



# 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-79:2019, ANSI C82.2:2002, ANSI C82.77-10:2021

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

General Information		Lamp Details: CY5449		Driver Details: CY2571	
<b>DUT Lab ID</b>	SRIS 3157-6	<b>Seasoning</b>	0 Hour	<b>Type</b>	LED Power Supply
<b>Lamp Type</b>	LED/SSL	<b>Test Product</b>	COL-175-6-P-H-30K	<b>Manufacturer</b>	Meanwell
<b>Current Mode</b>	AC	<b>Manufacturer</b>	Nichia	<b>Catalog No.</b>	PWM-90-24
<b>Test Report</b>	S2212074-R1	<b>Lamp Catalog No.</b>	N.K.	<b>Maximum Power</b>	90 W
<b>Test Date</b>	7 December 2022	<b>Drive Current</b>	N.K.	<b>Input Voltage</b>	120.00 V
<b>Report Date</b>	8 December 2022	<b>Nominal Color</b>	3000 K	<b>Operating Frequency</b>	60 Hz
<b>Ambient</b>	24.8 °C	<b>Burning Position</b>	Horizontal	<b>Input Power</b>	60.33 W

### Luminaire Data

General Information		Optics		Aperture (feet)	
<b>Manufacturer</b>	ANDlight	<b>Optics</b>	None	<b>X</b>	-0.5833
<b>Name</b>	Column Series	<b>Housing</b>	(6) Facetted Horizontal Cylinders	<b>Y</b>	5.2500
<b>Catalog No.</b>	COL-175-6-P-H-30K	<b>Lens</b>	(6) Acrylic Diffusers	<b>Z</b>	-0.5833

Stabilization Time: 1 hour 15 minutes

**Approved Signatory: Chrisnel Blot**

**Signature:**



**Spectra Lux**

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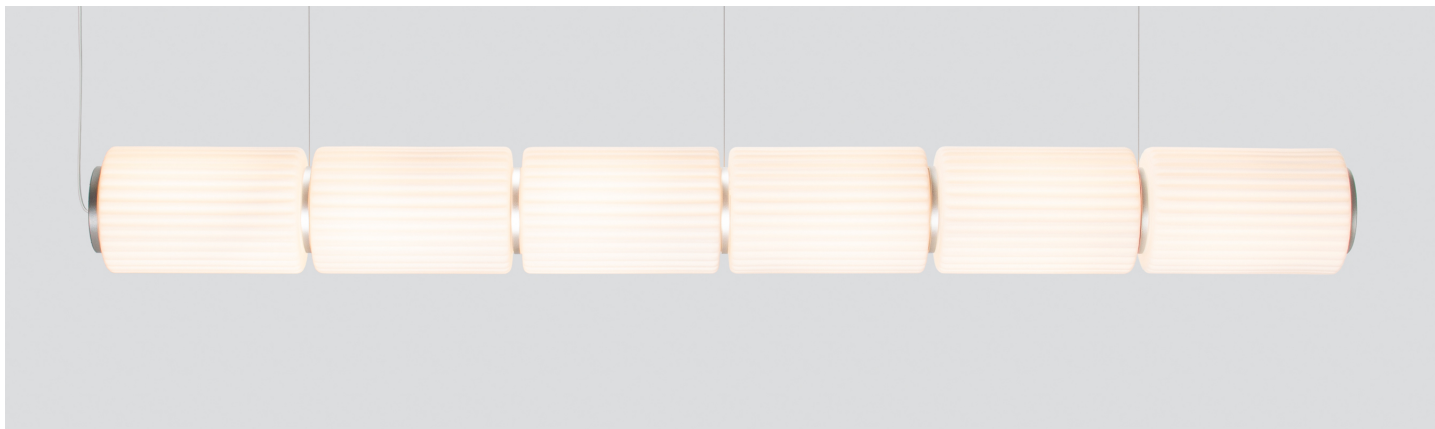
## Luminaire Test Method

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	Inventfine	CHP-500	GZBXD010148	N.P.C.R.	N.P.C.R.
Input Power Meter	Yokogawa	WT210	27E116584	2022-09-22	2023-09-22
Output Power Meter	N/A	N/A	N/A	N.P.C.R.	N.P.C.R.

### Photometric Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Photometer	N/A	N/A	N/A	N.P.C.R.	N.P.C.R.
Photodetector	INPHORA	IPR-PDET 19	110803	2022-09-07	2023-09-07

### Environment Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Temperature Humidity Sensor	Omega	HH311	120504176	2022-09-07	2023-09-07

