



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: CY5448		Driver Details: CY2570	
DUT Lab ID	SRIS 3157-5	Seasoning	0 Hour	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	COL-175-5-P-H-30K	Manufacturer	Meanwell
Current Mode	AC	Manufacturer	Nichia	Catalog No.	PWM-90-24
Test Report	S2212062-R1	Lamp Catalog No.	N.K.	Maximum Power	90 W
Test Date	6 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	24.8 °C	Burning Position	Horizontal	Input Power	53.99 W

Luminaire Data

General Information		Optics		Aperture (feet)	
Manufacturer	ANDlight	Optics	None	X	-0.5833
Name	Column Series	Housing	(5) Facetted Horizontal Cylinders	Y	4.3750
Catalog No.	COL-175-5-P-H-30K	Lens	(5) Acrylic Diffusers	Z	-0.5833

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

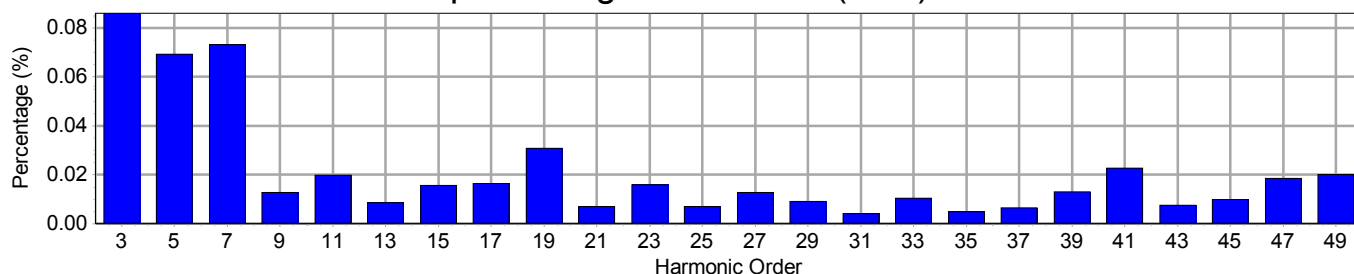


Electrical Measurements

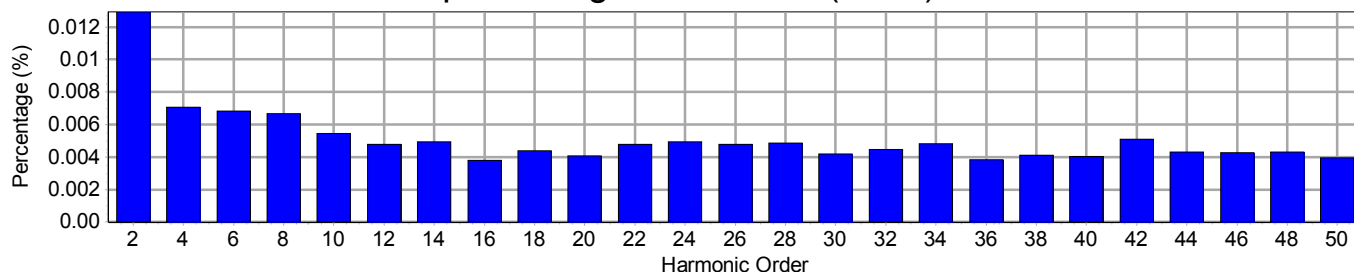
Input

Frequency	60 Hz	Active Power	53.99 W	THDV [ANSI]	0.15 %
Voltage	120.0 V(rms)	Apparent Power	54.43 VA	THDA [ANSI]	5.36 %
Current	0.4536 A(rms)	Power Factor	0.992	Max. Harmonic At	7th order

