



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: CY5455		Driver Details: CY2571	
DUT Lab ID	SRIS 3157-12	Seasoning	0 Hour	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	COL-175-6-P-V-30K	Manufacturer	Meanwell
Current Mode	AC	Manufacturer	Nichia	Catalog No.	PWM-90-24
Test Report	S2212073-R1	Lamp Catalog No.	N.K.	Maximum Power	90 W
Test Date	7 December 2022	Drive Current	N.K.	Input Voltage	120.00 V
Report Date	8 December 2022	Nominal Color	3000 K	Operating Frequency	60 Hz
Ambient	24.9 °C	Burning Position	Axial	Input Power	60.34 W

Luminaire Data

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

Stabilization Time: 1 hour 15 minutes

Approved Signatory: Chrisnel Blot

Signature:



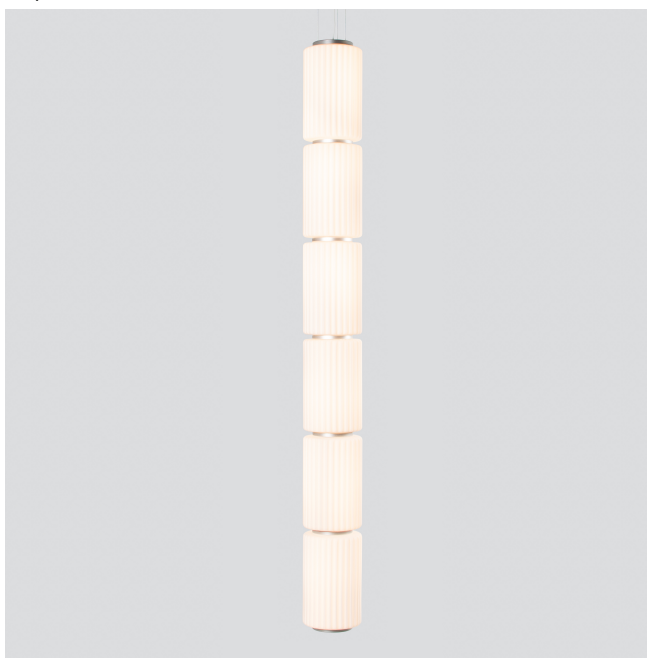
Luminaire Test Method

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	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



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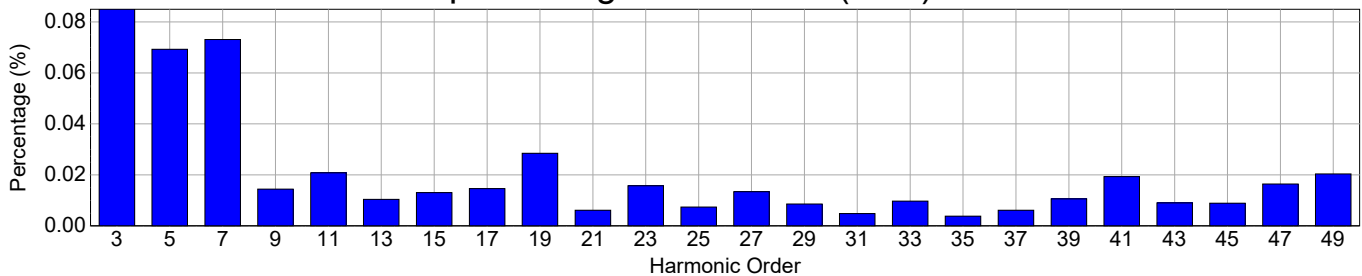
Lab Code: 200899-0