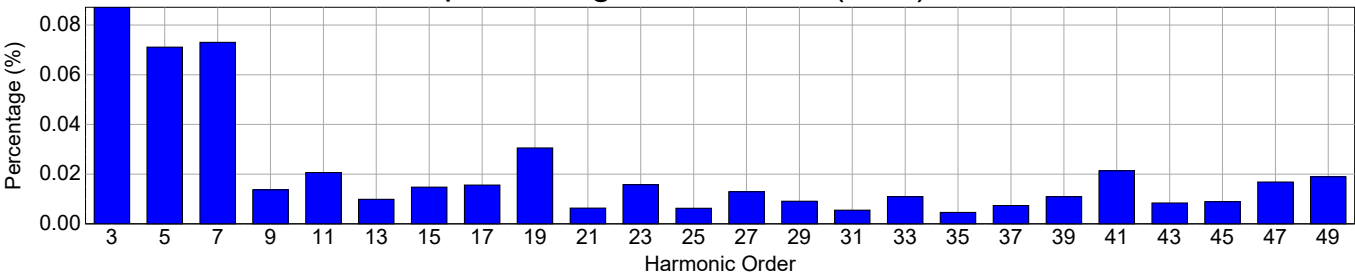


Electrical Measurements

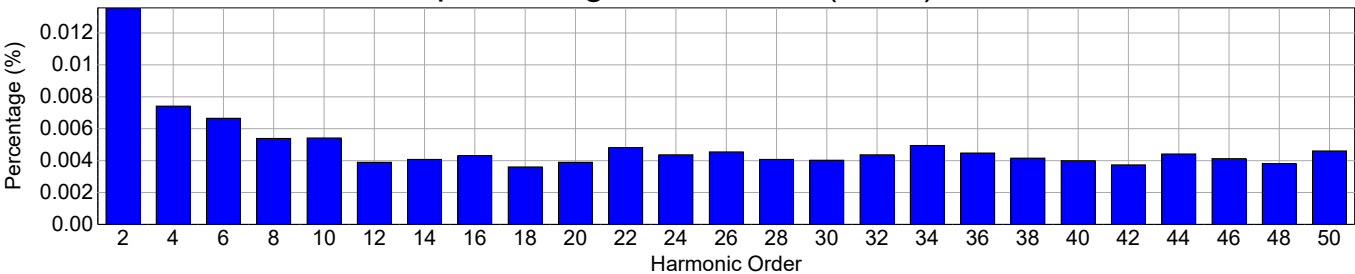
Input

Frequency	60 Hz	Active Power	60.33 W	THDV [ANSI]	0.15 %
Voltage	120.0 V(rms)	Apparent Power	60.73 VA	THDA [ANSI]	4.77 %
Current	0.5062 A(rms)	Power Factor	0.993	Max. Harmonic At	7th order

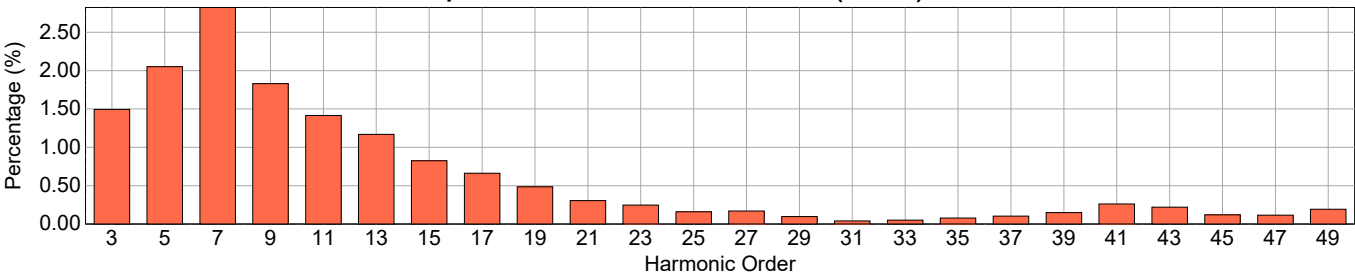
Input Voltage Harmonics (Odd)



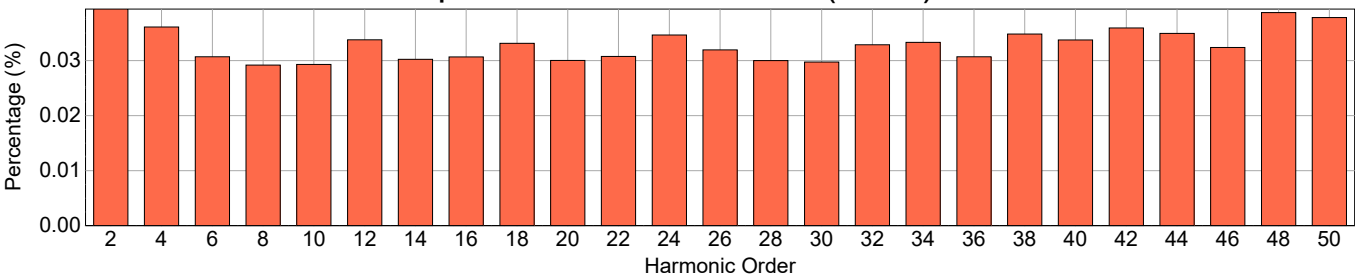
Input Voltage Harmonics (Even)



Input Current Harmonics (Odd)



Input Current Harmonics (Even)