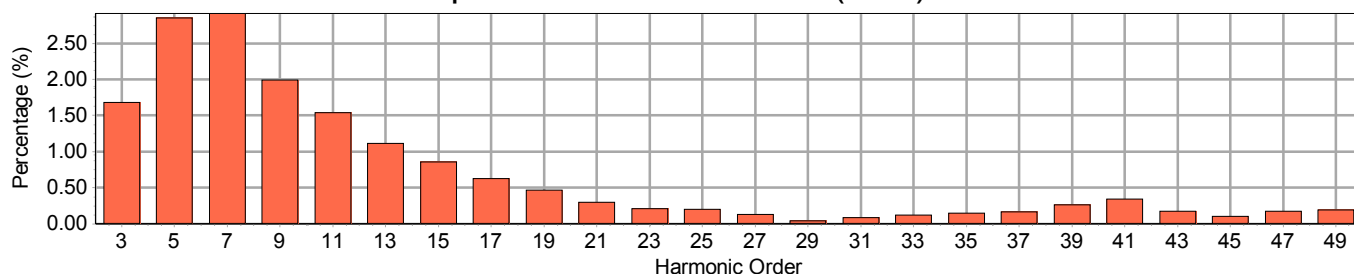
Input Voltage Harmonics (Odd)



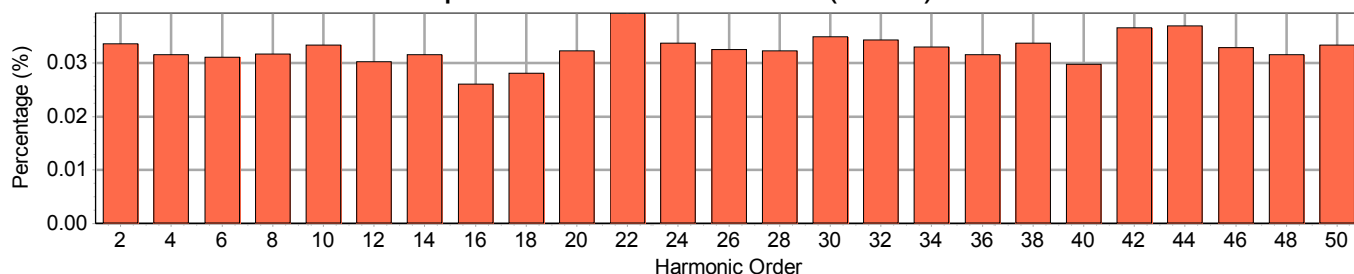
Input Voltage Harmonics (Even)



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	0.013	0.034
3	180	0.086	1.679	4	240	0.007	0.032
5	300	0.069	2.852	6	360	0.007	0.031
7	420	0.073	2.920	8	480	0.007	0.032
9	540	0.013	1.990	10	600	0.005	0.033
11	660	0.020	1.540	12	720	0.005	0.030
13	780	0.009	1.114	14	840	0.005	0.032
15	900	0.016	0.861	16	960	0.004	0.026
17	1020	0.016	0.623	18	1080	0.004	0.028
19	1140	0.031	0.463	20	1200	0.004	0.032
21	1260	0.007	0.294	22	1320	0.005	0.039
23	1380	0.016	0.210	24	1440	0.005	0.034
25	1500	0.007	0.200	26	1560	0.005	0.033
27	1620	0.013	0.129	28	1680	0.005	0.032
29	1740	0.009	0.036	30	1800	0.004	0.035
31	1860	0.004	0.086	32	1920	0.004	0.034
33	1980	0.010	0.117	34	2040	0.005	0.033
35	2100	0.005	0.145	36	2160	0.004	0.032
37	2220	0.007	0.164	38	2280	0.004	0.034
39	2340	0.013	0.264	40	2400	0.004	0.030
41	2460	0.023	0.346	42	2520	0.005	0.037
43	2580	0.007	0.173	44	2640	0.004	0.037
45	2700	0.010	0.099	46	2760	0.004	0.033
47	2820	0.019	0.171	48	2880	0.004	0.032
49	2940	0.020	0.191	50	3000	0.004	0.033



