



# Spectra Lux

2750 Sabourin, Saint-Laurent (Quebec) H4S 1M2 Canada  
Tel.: (514) 332-0082 Fax: (514) 332-3590 [www.spectralux.ca](http://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: CY4961		Driver Details: CY2297	
<b>DUT Lab ID</b>	SRIS 2829-51	<b>Seasoning</b>	0 Hour	<b>Type</b>	LED Power Supply
<b>Lamp Type</b>	LED/SSL	<b>Test Product</b>	PIP-125-P-35	<b>Manufacturer</b>	Sorensen
<b>Current Mode</b>	AC	<b>Manufacturer</b>	Epistar	<b>Catalog No.</b>	DCS60-18E
<b>Test Report</b>	S2110013-R1	<b>Lamp Catalog No.</b>	(P/N 2016)	<b>Maximum Power</b>	1080 W
<b>Test Date</b>	1 October 2021	<b>Drive Current</b>	665 mA	<b>Input Voltage</b>	24.00 V
<b>Report Date</b>	8 October 2021	<b>Nominal Color</b>	3500 K	<b>Input Current</b>	665 mA
<b>Ambient</b>	24.4 °C	<b>Burning Position</b>	Junction Vertical Base Up	<b>Input Power</b>	15.96 W

### Luminaire Data

General Information		Optics		Aperture (feet)	
<b>Manufacturer</b>	ANDlight	<b>Reflector</b>	None	<b>X</b>	-0.1250
<b>Name</b>	PIPELINE	<b>Housing</b>	Aluminum Body	<b>Y</b>	3.2917
<b>Catalog No.</b>	PIP-125-P-35	<b>Lens</b>	(1) Cylindrical Acrylic Diffuser	<b>Z</b>	-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

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### 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

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### 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: S2110013-R1

Prepared for: ANDlight · Test Date: 01 October 2021

Luminaire: PIPELINE · Lumcat: PIP-125-P-35

### 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	87	87	87	87	87	87	83
1		109	103	98	93	104	99	94	90	99	95	91	87	87	84	81	74	72	70	74	72	70	67
2		99	90	82	76	95	86	79	74	90	83	77	71	77	72	67	66	62	59	66	62	59	56
3		91	79	70	64	87	76	68	62	83	73	66	60	68	62	57	59	55	51	59	55	51	48
4		84	71	61	54	80	68	60	53	76	66	58	52	61	55	49	53	48	45	53	48	45	42
5		77	63	54	47	74	61	53	46	70	59	51	45	55	48	43	48	43	39	48	43	39	37
6		71	57	48	42	68	56	47	41	65	54	46	40	50	43	38	44	39	35	44	39	35	33
7		66	52	43	37	64	51	42	36	61	49	41	36	46	39	34	41	36	32	41	36	32	30
8		62	48	39	33	59	47	38	33	57	45	38	32	42	36	31	38	33	29	38	33	29	27
9		58	44	36	30	56	43	35	30	53	42	34	29	39	33	28	35	30	26	35	30	26	24
10		55	41	33	28	52	40	32	27	50	39	32	27	37	30	26	33	28	24	33	28	24	22

### Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	25	3.75	3.75
10 - 20	69	10.16	10.16
20 - 30	90	13.38	13.38
30 - 40	92	13.55	13.55
40 - 50	81	12.06	12.06
50 - 60	68	10.07	10.07
60 - 70	55	8.17	8.17
70 - 80	45	6.61	6.61
80 - 90	37	5.43	5.43
90 - 120	79	11.63	11.63
90 - 130	94	13.97	13.97
90 - 150	111	16.40	16.40
90 - 180	114	16.83	16.83
0 - 180	675	100.00	100.00

### Average Luminance (Cd/m<sup>2</sup>)

Angle	0 Degree	45 Degree	90 Degree
45.0	962	557	474
55.0	855	498	459
65.0	721	526	518
75.0	576	719	740
85.0	436	1860	1942

Luminaire Luminous Flux: 675

Measured Input Power: 15.96 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 42.3 lm/W