Electrical Measurements

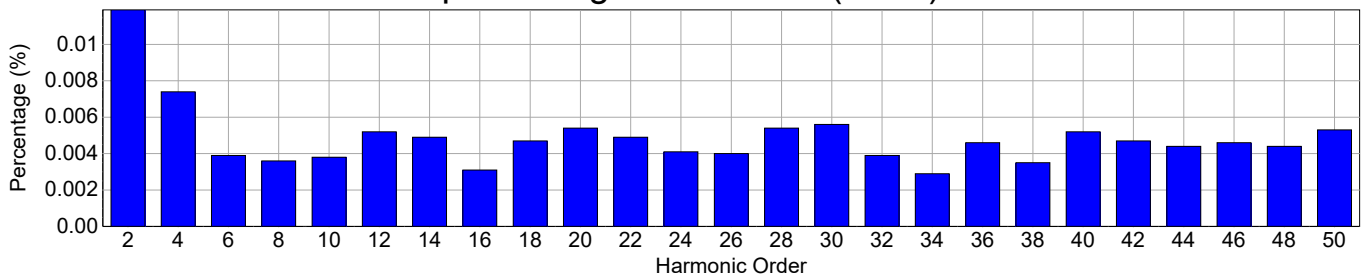
Input

Frequency	60 Hz	Active Power	60.34 W	THDV [ANSI]	0.14 %
Voltage	120.0 V(rms)	Apparent Power	60.74 VA	THDA [ANSI]	4.75 %
Current	0.5063 A(rms)	Power Factor	0.993	Max. Harmonic At	7th order

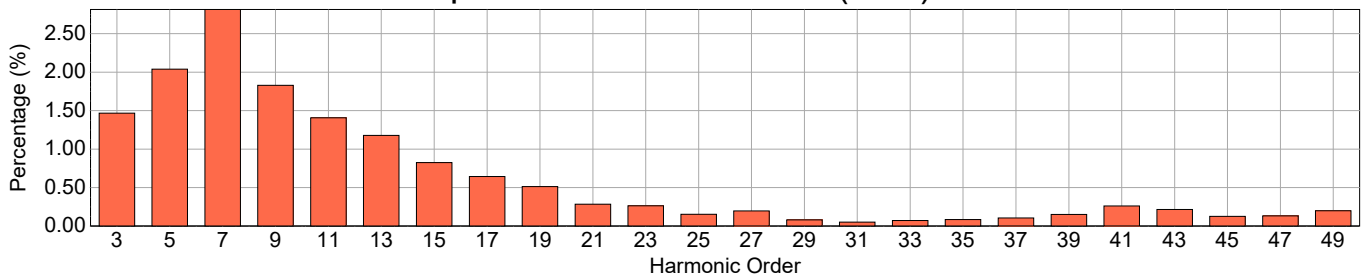
Input Voltage Harmonics (Odd)



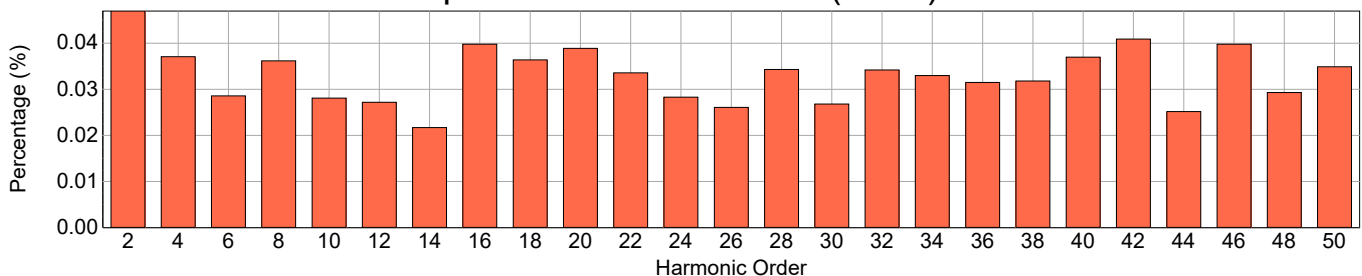
Input Voltage Harmonics (Even)