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Lab Code: 200899-0

Photometric Report: S2212062-R1

Prepared for: ANDlight · Test Date: 06 December 2022

Luminaire: Column Series · Lumcat: COL-175-5-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	79	86	81	77	73	68	64	61	44	42	40				35
2		92	82	73	66	85	75	68	62	77	69	63	57	58	52	48	37	34	32				27
3		84	71	61	54	76	65	57	50	70	60	52	46	50	44	39	32	28	25				21
4		76	62	52	44	69	57	48	41	63	52	44	38	44	37	32	28	24	21				17
5		69	55	45	37	63	50	41	35	58	46	38	32	39	32	27	25	21	18				14
6		64	49	39	32	58	45	36	30	53	41	33	28	35	28	23	22	18	15				12
7		59	44	34	28	54	40	32	26	49	37	29	24	31	25	20	20	16	13				11
8		54	39	30	24	50	36	28	22	45	34	26	21	28	22	18	18	15	12				9
9		50	36	27	21	46	33	25	20	42	31	23	18	26	20	16	17	13	11				8
10		47	33	24	19	43	30	23	18	39	28	21	16	24	18	14	16	12	9				7

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	26	0.91	0.91
10 - 20	77	2.69	2.69
20 - 30	124	4.31	4.31
30 - 40	163	5.68	5.68
40 - 50	192	6.67	6.67
50 - 60	209	7.29	7.29
60 - 70	216	7.53	7.53
70 - 80	215	7.48	7.48
80 - 90	210	7.30	7.30
90 - 120	641	22.32	22.32
90 - 130	851	29.63	29.63
90 - 150	1209	42.07	42.07
90 - 180	1440	50.13	50.13
0 - 180	2873	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	416	479	517
55.0	431	560	637
65.0	448	731	868
75.0	472	1147	1422
85.0	617	3345	4239

Luminaire Luminous Flux: 2873

Measured Input Power: 53.99 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 53.2 lm/W

