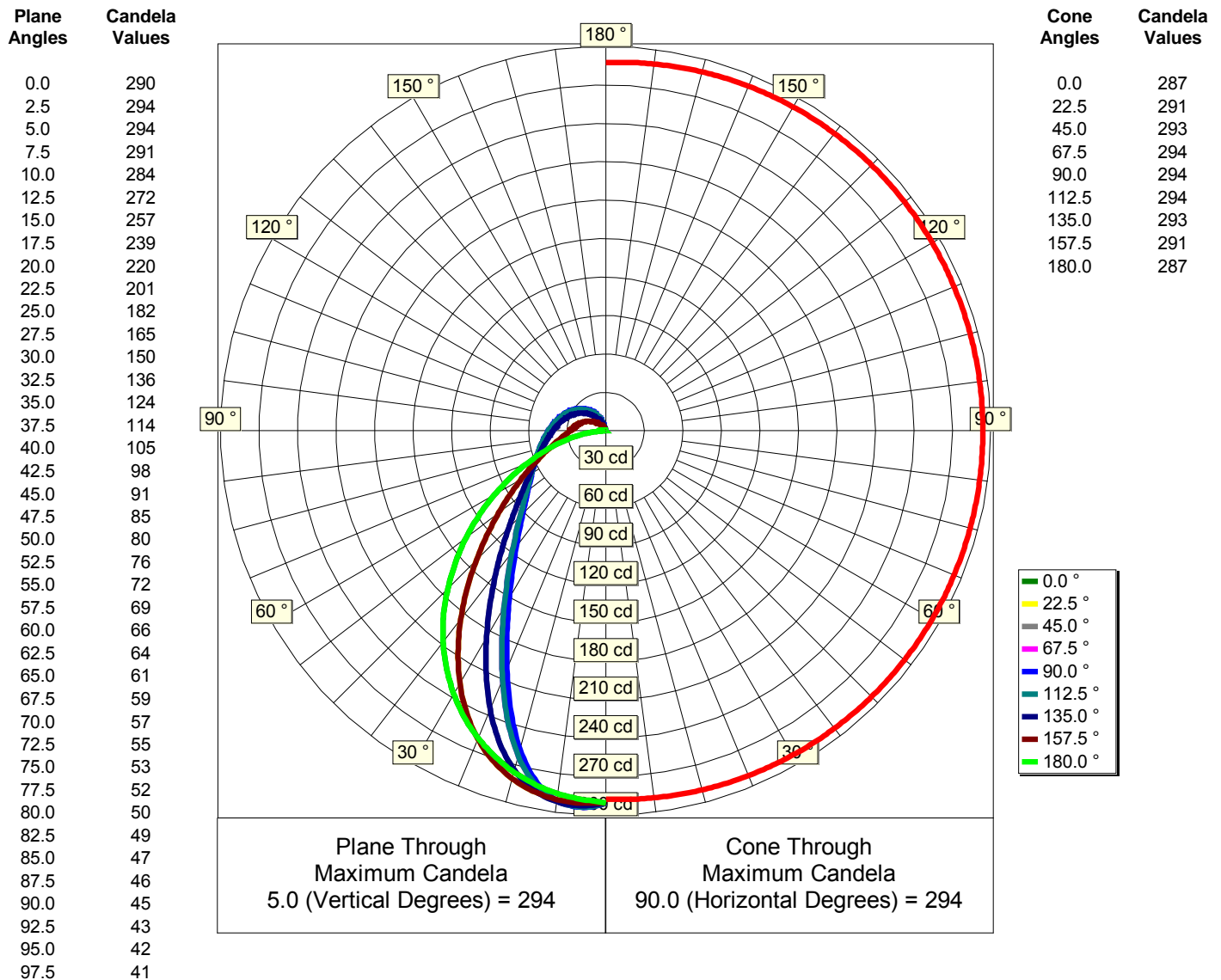


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Luminous Intensity - Polar Curve for each Plane(1)