Luminaire Spacing Criterion (0 Degree): 1.2223

Luminaire Spacing Criterion (90 Degree): 0.8597

Category: Up and Down



## Photometric Report: S2110013-R1

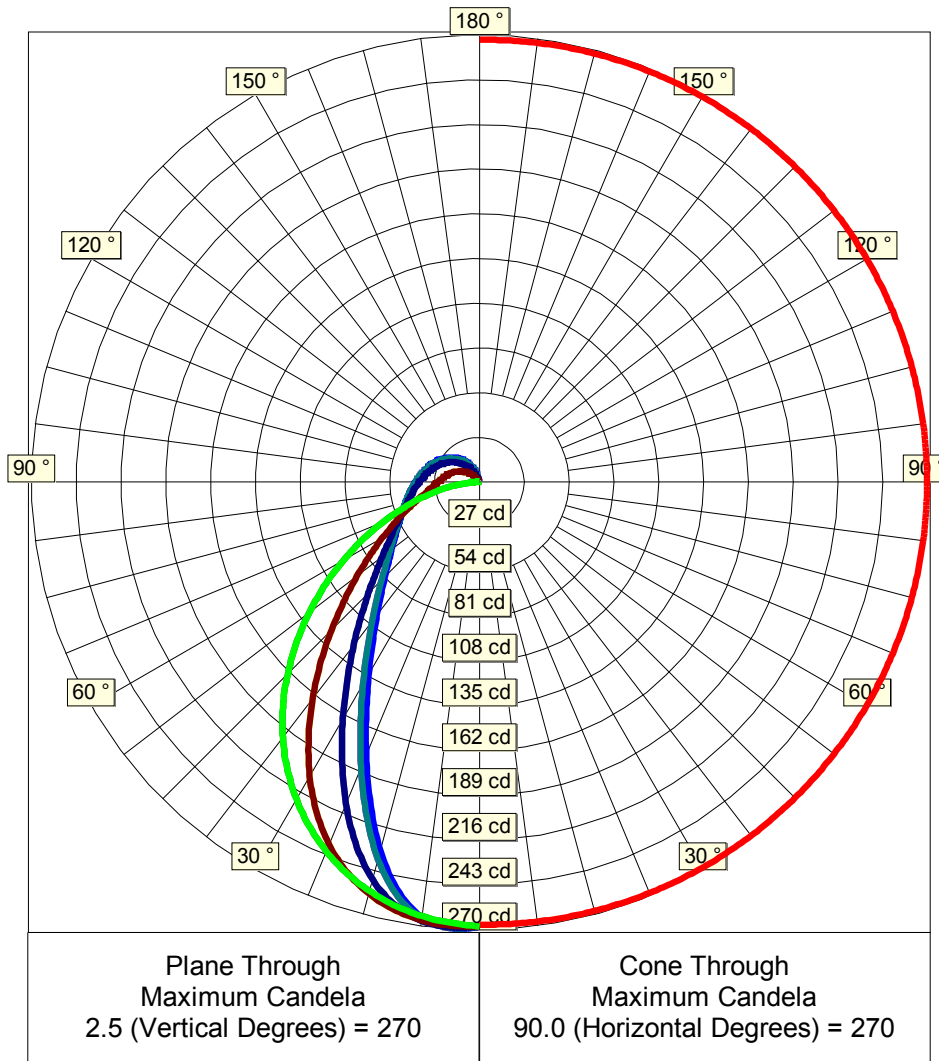
Prepared for: ANDlight · Test Date: 01 October 2021

Luminaire: PIPELINE · Lumcat: PIP-125-P-35

### Luminous Intensity - Polar Curve for each Plane(1)

Plane  
Angles

Plane Angles	Candela Values
0.0	268
2.5	270
5.0	269
7.5	265
10.0	257
12.5	245
15.0	230
17.5	213
20.0	195
22.5	178
25.0	162
27.5	146
30.0	133
32.5	121
35.0	110
37.5	101
40.0	93
42.5	86
45.0	80
47.5	75
50.0	70
52.5	67
55.0	63
57.5	60
60.0	57
62.5	55
65.0	52
67.5	51
70.0	49
72.5	47
75.0	46
77.5	44
80.0	43
82.5	42
85.0	41
87.5	40
90.0	39
92.5	37
95.0	36
97.5	36



Cone  
Angles

Cone Angles	Candela Values
0.0	267
22.5	268
45.0	269
67.5	270
90.0	270
112.5	270
135.0	269
157.5	268
180.0	267