Luminaire Spacing Criterion (0 Degree): 1.3629

Luminaire Spacing Criterion (90 Degree): 1.5181

Category: Up and Down

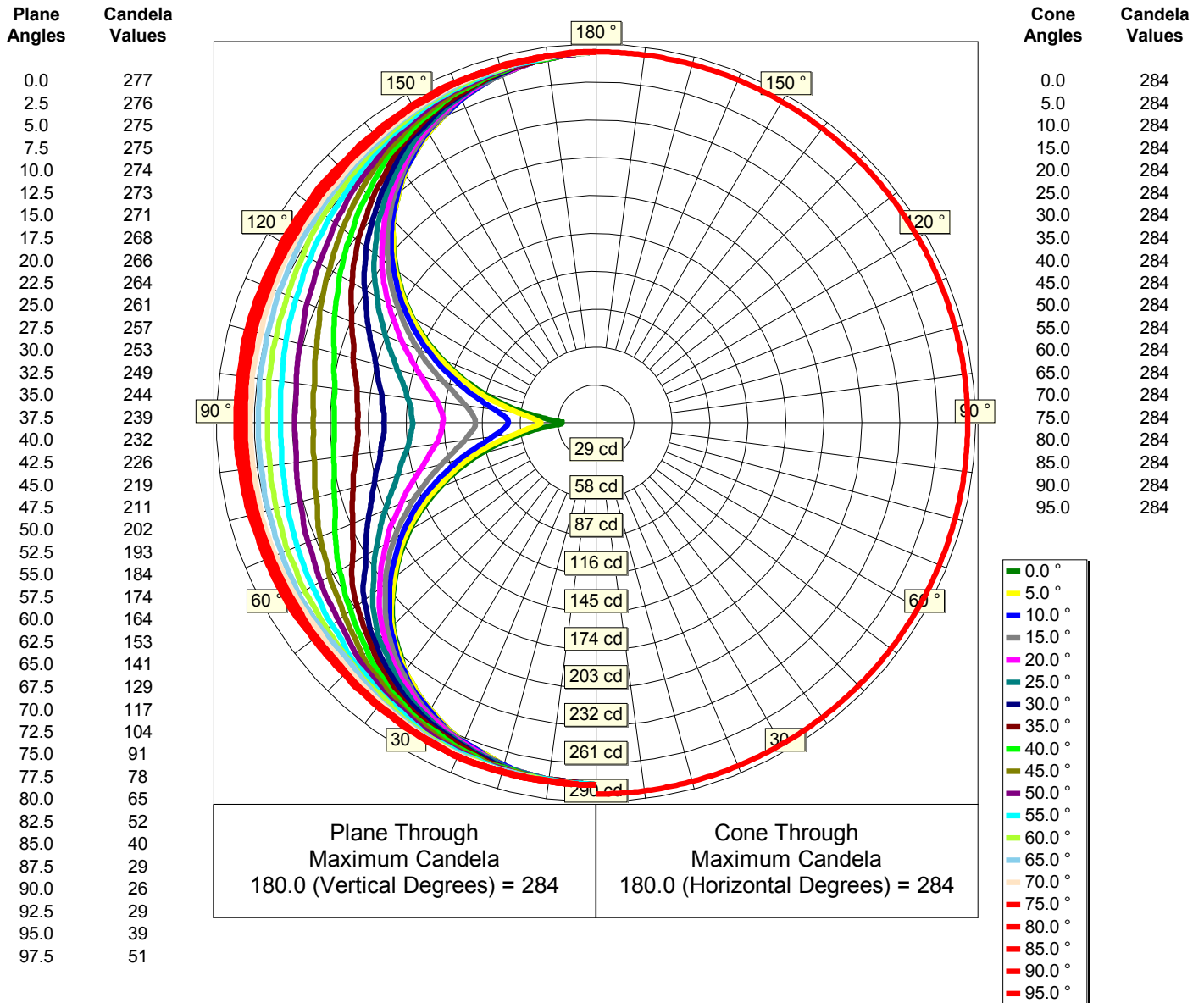


Photometric Report: S2212062-R1

Prepared for: ANDlight · Test Date: 06 December 2022

Luminaire: Column Series · Lumcat: COL-175-5-P-H-30K

Luminous Intensity - Polar Curve for each Plane(1)