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	0.012	0.047
3	180	0.085	1.468	4	240	0.007	0.037
5	300	0.069	2.040	6	360	0.004	0.029
7	420	0.073	2.816	8	480	0.004	0.036
9	540	0.014	1.828	10	600	0.004	0.028
11	660	0.021	1.408	12	720	0.005	0.027
13	780	0.010	1.177	14	840	0.005	0.022
15	900	0.013	0.825	16	960	0.003	0.040
17	1020	0.015	0.643	18	1080	0.005	0.036
19	1140	0.029	0.512	20	1200	0.005	0.039
21	1260	0.006	0.283	22	1320	0.005	0.034
23	1380	0.016	0.264	24	1440	0.004	0.028
25	1500	0.007	0.152	26	1560	0.004	0.026
27	1620	0.013	0.197	28	1680	0.005	0.034
29	1740	0.009	0.080	30	1800	0.006	0.027
31	1860	0.005	0.051	32	1920	0.004	0.034
33	1980	0.010	0.071	34	2040	0.003	0.033
35	2100	0.004	0.084	36	2160	0.005	0.032
37	2220	0.006	0.104	38	2280	0.004	0.032
39	2340	0.011	0.152	40	2400	0.005	0.037
41	2460	0.019	0.262	42	2520	0.005	0.041
43	2580	0.009	0.216	44	2640	0.004	0.025
45	2700	0.009	0.126	46	2760	0.005	0.040
47	2820	0.016	0.133	48	2880	0.004	0.029
49	2940	0.020	0.199	50	3000	0.005	0.035



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Lab Code: 200899-0

Photometric Report: S2212073-R1

Prepared for: ANDlight · Test Date: 07 December 2022

Luminaire: Column Series · Lumcat: COL-175-6-P-V-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
0		116	116	116	116	107	107	107	107	99	99	99	99	83	83	83	56	56	56	50
1		101	94	87	81	93	86	80	75	85	79	74	69	65	61	58	41	39	37	31
2		90	79	69	62	82	72	64	57	75	66	59	52	54	49	44	33	30	27	22
3		81	67	57	49	74	62	53	45	67	56	48	41	46	40	34	28	24	21	17
4		73	59	48	40	67	54	44	37	60	49	40	34	40	33	28	24	20	17	13
5		67	51	41	33	61	47	37	30	55	43	34	28	35	28	23	21	17	14	10
6		61	45	35	28	56	42	32	26	50	38	30	23	31	24	19	19	15	11	8
7		56	40	31	24	51	37	28	22	46	34	26	20	28	21	17	17	13	10	7
8		52	36	27	20	47	33	25	19	43	31	23	17	25	19	14	15	11	8	6
9		48	33	24	18	44	30	22	16	40	28	20	15	23	17	12	14	10	7	5
10		45	30	21	16	41	28	20	14	37	25	18	13	21	15	11	13	9	6	4

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	5	0.17	0.17
10 - 20	32	0.99	0.99
20 - 30	79	2.41	2.41
30 - 40	136	4.16	4.16
40 - 50	195	5.96	5.96
50 - 60	247	7.56	7.56
60 - 70	288	8.83	8.83
70 - 80	317	9.72	9.72
80 - 90	333	10.21	10.21
90 - 120	939	28.76	28.76
90 - 130	1186	36.32	36.32
90 - 150	1517	46.44	46.44
90 - 180	1633	50.00	50.00
0 - 180	3266	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	404	398	395
55.0	548	539	534
65.0	789	773	764
75.0	1333	1306	1290
85.0	4041	3964	3902

Luminaire Luminous Flux: 3266

Measured Input Power: 60.34 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 54.1 lm/W