0.0 °
22.5 °
45.0 °
67.5 °
90.0 °
112.5 °
135.0 °
157.5 °
180.0 °



## Photometric Report: S2110013-R1

Prepared for: ANDlight · Test Date: 01 October 2021

Luminaire: PIPELINE · Lumcat: PIP-125-P-35

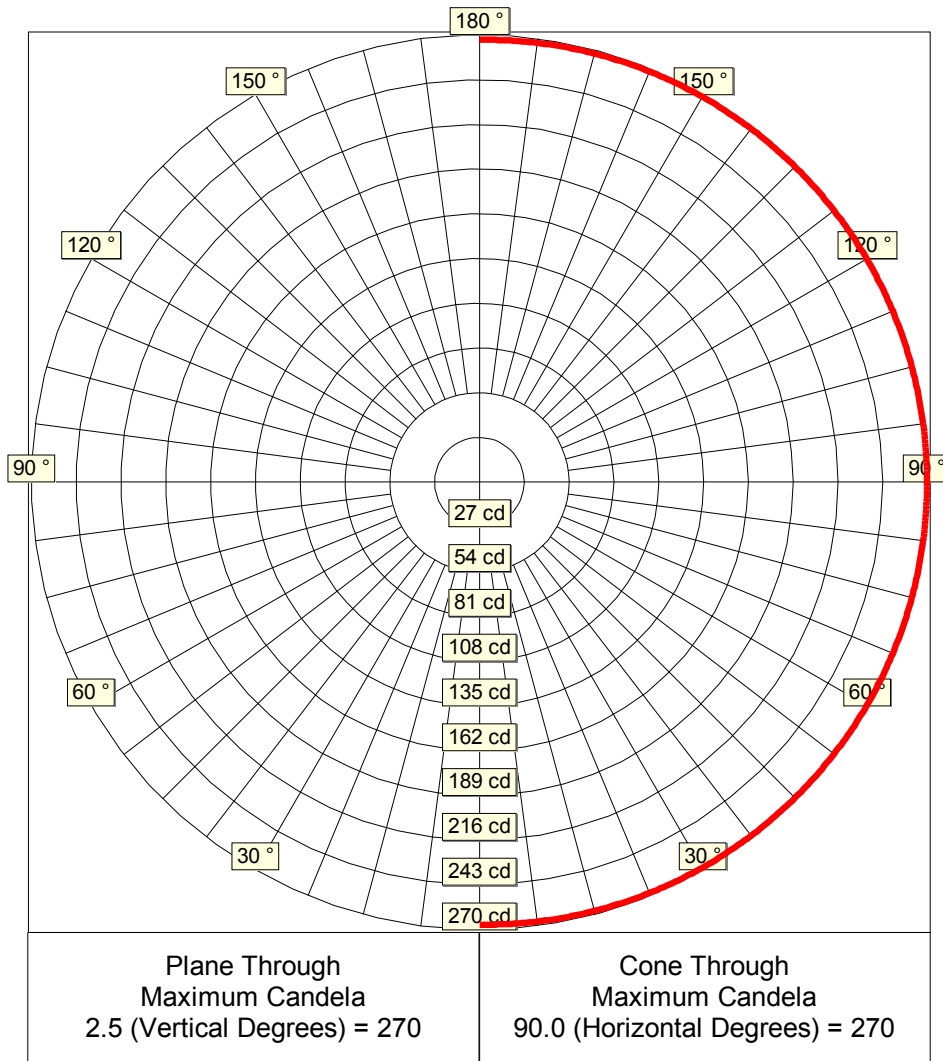
### Luminous Intensity - Polar Curve for each Plane(2)

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

34  
33  
33  
32  
31  
30  
29  
28  
27  
26  
25  
24  
23  
22  
21  
20  
19  
17  
16  
15  
13  
12  
10  
9  
7  
5  
3  
1  
1  
0  
1  
1