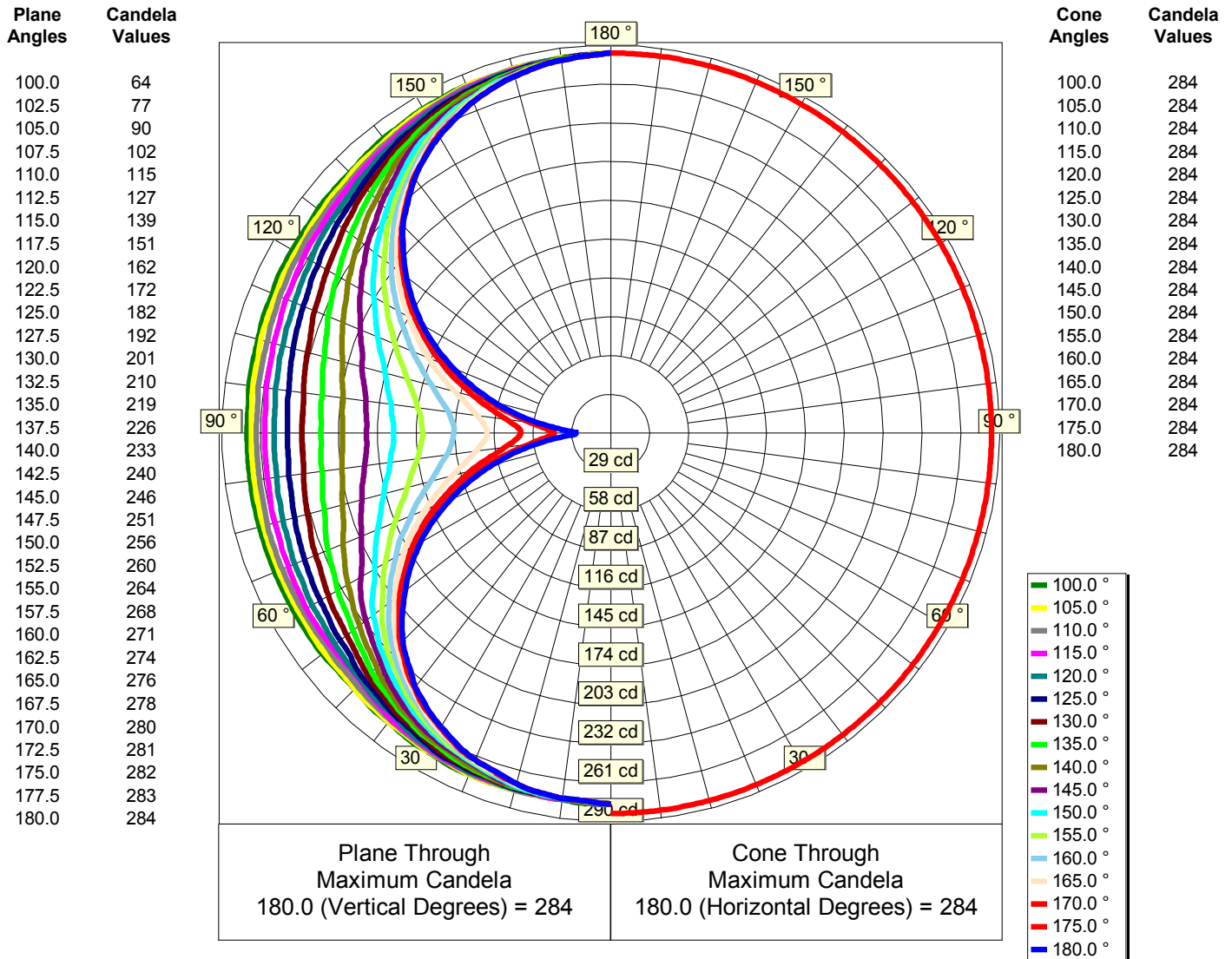


Photometric Report: S2212062-R1

Prepared for: ANDlight · Test Date: 06 December 2022

Luminaire: Column Series · Lumcat: COL-175-5-P-H-30K

Luminous Intensity - Polar Curve for each Plane(2)