Luminaire Spacing Criterion (0 Degree): 5.2750

Luminaire Spacing Criterion (90 Degree): 5.2094

Category: Up and Down

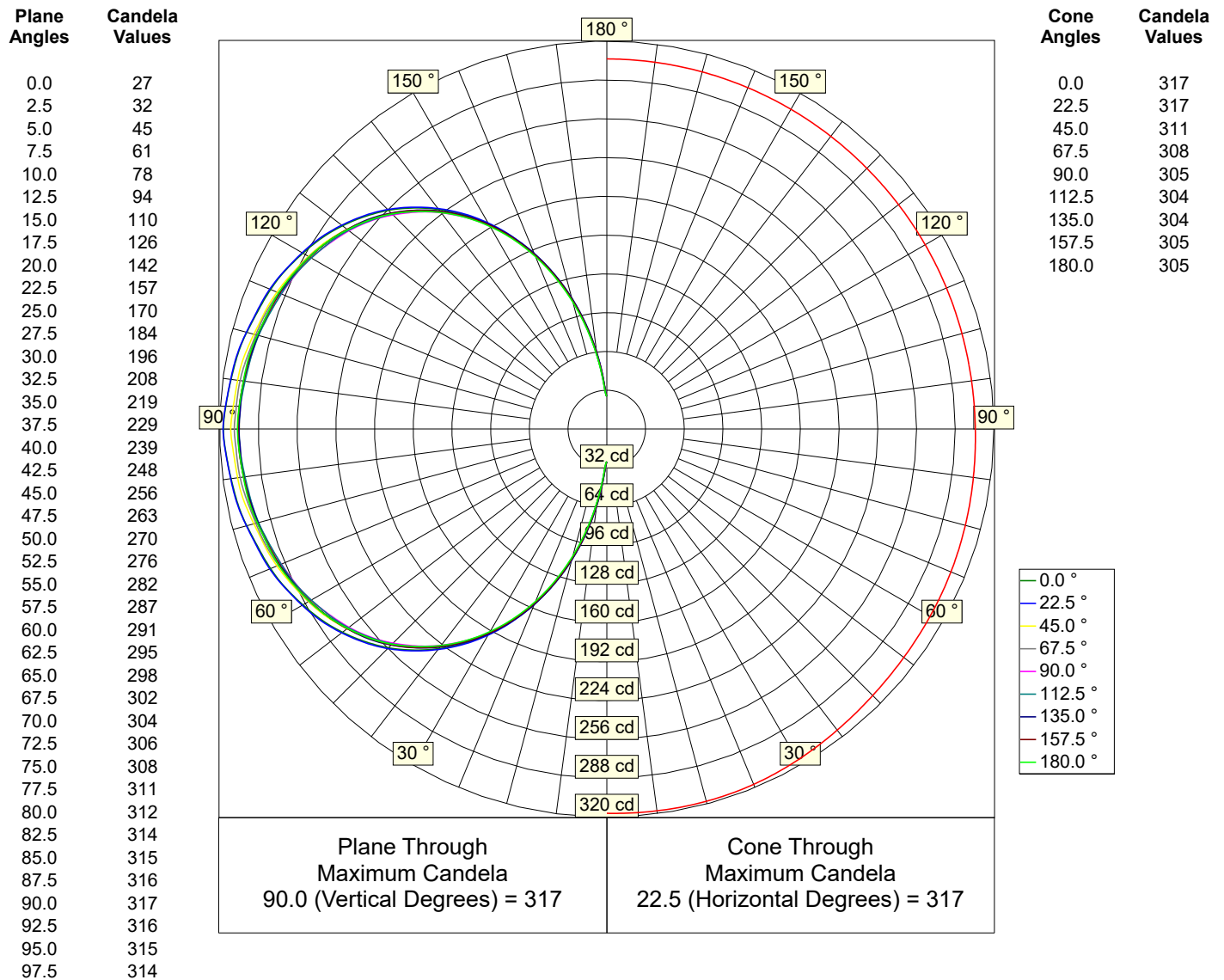


Photometric Report: S2212073-R1

Prepared for: ANDlight · Test Date: 07 December 2022

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

Luminous Intensity - Polar Curve for each Plane(1)