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### Harmonic Measurements

Odd Harmonics				Even Harmonics			
Harmonic Order	Frequency (HZ)	Voltage Harmonics (%)	Current Harmonics (%)	Harmonic Order	Frequency (HZ)	Voltage Harmonics (%)	Current Harmonics (%)
1	60	100.000	100.000	2	120	0.014	0.039
3	180	0.087	1.494	4	240	0.007	0.036
5	300	0.071	2.051	6	360	0.007	0.031
7	420	0.073	2.824	8	480	0.005	0.029
9	540	0.014	1.829	10	600	0.005	0.029
11	660	0.021	1.415	12	720	0.004	0.034
13	780	0.010	1.170	14	840	0.004	0.030
15	900	0.015	0.824	16	960	0.004	0.031
17	1020	0.016	0.663	18	1080	0.004	0.033
19	1140	0.031	0.485	20	1200	0.004	0.030
21	1260	0.006	0.305	22	1320	0.005	0.031
23	1380	0.016	0.247	24	1440	0.004	0.035
25	1500	0.006	0.159	26	1560	0.005	0.032
27	1620	0.013	0.170	28	1680	0.004	0.030
29	1740	0.009	0.098	30	1800	0.004	0.030
31	1860	0.006	0.042	32	1920	0.004	0.033
33	1980	0.011	0.051	34	2040	0.005	0.033
35	2100	0.005	0.078	36	2160	0.004	0.031
37	2220	0.007	0.103	38	2280	0.004	0.035
39	2340	0.011	0.149	40	2400	0.004	0.034
41	2460	0.021	0.262	42	2520	0.004	0.036
43	2580	0.008	0.220	44	2640	0.004	0.035
45	2700	0.009	0.120	46	2760	0.004	0.032
47	2820	0.017	0.116	48	2880	0.004	0.039
49	2940	0.019	0.193	50	3000	0.005	0.038



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## Photometric Report: S2212074-R1

Prepared for: ANDlight · Test Date: 07 December 2022

Luminaire: Column Series · Lumcat: COL-175-6-P-H-30K

### 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		116	116	116	116	107	107	107	107	99	99	99	99	83	83	83	56	56	56				50
1		103	96	90	85	94	88	83	78	86	81	77	72	68	64	61	44	42	40				35
2		92	82	73	66	84	75	68	61	77	69	62	57	57	52	48	37	34	31				26
3		83	71	61	53	76	65	56	50	69	60	52	46	50	44	39	31	28	25				21
4		76	62	52	44	69	57	48	41	63	52	44	38	43	37	32	28	24	21				17
5		69	55	44	37	63	50	41	35	58	46	38	32	38	32	27	24	21	18				14
6		64	49	39	32	58	45	36	30	53	41	33	27	34	28	23	22	18	15				12
7		59	44	34	27	54	40	32	26	49	37	29	24	31	25	20	20	16	13				10
8		54	39	30	24	50	36	28	22	45	34	26	21	28	22	18	18	14	12				9
9		50	36	27	21	46	33	25	20	42	30	23	18	26	20	16	17	13	10				8
10		47	33	24	19	43	30	23	17	39	28	21	16	24	18	14	15	12	9				7

### Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	29	0.89	0.89
10 - 20	85	2.61	2.61
20 - 30	137	4.20	4.20
30 - 40	182	5.57	5.57
40 - 50	216	6.63	6.63
50 - 60	239	7.31	7.31
60 - 70	248	7.60	7.60
70 - 80	246	7.55	7.55
80 - 90	240	7.35	7.35
90 - 120	736	22.55	22.55
90 - 130	977	29.93	29.93
90 - 150	1383	42.37	42.37
90 - 180	1643	50.31	50.31
0 - 180	3265	100.00	100.00

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

Angle	0 Degree	45 Degree	90 Degree
45.0	397	450	481
55.0	420	535	593
65.0	445	702	805
75.0	467	1107	1315
85.0	578	3224	3918

Luminaire Luminous Flux: 3265

Measured Input Power: 60.33 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 54.1 lm/W