Cone  
Angles

Candela  
Values



## IES File Headers

```

IESNA:LM-63
[ISSUEDATE]      01 October 2021
[TESTLAB]        Spectra Lux
[TEST]           S2110013-R1
[MANUFAC]        ANDlight
[LUMCAT]          PIP-125-P-35
[LUMINAIRE]       PIPELINE
[LAMP]           Clusters of Epistar (P/N 2016) LEDs c/w Sorensen Driver DCS60-18E @ 24.00V
[_BURNING]        Vertical Base Up (675 Luminaire Lumens)
[_REFLECTOR]      None
[_LENS]           (1) Cylindrical Acrylic Diffuser
[_HOUSING]        Aluminum Body
[_NOMINAL COLOR]  3500 K
[_DRIVE CURRENT] 665 mA

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## 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	268	268	268	268	268	268	268	268	268
	2.5	267	268	269	270	270	270	269	268	267
	5.0	266	268	269	269	269	269	269	268	266
	7.5	264	267	267	265	265	265	267	267	264
	10.0	262	264	263	259	257	259	263	264	262
	12.5	259	261	257	249	245	249	257	261	259
	15.0	255	257	248	236	230	236	248	257	255
	17.5	251	252	237	220	213	220	237	252	251
	20.0	247	245	224	203	195	203	224	245	247
	22.5	241	237	210	186	178	186	210	237	241
	25.0	235	227	195	170	162	170	195	227	235
	27.5	228	216	179	154	146	154	179	216	228
	30.0	220	205	164	140	133	140	164	205	220
	32.5	212	192	150	127	121	127	150	192	212
	35.0	204	179	137	116	110	116	137	179	204
	37.5	194	165	125	106	101	106	125	165	194
	40.0	184	152	113	97	93	97	113	152	184
	42.5	174	139	103	90	86	90	103	139	174
	45.0	163	126	94	83	80	83	94	126	163
A n g l e s	47.5	152	114	86	77	75	77	86	114	152
	50.0	141	103	80	72	70	72	80	103	141
	52.5	129	93	74	68	67	68	74	93	129
	55.0	118	83	68	64	63	64	68	83	118
	57.5	106	75	64	61	60	61	64	75	106
	60.0	95	68	60	58	57	58	60	68	95
	62.5	84	61	57	55	55	55	57	61	84
	65.0	73	55	53	53	52	53	53	55	73
	67.5	63	50	51	51	51	51	51	50	63
	70.0	53	45	49	49	49	49	49	45	53
	72.5	44	41	46	47	47	47	46	41	44
	75.0	36	38	45	46	46	46	45	38	36
	77.5	28	34	43	44	44	44	43	34	28
	80.0	21	32	41	43	43	43	41	32	21
	82.5	15	30	40	42	42	42	40	30	15
	85.0	9	28	39	41	41	41	39	28	9
	87.5	5	26	37	40	40	40	37	26	5
	90.0	4	25	36	39	39	39	36	25	4





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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	3	24	35	37	37	37	35	24	3
	95.0	3	23	34	36	36	36	34	23	3
	97.5	2	22	33	35	36	35	33	22	2
	100.0	1	21	32	34	34	34	32	21	1
	102.5	1	20	31	33	33	33	31	20	1
	105.0	1	19	30	32	33	32	30	19	1
	107.5	1	18	29	32	32	32	29	18	1
	110.0	1	17	28	30	31	30	28	17	1
	112.5	1	16	27	30	30	30	27	16	1
	115.0	1	15	26	29	29	29	26	15	1
	117.5	1	14	24	27	28	27	24	14	1
	120.0	1	13	23	27	27	27	23	13	1
	122.5	1	12	22	26	26	26	22	12	1
	125.0	1	11	21	24	25	24	21	11	1
	127.5	1	10	20	23	24	23	20	10	1
	130.0	1	9	19	22	23	22	19	9	1
	132.5	1	8	17	21	22	21	17	8	1
	135.0	1	7	16	20	21	20	16	7	1
	137.5	1	6	15	19	20	19	15	6	1
	A n g l e s	140.0	1	5	14	17	19	17	14	5
142.5		1	4	12	16	17	16	12	4	1
145.0		1	3	11	15	16	15	11	3	1
147.5		1	2	10	14	15	14	10	2	1
150.0		1	1	8	12	13	12	8	1	1
152.5		1	1	7	11	12	11	7	1	1
155.0		1	1	5	9	10	9	5	1	1
157.5		1	1	4	8	9	8	4	1	1
160.0		1	1	3	6	7	6	3	1	1
162.5		1	1	1	4	5	4	1	1	1
165.0		1	1	1	2	3	2	1	1	1
167.5		1	1	1	1	1	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	0	1	1	1	1
177.5		1	1	1	1	1	1	1	1	1
180.0		1	1	1	1	1	1	1	1	1