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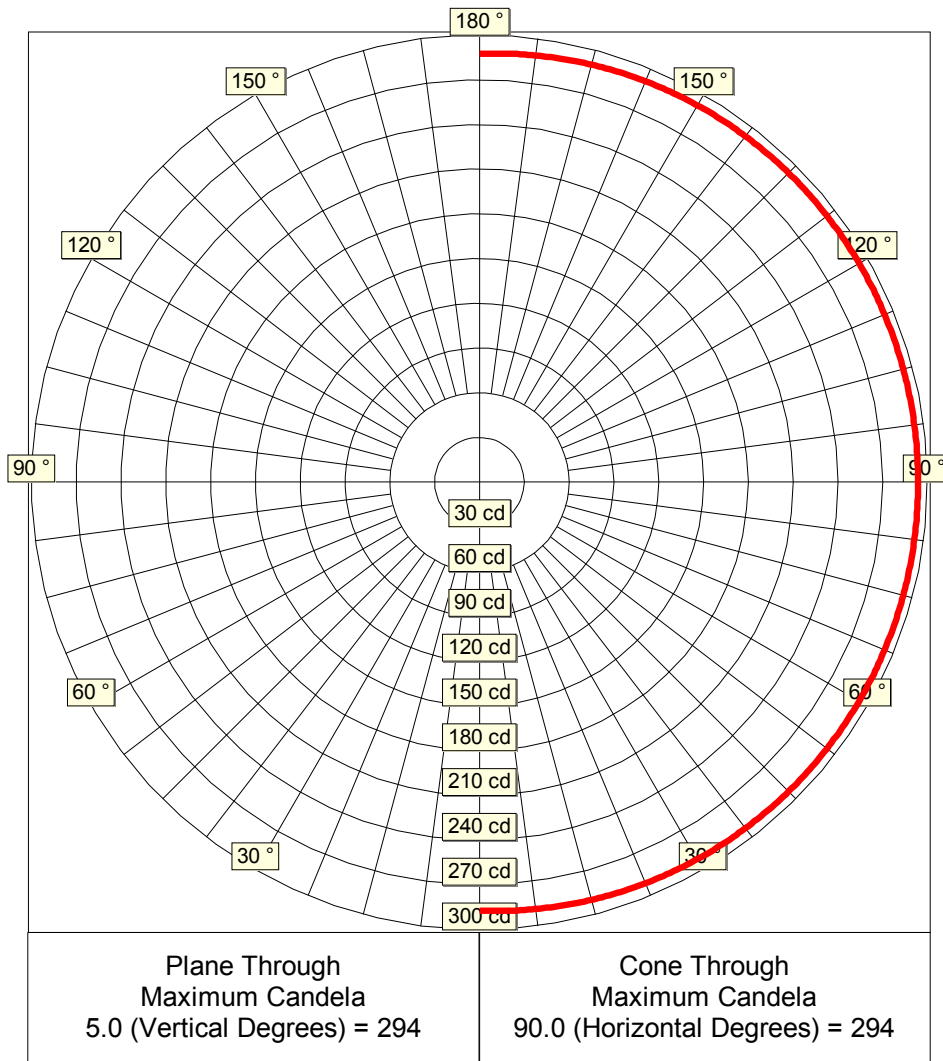
Luminous Intensity - Polar Curve for each Plane(2)

Plane
Angles

100.0
102.5
105.0
107.5
110.0
112.5
115.0
117.5
120.0
122.5
125.0
127.5
130.0
132.5
135.0
137.5
140.0
142.5
145.0
147.5
150.0
152.5
155.0
157.5
160.0
162.5
165.0
167.5
170.0
172.5
175.0
177.5
180.0

Candela
Values

40
39
38
37
36
35
34
33
32
31
29
28
27
26
25
23
22
21
19
17
16
14
12
10
8
6
4
2
1
1
1
0
1



Cone
Angles

Candela
Values



IES File Headers

IESNA:LM-63
 [ISSUEDATE] 01 October 2021
 [TESTLAB] Spectra Lux
 [TEST] S2110012-R1
 [MANUFAC] ANDlight
 [LUMCAT] PIP-125-P-41
 [LUMINAIRE] PIPELINE
 [LAMP] Clusters of Epistar (P/N 2016) LEDs c/w Sorensen Driver DCS60-18E @ 24.00V
 [_BURNING] Vertical Base Up (760 Luminaire Lumens)
 [_REFLECTOR] None
 [_LENS] (1) Cylindrical Acrylic Diffuser
 [_HOUSING] Aluminum Body
 [_NOMINAL COLOR] 4100 K
 [_DRIVE CURRENT] 663.2 mA