Luminaire Spacing Criterion (0 Degree): 1.3900

Luminaire Spacing Criterion (90 Degree): 1.5282

Category: Up and Down

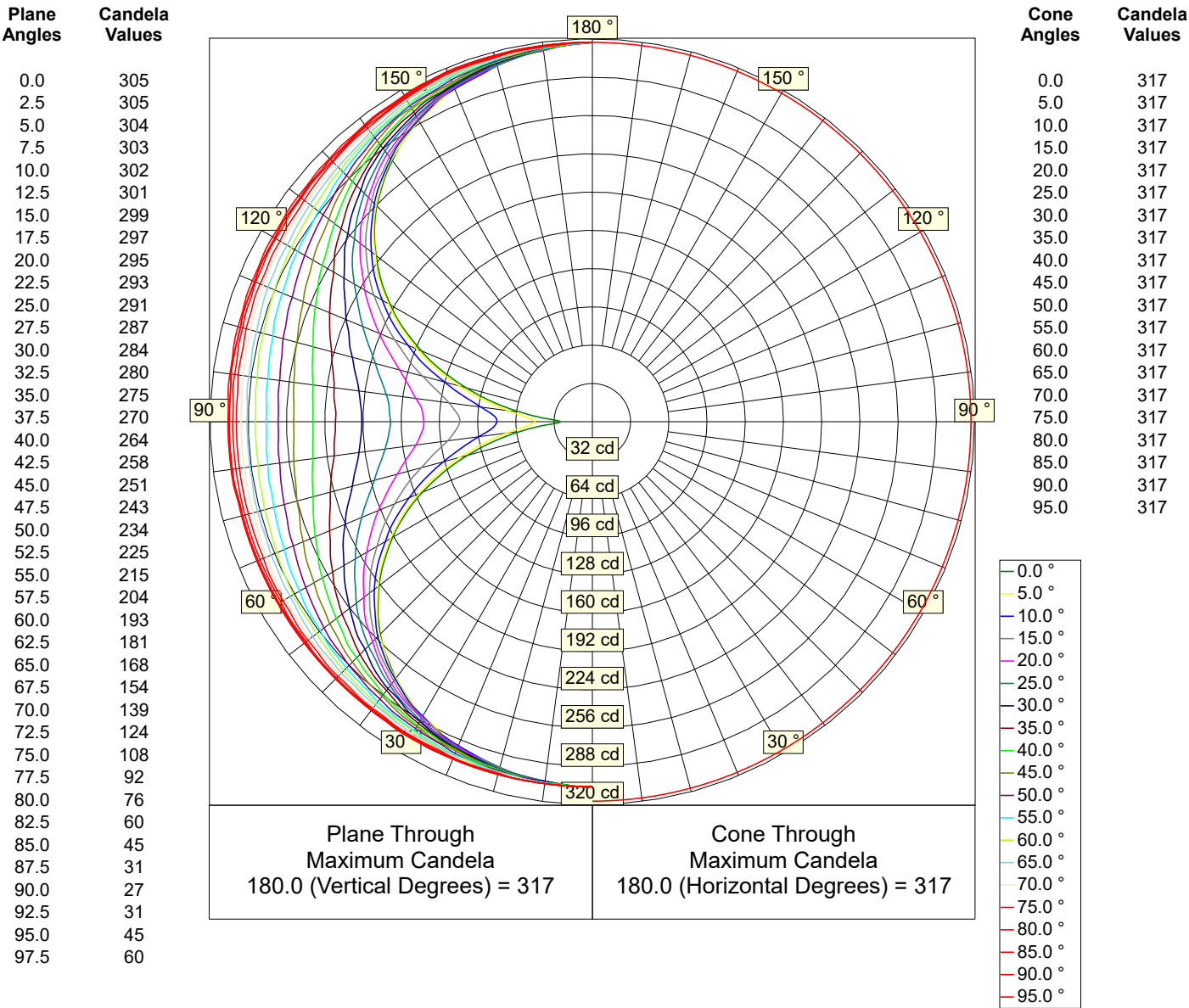


Photometric Report: S2212074-R1

Prepared for: ANDlight · Test Date: 07 December 2022

Luminaire: Column Series · Lumcat: COL-175-6-P-H-30K

Luminous Intensity - Polar Curve for each Plane(1)