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IES File Headers

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IESNA:LM-63
[ISSUEDATE]      06 December 2022
[TESTLAB]        Spectra Lux
[TEST]           S2212062-R1
[MANUFAC]        ANDlight
[LUMCAT]          COL-175-5-P-H-30K
[LUMINAIRE]      Column Series
[LAMP]           Clusters of Nichia LEDs c/w Meanwell Driver PWM-90-24 @ 120.00V
[_BURNING]        Horizontal (2,873 Luminaire Lumens)
[_OPTICS]         None
[_LENS]           (5) Acrylic Diffusers
[_HOUSING]        (5) Facetted Horizontal Cylinders
[_NOMINAL COLOR] 3000 K
[_DRIVE CURRENT] N.K.
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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	277	277	277	277	277	277	277	277	277
	2.5	276	276	276	276	276	276	276	276	276
	5.0	275	275	275	275	275	275	275	276	276
	7.5	275	275	275	275	275	275	275	275	275
	10.0	274	274	274	274	274	275	275	275	275
	12.5	273	273	273	273	273	274	274	274	274
	15.0	271	271	271	272	272	273	273	273	274
	17.5	268	268	269	269	270	271	272	273	273
	20.0	266	266	266	267	267	269	270	271	272
	22.5	264	264	264	265	265	267	268	270	271
	25.0	261	261	262	262	263	264	265	266	270
	27.5	257	257	258	259	260	262	263	265	268
	30.0	253	253	254	256	257	259	261	263	266
	32.5	249	249	250	252	254	256	258	261	265
	35.0	244	244	246	247	249	252	255	258	260
	37.5	239	239	240	242	245	248	251	255	260
	40.0	232	233	235	237	240	243	247	251	257
A n g l e s	42.5	226	227	228	231	235	238	243	247	255
	45.0	219	220	222	225	229	234	238	242	252
	47.5	211	212	214	218	223	228	234	238	248
	50.0	202	203	206	210	216	222	228	234	240
	52.5	193	194	198	203	208	215	223	230	236
	55.0	184	185	189	195	201	207	217	226	233
	57.5	174	176	180	187	193	201	209	221	229
	60.0	164	166	171	178	185	194	203	215	226
	62.5	153	155	161	169	178	187	198	209	223
	65.0	141	144	151	159	169	181	193	205	219
	67.5	129	132	140	150	161	174	188	201	216
	70.0	117	120	129	140	154	168	183	198	212
	72.5	104	109	118	131	146	162	179	195	209
	75.0	91	97	108	122	139	157	175	192	207
	77.5	78	85	97	114	133	153	172	190	205
	80.0	65	72	87	107	128	149	168	187	203
	82.5	52	61	79	101	123	145	166	185	202
	85.0	40	52	73	97	120	143	164	183	201
	87.5	29	45	69	93	118	141	162	182	200
	90.0	26	42	67	92	117	140	162	182	200



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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	29	45	68	93	117	141	162	182	200	216
	95.0	39	51	72	96	119	142	164	183	201	217
	97.5	51	60	78	100	122	145	165	184	201	217
	100.0	64	70	86	106	127	148	168	186	203	218
	102.5	77	82	95	112	132	152	171	189	205	220
	105.0	90	94	105	120	138	157	174	192	207	221
	107.5	102	105	115	129	145	162	178	194	210	223
	110.0	115	117	126	138	152	168	183	198	213	225
	112.5	127	129	136	147	160	174	188	202	216	228
	115.0	139	141	147	156	167	180	193	206	219	230
	117.5	151	152	157	165	175	187	198	211	222	233
	120.0	162	163	167	174	183	193	204	215	226	235
	122.5	172	173	177	183	191	200	210	220	229	238
	125.0	182	183	186	192	199	207	215	224	233	241
	127.5	192	193	195	200	206	213	221	229	236	244
A n g l e s	130.0	201	202	204	208	213	219	226	233	240	247
	132.5	210	210	212	216	220	226	231	237	244	250
	135.0	219	219	220	223	227	231	236	242	247	253
	137.5	226	226	227	230	233	237	241	246	251	256
	140.0	233	233	234	236	239	242	246	250	255	259
	142.5	240	240	241	242	244	247	251	255	259	262
	145.0	246	246	246	248	250	252	256	259	261	264
	147.5	251	251	252	253	255	257	260	262	264	267
	150.0	256	256	257	258	259	261	262	265	267	269
	152.5	260	260	261	261	263	264	266	268	269	271
	155.0	264	264	264	265	266	268	269	270	272	273
	157.5	268	268	268	269	269	270	271	272	274	275
	160.0	271	271	271	272	272	273	274	274	275	276
	162.5	274	274	274	274	275	275	276	276	277	278
	165.0	276	276	276	276	277	277	277	278	278	279
167.5	278	278	278	278	278	279	279	279	280	280	
170.0	280	280	280	280	280	280	280	280	281	281	
172.5	281	281	281	281	281	281	281	281	281	282	
175.0	282	282	282	282	282	282	282	282	282	282	
177.5	283	283	283	283	283	283	283	283	283	283	
180.0	284	284	284	284	284	284	284	284	284	284	