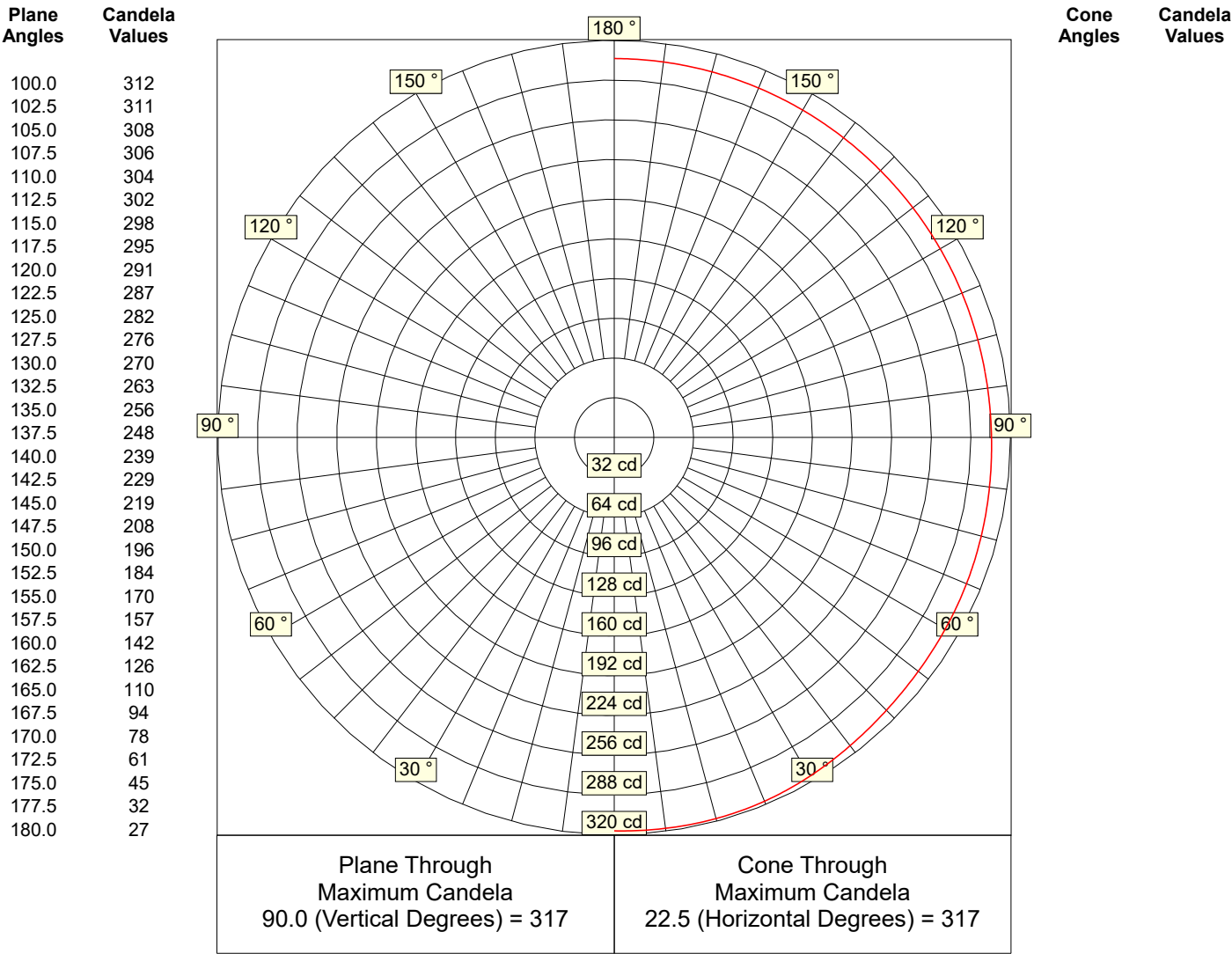


Photometric Report: S2212073-R1

Prepared for: ANDlight · Test Date: 07 December 2022

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

Luminous Intensity - Polar Curve for each Plane(2)





IES File Headers

IESNA:LM-63
[ISSUEDATE] 07 December 2022
[TESTLAB] Spectra Lux
[TEST] S2212073-R1
[MANUFAC] ANDlight
[LUMCAT] COL-175-6-P-V-30K
[LUMINAIRE] Column Series
[LAMP] Clusters of Nichia LEDs c/w Meanwell Driver PWM-90-24 @ 120.00V
[_BURNING] Axial(3,266 Luminaire Lumens)
[_OPTICS] None
[_LENS] (6) Acrylic Diffusers
[_HOUSING] (6) Facetted Vertical Cylinders
[_NOMINAL COLOR] 3000 K
[_DRIVE CURRENT] N.K.