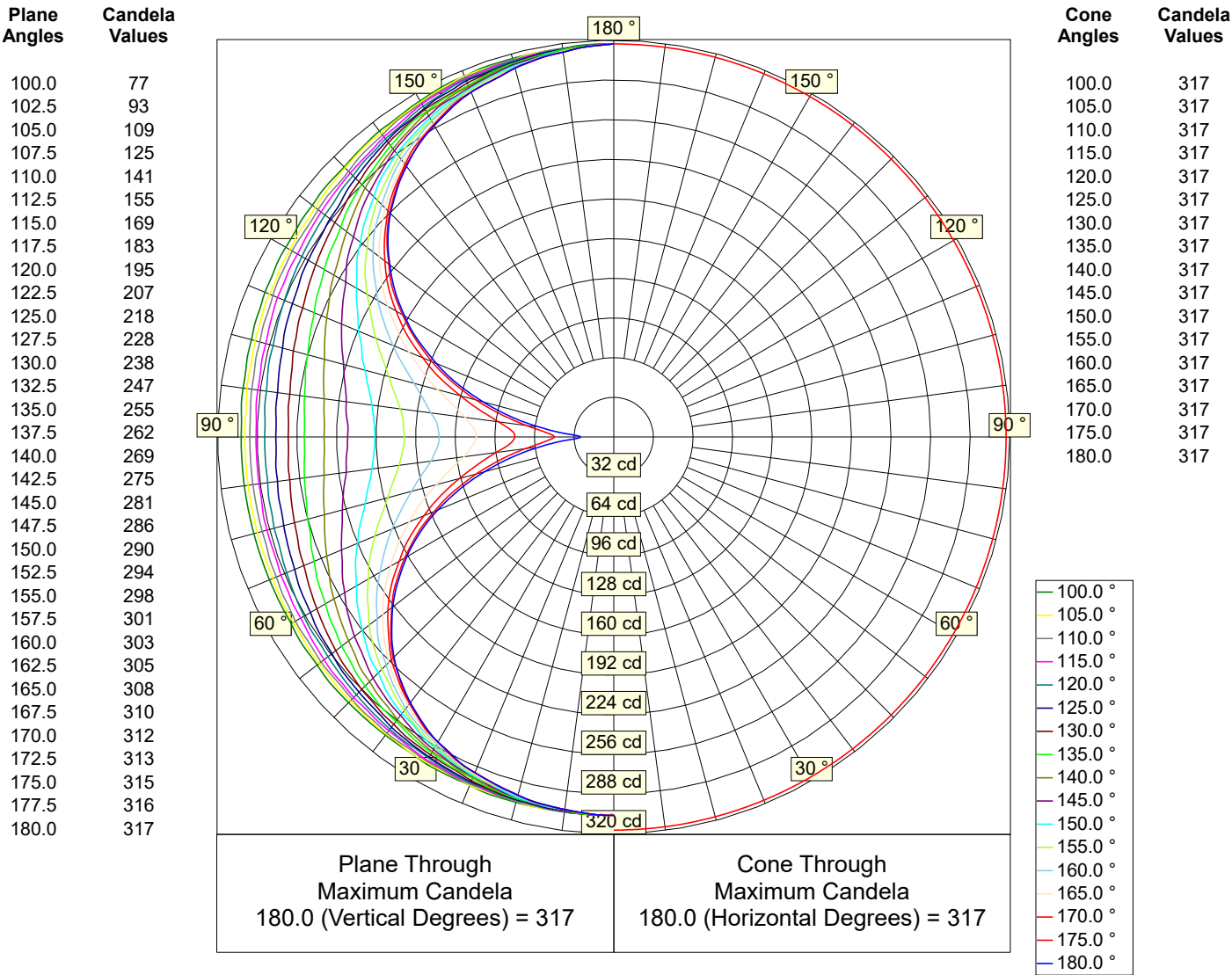


Photometric Report: S2212074-R1

Prepared for: ANDlight · Test Date: 07 December 2022

Luminaire: Column Series · Lumcat: COL-175-6-P-H-30K

Luminous Intensity - Polar Curve for each Plane(2)







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## IES File Headers

```
IESNA:LM-63
[ISSUEDATE]      07 December 2022
[TESTLAB]        Spectra Lux
[TEST]           S2212074-R1
[MANUFAC]        ANDlight
[LUMCAT]          COL-175-6-P-H-30K
[LUMINAIRE]       Column Series
[LAMP]           Clusters of Nichia LEDs c/w Meanwell Driver PWM-90-24 @ 120.00V
[_BURNING]        Horizontal (3,265 Luminaire Lumens)
[_OPTICS]         None
[_LENS]           (6) Acrylic Diffusers
[_HOUSING]        (6) Facetted Horizontal Cylinders
[_NOMINAL COLOR] 3000 K
[_DRIVE CURRENT] N.K.
```

## Candela Table

### Lateral Angles

		0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0
V e r t i c a l	0.0	305	305	305	305	305	305	305	305	305	305
	2.5	305	305	305	305	305	305	305	305	305	305
	5.0	304	304	304	304	304	304	304	304	304	305
	7.5	303	303	303	303	303	303	303	304	304	304
	10.0	302	302	302	302	302	302	303	303	303	303
	12.5	301	301	301	301	301	301	302	302	302	302
	15.0	299	299	299	299	300	300	301	301	301	302
	17.5	297	297	297	297	298	298	299	300	300	301
	20.0	295	295	295	296	296	297	297	298	299	300
	22.5	293	293	293	294	294	295	296	296	297	298
	25.0	291	291	291	292	292	293	294	295	296	297
	27.5	287	287	288	288	290	291	292	293	294	296
	30.0	284	284	284	285	286	288	289	291	293	294
	32.5	280	280	281	282	283	285	287	289	291	293
	35.0	275	275	276	278	280	282	283	286	289	291
	37.5	270	270	271	273	276	278	281	283	287	289
	40.0	264	265	266	268	271	274	278	281	284	288
	42.5	258	258	260	263	266	269	274	278	282	286
	45.0	251	252	254	257	260	265	269	275	279	284
A n g l e s	47.5	243	244	246	250	255	260	266	271	277	282
	50.0	234	235	238	243	249	255	261	267	273	279
	52.5	225	226	230	235	241	249	256	264	270	277
	55.0	215	217	221	227	234	242	251	260	267	274
	57.5	204	206	211	218	227	236	246	256	264	272
	60.0	193	195	200	208	218	229	240	251	261	269
	62.5	181	183	190	199	210	223	235	247	258	267
	65.0	168	171	178	189	202	216	230	242	254	265
	67.5	154	157	166	179	194	209	224	238	251	262
	70.0	139	144	154	169	185	202	219	234	248	260
	72.5	124	129	142	159	177	195	213	230	245	257
	75.0	108	115	129	148	169	189	208	227	242	256
	77.5	92	100	117	139	162	184	204	224	240	254
	80.0	76	86	106	130	155	179	200	221	238	253
	82.5	60	72	96	122	149	175	197	218	236	252
	85.0	45	60	87	117	145	172	195	217	235	251
	87.5	31	52	82	113	142	170	194	216	234	250
	90.0	27	48	80	111	141	169	193	215	234	250