Candela Table

Lateral Angles

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
V e r t i c a l	0.0	290	290	290	290	290	290	290	290
	2.5	289	291	293	293	294	293	291	289
	5.0	287	291	293	294	294	293	291	287
	7.5	285	290	292	291	291	292	290	285
	10.0	283	288	288	285	284	285	288	283
	12.5	280	285	283	276	272	276	283	280
	15.0	276	281	274	263	257	263	274	276
	17.5	271	275	263	246	239	246	263	271
	20.0	265	268	250	229	220	229	250	265
	22.5	259	260	235	210	201	210	235	259
	25.0	253	250	219	191	182	191	250	253
	27.5	245	239	202	174	165	174	202	245
	30.0	237	227	185	158	150	158	185	237
	32.5	228	214	169	144	136	144	169	228
	35.0	218	200	154	131	124	131	154	218
	37.5	208	185	141	120	114	120	185	208
	40.0	197	171	128	110	105	110	171	197
A n g l e s	42.5	186	156	117	102	98	102	156	186
	45.0	174	142	107	94	91	94	107	174
	47.5	162	129	98	88	85	88	129	162
	50.0	149	116	90	82	80	82	116	149
	52.5	137	105	83	78	76	78	105	137
	55.0	125	95	78	73	72	73	95	125
	57.5	112	85	73	70	69	70	85	112
	60.0	100	76	68	67	66	67	76	100
	62.5	88	69	64	64	64	64	69	88
	65.0	77	62	61	61	61	61	62	77
	67.5	66	56	58	59	59	59	56	66
	70.0	56	51	55	57	57	57	51	56
	72.5	47	46	53	55	55	55	46	47
	75.0	38	42	51	53	53	53	42	38
	77.5	30	39	49	51	52	51	39	30
	80.0	23	36	47	50	50	50	36	23
	82.5	16	34	45	48	49	48	34	16
	85.0	10	31	44	47	47	44	31	10
	87.5	6	29	42	46	46	42	29	6
	90.0	5	28	41	44	45	41	28	5



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Lateral Angles

		0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
V e r t i c a l	92.5	4	27	40	43	43	43	40	27	4
	95.0	3	25	39	42	42	42	39	25	3
	97.5	2	24	37	41	41	41	37	24	2
	100.0	1	23	36	40	40	40	36	23	1
	102.5	1	22	35	39	39	39	35	22	1
	105.0	1	22	34	37	38	37	34	22	1
	107.5	1	20	33	37	37	37	33	20	1
	110.0	1	19	32	35	36	35	32	19	1
	112.5	1	18	30	34	35	34	30	18	1
	115.0	1	17	29	33	34	33	29	17	1
	117.5	0	16	28	32	33	32	28	16	0
	120.0	1	15	27	31	32	31	27	15	1
	122.5	1	14	25	30	31	30	25	14	1
	125.0	1	13	24	28	29	28	24	13	1
	127.5	1	12	23	27	28	27	23	12	1
	130.0	1	11	21	26	27	26	21	11	1
	132.5	1	9	20	25	26	25	20	9	1
	135.0	1	8	19	23	25	23	19	8	1
	137.5	1	7	17	22	23	22	17	7	1
	A n g l e s	140.0	1	6	16	21	22	21	16	6
142.5		1	5	15	19	21	19	15	5	1
145.0		1	4	13	18	19	18	13	4	1
147.5		1	3	12	16	17	16	12	3	1
150.0		1	2	10	14	16	14	10	2	1
152.5		1	1	9	13	14	13	9	1	1
155.0		1	1	7	11	12	11	7	1	1
157.5		1	1	5	9	10	9	5	1	1
160.0		1	1	4	7	8	7	4	1	1
162.5		1	1	2	5	6	5	2	1	1
165.0		1	1	1	3	4	3	1	1	1
167.5		1	1	1	1	2	1	1	1	1
170.0		1	1	1	1	1	1	1	1	1
172.5		1	1	1	1	1	1	1	1	1
175.0		1	1	1	1	1	1	1	1	1
177.5		1	1	1	1	0	1	1	1	1
180.0	1	1	1	1	1	1	1	1	1	