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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 A n g l e s	0.0	277	277	277	277	277	277	277	277	277
	2.5	276	276	277	277	277	277	277	277	277
	5.0	276	276	276	276	276	277	277	277	277
	7.5	275	275	276	276	276	276	277	277	277
	10.0	275	275	275	276	276	276	277	277	277
	12.5	275	275	275	275	276	276	277	277	277
	15.0	274	275	275	275	276	276	276	277	276
	17.5	274	274	275	275	275	276	276	277	276
	20.0	273	273	274	275	275	276	276	277	276
	22.5	272	273	274	274	275	276	276	277	276
	25.0	271	272	273	274	274	275	276	276	276
	27.5	270	272	272	273	274	275	275	276	275
	30.0	268	270	271	272	273	274	274	275	274
	32.5	266	268	270	271	272	273	274	275	274
	35.0	264	266	268	270	271	272	273	274	273
	37.5	263	265	266	269	270	272	273	274	273
	40.0	260	263	265	267	269	271	272	273	272
	42.5	258	261	264	265	268	271	272	273	272
	45.0	256	260	262	263	267	270	271	272	271
	47.5	253	258	261	262	266	269	270	271	272
	50.0	250	255	260	262	266	269	270	271	272
	52.5	248	254	259	262	265	269	271	271	272
	55.0	246	253	258	262	265	269	271	272	272
	57.5	245	251	257	262	265	268	271	272	273
	60.0	243	250	257	262	265	268	271	272	273
	62.5	241	249	256	261	265	268	271	272	273
	65.0	239	248	255	261	265	268	271	272	273
	67.5	238	247	255	260	265	268	271	272	273
	70.0	237	246	254	260	265	268	271	272	273
	72.5	235	245	253	259	265	268	271	272	273
	75.0	234	244	253	259	265	268	271	272	274
	77.5	233	243	252	259	264	268	271	272	274
	80.0	232	242	252	258	264	268	271	273	274
	82.5	231	242	251	258	264	268	271	273	274
	85.0	230	241	251	258	264	268	271	273	275
	87.5	230	241	251	258	264	268	271	273	275
	90.0	230	241	251	258	264	268	271	273	275
	92.5	230	241	251	258	264	268	271	273	275
	95.0	230	242	251	258	264	269	271	273	275
	97.5	231	242	252	259	265	269	272	274	275
	100.0	232	243	252	259	265	269	272	274	275
	102.5	233	244	253	259	265	269	272	274	276
	105.0	234	245	253	260	265	270	272	274	276
	107.5	235	246	254	260	266	270	273	275	276
	110.0	237	247	254	261	266	270	273	275	276
	112.5	239	248	255	262	267	270	273	275	276
	115.0	240	249	256	262	267	271	274	275	276
	117.5	242	251	257	263	268	271	274	275	276
	120.0	244	252	258	264	268	271	274	276	277
	122.5	246	254	260	265	269	271	274	276	277
	125.0	248	255	261	265	269	272	274	276	277
	127.5	251	257	262	266	269	272	275	276	277
	130.0	253	258	263	267	270	273	275	277	278
	132.5	256	260	264	268	270	273	275	277	278



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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	258	262	266	269	271	274	275	277	278	277
	137.5	260	264	267	270	272	275	276	277	278	277
	140.0	262	266	269	271	273	275	277	278	279	278
	142.5	265	268	270	272	274	276	278	278	279	278
	145.0	267	270	272	274	275	277	278	279	280	279
	147.5	269	271	273	275	276	278	279	279	280	279
	150.0	271	273	275	276	277	279	280	280	281	280
	152.5	273	275	276	277	278	279	280	280	281	280
	155.0	275	276	277	278	279	280	281	281	282	281
	157.5	276	277	278	279	280	281	281	281	282	281
	160.0	277	278	279	280	280	281	281	282	282	282
	162.5	278	279	280	280	281	281	281	282	282	282
	165.0	279	280	280	281	281	282	282	282	283	282
	167.5	280	281	281	281	282	282	282	282	283	282
	170.0	281	281	282	282	282	282	282	283	283	283
	172.5	282	282	282	282	282	283	283	283	283	283
	175.0	282	283	283	283	283	283	283	283	284	283
	177.5	283	283	283	283	283	284	284	284	284	284
	180.0	284	284	284	284	284	284	284	284	284	284
A n g l e s											