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## Lateral Angles

	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	
V e r t i c a l	92.5	31	51	81	112	142	170	194	215	234	250
	95.0	45	59	86	116	144	171	195	217	235	251
	97.5	60	71	94	121	149	174	197	218	236	252
	100.0	77	85	104	128	154	178	200	220	238	253
	102.5	93	100	116	137	160	183	204	223	240	255
	105.0	109	115	128	147	167	188	208	226	242	256
	107.5	125	130	142	158	175	194	213	230	245	258
	110.0	141	145	155	168	184	201	217	234	248	260
	112.5	155	159	167	179	193	208	223	238	251	262
	115.0	169	172	180	190	202	215	228	242	254	265
	117.5	183	185	192	200	211	222	234	246	258	267
	120.0	195	197	203	211	220	230	240	250	261	270
	122.5	207	209	214	221	228	238	246	256	264	273
	125.0	218	220	224	230	237	245	253	261	268	275
	127.5	228	229	233	239	245	251	258	265	272	278
	130.0	238	239	242	247	253	258	264	270	276	282
	132.5	247	248	250	254	259	264	269	275	280	285
	135.0	255	256	258	261	265	270	274	279	284	288
A n g l e s	137.5	262	263	265	268	271	275	280	283	287	290
	140.0	269	270	271	273	277	280	284	287	290	293
	142.5	275	276	277	279	282	285	288	291	293	296
	145.0	281	281	283	284	286	289	291	294	296	299
	147.5	286	286	287	288	290	292	294	297	299	302
	150.0	290	290	291	292	294	295	297	299	302	303
	152.5	294	294	295	296	297	298	300	302	303	305
	155.0	298	298	299	299	300	301	302	303	305	306
	157.5	301	301	301	302	302	303	304	305	306	307
	160.0	303	303	303	304	304	305	306	307	308	309
	162.5	305	305	305	306	306	307	308	309	310	311
	165.0	308	308	308	308	309	309	310	311	311	312
	167.5	310	310	310	310	311	311	311	312	312	313
	170.0	312	312	312	312	312	312	313	313	313	314
	172.5	313	313	313	313	313	314	314	314	314	315
	175.0	315	315	315	315	315	315	315	315	315	316
	177.5	316	316	316	316	316	316	316	316	316	316
	180.0	317	317	317	317	317	317	317	317	317	317



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## Lateral Angles

	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0	90.0	95.0
V e r t i c a l	0.0	305	305	305	305	305	305	305	305	305
	2.5	305	305	305	305	305	305	305	305	305
	5.0	305	305	305	305	305	305	305	305	305
	7.5	304	304	305	305	305	305	305	305	305
	10.0	303	304	304	304	305	305	305	305	305
	12.5	303	303	304	304	305	305	305	305	305
	15.0	302	303	303	303	304	305	305	305	305
	17.5	302	302	303	303	304	305	305	305	305
	20.0	301	301	302	303	304	305	305	305	305
	22.5	300	301	302	302	303	304	305	305	305
	25.0	298	300	301	302	303	304	305	305	305
	27.5	297	299	300	301	302	303	304	305	305
	30.0	296	298	299	301	302	303	304	305	304
	32.5	295	297	298	300	301	303	304	305	304
	35.0	294	296	298	299	301	302	303	304	304
	37.5	292	295	297	299	301	302	303	304	304
	40.0	291	293	296	298	300	302	303	304	303
	42.5	289	292	295	297	300	301	303	303	304
	45.0	288	291	294	297	299	301	303	303	304
	47.5	286	290	293	296	298	301	303	303	304
A n g l e s	50.0	285	289	292	296	298	300	303	303	304
	52.5	283	287	291	295	298	300	302	303	304
	55.0	281	286	290	294	297	300	302	303	304
	57.5	279	285	290	293	297	299	302	303	304
	60.0	277	283	289	292	297	299	301	303	304
	62.5	275	282	288	292	296	299	301	303	304
	65.0	273	281	287	291	296	299	301	303	304
	67.5	271	279	286	291	295	298	301	303	304
	70.0	270	278	285	290	295	298	301	303	304
	72.5	268	277	284	290	294	298	301	303	304
	75.0	267	276	284	290	294	298	301	303	304
	77.5	266	275	283	290	294	298	301	303	304
	80.0	265	275	283	289	294	298	301	304	305
	82.5	264	274	282	289	294	298	301	304	305
	85.0	264	274	282	289	294	298	301	304	305
	87.5	263	273	282	289	294	298	301	304	305
	90.0	263	273	282	289	294	298	301	304	305
	92.5	263	273	282	289	294	298	301	304	305
	95.0	264	274	283	290	295	298	302	304	306
	97.5	264	274	283	290	295	299	302	305	306
	100.0	265	275	284	290	295	299	302	305	306
	102.5	266	276	285	291	296	299	303	305	307
	105.0	268	277	285	291	296	300	303	305	307
	107.5	269	279	286	292	297	300	304	306	307
	110.0	271	280	287	293	297	301	304	306	308
	112.5	272	281	288	294	298	301	305	306	308
	115.0	274	282	289	294	299	301	305	307	308
	117.5	276	284	290	295	299	302	306	307	309
	120.0	278	285	291	295	300	302	306	307	309
	122.5	280	286	292	296	300	303	306	308	309
	125.0	282	287	293	297	300	303	307	308	310
	127.5	284	289	294	298	301	304	307	308	310
	130.0	286	290	295	299	302	305	308	309	310
	132.5	289	293	297	300	302	306	308	309	311