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	27	27	27	27	27	27	27	27
	2.5	31	32	33	34	34	34	32	31
	5.0	45	45	46	47	48	48	46	45
	7.5	60	61	62	63	64	63	62	60
	10.0	77	78	78	79	80	80	78	76
	12.5	93	94	94	95	96	96	94	92
	15.0	109	110	110	111	112	112	110	108
	17.5	125	126	125	126	127	127	126	124
	20.0	141	142	140	141	142	142	141	139
	22.5	155	157	155	156	156	157	155	154
	25.0	169	170	168	169	170	170	169	168
	27.5	183	184	181	182	182	183	182	181
	30.0	195	196	193	194	194	195	194	193
	32.5	207	208	205	205	205	206	205	204
	35.0	218	219	215	216	216	217	216	215
	37.5	228	229	225	225	226	227	226	225
	40.0	238	239	235	235	235	236	235	234
	42.5	247	248	243	243	243	244	244	243
	45.0	255	256	251	251	251	252	252	251
	47.5	262	263	259	258	257	259	258	258
A n g l e s	50.0	269	270	265	264	263	264	265	264
	52.5	275	276	271	270	269	269	270	270
	55.0	281	282	276	275	273	274	275	275
	57.5	286	287	281	280	278	278	280	280
	60.0	290	291	285	284	282	282	283	284
	62.5	294	295	288	288	286	286	287	287
	65.0	298	298	292	291	289	289	290	291
	67.5	301	302	295	294	291	291	292	293
	70.0	303	304	298	296	294	293	295	295
	72.5	305	306	300	299	296	296	297	297
	75.0	308	308	302	300	298	298	299	299
	77.5	310	311	304	302	299	299	300	301
	80.0	312	312	307	304	301	300	301	302
	82.5	313	314	308	306	303	302	303	303
	85.0	315	315	309	306	304	303	303	304
	87.5	316	316	310	307	304	304	305	305
	90.0	317	317	311	308	305	304	305	305



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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	316	316	310	307	304	304	303	305
	95.0	315	315	309	306	304	303	303	304
	97.5	313	314	308	306	303	302	303	303
	100.0	312	312	307	304	301	300	301	302
	102.5	310	311	304	302	299	299	300	301
	105.0	308	308	302	300	298	298	299	299
	107.5	305	306	300	299	296	296	297	297
	110.0	303	304	298	296	294	293	295	295
	112.5	301	302	295	294	291	291	292	293
	115.0	298	298	292	291	289	289	290	291
	117.5	294	295	288	288	286	286	287	287
	120.0	290	291	285	284	282	282	284	284
	122.5	286	287	281	280	278	278	280	280
	125.0	281	282	276	275	273	274	275	275
	127.5	275	276	271	270	269	269	270	270
	130.0	269	270	265	264	263	264	265	264
	132.5	262	263	259	258	257	257	259	258
	135.0	255	256	251	251	250	251	252	251
A n g l e s	137.5	247	248	243	243	242	243	244	243
	140.0	238	239	235	235	234	235	236	234
	142.5	228	229	225	225	225	226	227	225
	145.0	218	219	215	216	215	216	217	215
	147.5	207	208	205	205	205	205	206	204
	150.0	195	196	193	194	193	194	195	193
	152.5	183	184	181	182	182	182	183	181
	155.0	169	170	168	169	169	170	169	168
	157.5	155	157	155	156	155	156	157	154
	160.0	141	142	140	141	141	142	142	139
	162.5	125	126	125	126	127	127	127	124
	165.0	109	110	110	111	111	112	112	108
	167.5	93	94	94	95	95	96	96	92
	170.0	77	78	78	79	80	80	80	76
	172.5	60	61	62	63	63	64	63	60
	175.0	45	45	46	47	48	48	48	45
	177.5	31	32	33	34	34	34	33	31
	180.0	27	27	27	27	27	27	27	27