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## Lateral Angles

	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0	90.0	95.0	
V e r t i c a l	135.0	291	295	298	301	303	307	308	310	311	310
	137.5	294	297	300	302	305	308	309	310	312	310
	140.0	296	299	301	303	306	309	310	311	312	311
	142.5	299	301	303	305	307	309	311	312	313	312
	145.0	301	303	304	306	309	310	311	313	314	313
	147.5	303	304	306	308	310	311	312	313	314	313
	150.0	305	306	308	310	311	312	313	314	315	314
	152.5	306	308	309	311	312	313	314	315	316	315
	155.0	307	309	311	312	313	314	315	316	316	316
	157.5	309	311	312	313	314	315	315	316	317	316
	160.0	310	311	312	313	314	315	316	316	317	316
	162.5	311	312	313	314	315	315	316	316	317	316
	165.0	312	313	314	314	315	315	316	316	317	316
	167.5	313	314	314	315	315	316	316	317	317	317
	170.0	314	315	315	315	316	316	316	317	317	317
	172.5	315	315	316	316	316	316	316	317	317	317
	175.0	316	316	316	316	316	316	317	317	317	317
	177.5	316	316	317	317	317	317	317	317	317	317
	180.0	317	317	317	317	317	317	317	317	317	317
A n g l e s											



# Spectra Lux

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Lab Code: 200899-0

## Lateral Angles

		100.0	105.0	110.0	115.0	120.0	125.0	130.0	135.0	140.0	145.0
V e r t i c a l	0.0	305	305	305	305	305	305	305	305	305	305
	2.5	305	305	305	305	305	305	305	305	305	305
	5.0	305	305	305	305	305	305	305	305	304	304
	7.5	305	305	305	305	305	304	304	304	304	304
	10.0	305	305	305	304	304	304	303	303	303	303
	12.5	305	305	304	304	304	303	303	302	302	302
	15.0	305	304	304	303	303	303	302	302	301	301
	17.5	305	304	304	303	303	302	302	301	300	300
	20.0	305	304	303	303	302	301	301	300	299	298
	22.5	304	304	303	302	302	301	300	298	297	296
	25.0	304	303	303	302	301	300	298	297	296	295
	27.5	304	303	302	301	300	299	297	296	294	293
	30.0	304	303	302	301	299	298	296	294	293	291
	32.5	303	303	301	300	298	297	295	293	291	289
	35.0	303	302	301	299	298	296	294	291	289	286
	37.5	303	302	301	299	297	295	292	289	287	283
	40.0	303	302	300	298	296	293	291	288	284	281
	42.5	303	301	300	297	295	292	289	286	282	278
	45.0	303	301	299	297	294	291	288	284	279	275
A n g l e s	47.5	303	301	298	296	293	290	286	282	277	271
	50.0	303	300	298	296	292	289	285	279	273	267
	52.5	302	300	298	295	291	287	283	277	270	264
	55.0	302	300	297	294	290	286	281	274	267	260
	57.5	302	299	297	293	290	285	279	272	264	256
	60.0	301	299	297	292	289	283	277	269	261	251
	62.5	301	299	296	292	288	282	275	267	258	247
	65.0	301	299	296	291	287	281	273	265	254	242
	67.5	301	298	295	291	286	279	271	262	251	238
	70.0	301	298	295	290	285	278	270	260	248	234
	72.5	301	298	294	290	284	277	268	257	245	230
	75.0	301	298	294	290	284	276	267	256	242	227
	77.5	301	298	294	290	283	275	266	254	240	224
	80.0	301	298	294	289	283	275	265	253	238	221
	82.5	301	298	294	289	282	274	264	252	236	218
	85.0	301	298	294	289	282	274	264	251	235	217
	87.5	301	298	294	289	282	273	263	250	234	216
	90.0	301	298	294	289	282	273	263	250	234	215
	92.5	301	298	294	289	282	273	263	250	234	215
	95.0	302	298	295	290	283	274	264	251	235	217
	97.5	302	299	295	290	283	274	264	252	236	218
	100.0	302	299	295	290	284	275	265	253	238	220
	102.5	303	299	296	291	285	276	266	255	240	223
	105.0	303	300	296	291	285	277	268	256	242	226
	107.5	304	300	297	292	286	279	269	258	245	230
	110.0	304	301	297	293	287	280	271	260	248	234
	112.5	305	301	298	294	288	281	272	262	251	238
	115.0	305	301	299	294	289	282	274	265	254	242
	117.5	306	302	299	295	290	284	276	267	258	246
	120.0	306	302	300	295	291	285	278	270	261	250
	122.5	306	303	300	296	292	286	280	273	264	256
	125.0	307	303	300	297	293	287	282	275	268	261
	127.5	307	304	301	298	294	289	284	278	272	265
	130.0	308	305	302	299	295	290	286	282	276	270
	132.5	308	306	302	300	297	293	289	285	280	275



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## Lateral Angles

	100.0	105.0	110.0	115.0	120.0	125.0	130.0	135.0	140.0	145.0
<b>135.0</b>	308	307	303	301	298	295	291	288	284	279
<b>137.5</b>	309	308	305	302	300	297	294	290	287	283
<b>140.0</b>	310	309	306	303	301	299	296	293	290	287
<b>142.5</b>	311	309	307	305	303	301	299	296	293	291
<b>145.0</b>	311	310	309	306	304	303	301	299	296	294
<b>147.5</b>	312	311	310	308	306	304	303	302	299	297
<b>150.0</b>	313	312	311	310	308	306	305	303	302	299
<b>152.5</b>	314	313	312	311	309	308	306	305	303	302
<b>155.0</b>	315	314	313	312	311	309	307	306	305	303
<b>157.5</b>	315	315	314	313	312	311	309	307	306	305
<b>160.0</b>	316	315	314	313	312	311	310	309	308	307
<b>162.5</b>	316	315	315	314	313	312	311	311	310	309
<b>165.0</b>	316	315	315	314	314	313	312	312	311	311
<b>167.5</b>	316	316	315	315	314	314	313	313	312	312
<b>170.0</b>	316	316	316	315	315	315	314	314	313	313
<b>172.5</b>	316	316	316	316	316	315	315	315	314	314
<b>175.0</b>	317	316	316	316	316	316	316	316	315	315
<b>177.5</b>	317	317	317	317	317	316	316	316	316	316
<b>180.0</b>	317	317	317	317	317	317	317	317	317	317

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## Lateral Angles

	150.0	155.0	160.0	165.0	170.0	175.0	180.0
V e r t i c a l	0.0	305	305	305	305	305	305
	2.5	305	305	305	305	305	305
	5.0	304	304	304	304	304	304
	7.5	303	303	303	303	303	303
	10.0	303	302	302	302	302	302
	12.5	302	301	301	301	301	301
	15.0	301	300	300	299	299	299
	17.5	299	298	298	297	297	297
	20.0	297	297	296	296	295	295
	22.5	296	295	294	294	293	293
	25.0	294	293	292	292	291	291
	27.5	292	291	290	288	287	287
	30.0	289	288	286	285	284	284
	32.5	287	285	283	282	280	280
	35.0	283	282	280	278	276	275
	37.5	281	278	276	273	271	270
	40.0	278	274	271	268	266	265
	42.5	274	269	266	263	260	258
	45.0	269	265	260	257	254	252
	47.5	266	260	255	250	246	244
A n g l e s	50.0	261	255	249	243	238	235
	52.5	256	249	241	235	230	226
	55.0	251	242	234	227	221	217
	57.5	246	236	227	218	211	206
	60.0	240	229	218	208	200	195
	62.5	235	223	210	199	190	183
	65.0	230	216	202	189	178	171
	67.5	224	209	194	179	166	157
	70.0	219	202	185	169	154	144
	72.5	213	195	177	159	142	129
	75.0	208	189	169	148	129	115
	77.5	204	184	162	139	117	100
	80.0	200	179	155	130	106	86
	82.5	197	175	149	122	96	72
	85.0	195	172	145	117	87	60
	87.5	194	170	142	113	82	52
	90.0	193	169	141	111	80	48
	92.5	194	170	142	112	81	51
	95.0	195	171	144	116	86	59
	97.5	197	174	149	121	94	71
	100.0	200	178	154	128	104	85
	102.5	204	183	160	137	116	100
	105.0	208	188	167	147	128	115
	107.5	213	194	175	158	142	130
	110.0	217	201	184	168	155	145
	112.5	223	208	193	179	167	159
	115.0	228	215	202	190	180	172
	117.5	234	222	211	200	192	185
	120.0	240	230	220	211	203	197
	122.5	246	238	228	221	214	209
	125.0	253	245	237	230	224	220
	127.5	258	251	245	239	233	229
	130.0	264	258	253	247	242	239
	132.5	269	264	259	254	250	248



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## Lateral Angles

	150.0	155.0	160.0	165.0	170.0	175.0	180.0
<b>135.0</b>	274	270	265	261	258	256	255
<b>137.5</b>	280	275	271	268	265	263	262
<b>140.0</b>	284	280	277	273	271	270	269
<b>142.5</b>	288	285	282	279	277	276	275
<b>145.0</b>	291	289	286	284	283	281	281
<b>147.5</b>	294	292	290	288	287	286	286
<b>150.0</b>	297	295	294	292	291	290	290
<b>152.5</b>	300	298	297	296	295	294	294
<b>155.0</b>	302	301	300	299	299	298	298
<b>157.5</b>	304	303	302	302	301	301	301
<b>160.0</b>	306	305	304	304	303	303	303
<b>162.5</b>	308	307	306	306	305	305	305
<b>165.0</b>	310	309	309	308	308	308	308
<b>167.5</b>	311	311	311	310	310	310	310
<b>170.0</b>	313	312	312	312	312	312	312
<b>172.5</b>	314	314	313	313	313	313	313
<b>175.0</b>	315	315	315	315	315	315	315
<b>177.5</b>	316	316	316	316	316	316	316
<b>180.0</b>	317	317	317	317	317	317	317

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