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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	277	277	277	277	277	277	277	277	277
	2.5	277	277	277	277	277	276	276	276	276
	5.0	277	276	276	276	276	276	276	276	275
	7.5	276	276	276	276	276	275	275	275	275
	10.0	276	276	276	276	275	275	275	275	275
	12.5	276	276	276	275	275	275	274	274	274
	15.0	276	276	276	275	275	275	274	274	273
	17.5	276	276	275	275	275	274	274	273	273
	20.0	276	276	275	275	274	273	273	272	271
	22.5	276	276	275	274	274	273	272	271	270
	25.0	276	275	274	274	273	272	271	270	268
	27.5	275	274	274	273	272	272	270	268	266
	30.0	274	274	273	272	271	270	268	266	265
	32.5	274	273	272	271	270	268	266	265	263
	35.0	273	272	271	270	268	266	264	262	260
	37.5	272	272	270	269	266	265	263	260	258
	40.0	272	271	269	267	265	263	260	257	254
	42.5	271	271	268	265	264	261	258	255	251
	45.0	270	270	267	263	262	260	256	252	247
A n g l e s	47.5	270	269	266	262	261	258	253	248	243
	50.0	270	269	266	262	260	255	250	245	240
	52.5	271	269	265	262	259	254	248	242	236
	55.0	271	269	265	262	258	253	246	239	233
	57.5	271	268	265	262	257	251	245	237	229
	60.0	271	268	265	262	257	250	243	235	226
	62.5	271	268	265	261	256	249	241	232	223
	65.0	271	268	265	261	255	248	239	230	219
	67.5	271	268	265	260	255	247	238	228	216
	70.0	271	268	265	260	254	246	237	226	212
	72.5	271	268	265	259	253	245	235	223	209
	75.0	271	268	265	259	253	244	234	221	207
	77.5	271	268	264	259	252	243	233	220	205
	80.0	271	268	264	258	252	242	232	218	203
	82.5	271	268	264	258	251	242	231	217	202
	85.0	271	268	264	258	251	241	230	217	201
	87.5	271	268	264	258	251	241	230	216	200
	90.0	271	268	264	258	251	241	230	216	200
	92.5	271	268	264	258	251	241	230	216	200
	95.0	271	269	264	258	251	242	230	217	201
	97.5	272	269	265	259	252	242	231	217	201
	100.0	272	269	265	259	252	243	232	218	203
	102.5	272	269	265	259	253	244	233	220	205
	105.0	272	270	265	260	253	245	234	221	207
	107.5	273	270	266	260	254	246	235	223	210
	110.0	273	270	266	261	254	247	237	225	213
	112.5	273	270	267	262	255	248	239	228	216
	115.0	274	271	267	262	256	249	240	230	219
	117.5	274	271	268	263	257	251	242	233	222
	120.0	274	271	268	264	258	252	244	235	226
	122.5	274	271	269	265	260	254	246	238	229
	125.0	274	272	269	265	261	255	248	241	233
	127.5	275	272	269	266	262	257	251	244	236
	130.0	275	273	270	267	263	258	253	247	240
	132.5	275	273	270	268	264	260	256	250	244



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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
135.0	275	274	271	269	266	262	258	253	247	242
137.5	276	275	272	270	267	264	260	256	251	246
140.0	277	275	273	271	269	266	262	259	255	250
142.5	278	276	274	272	270	268	265	262	259	255
145.0	278	277	275	274	272	270	267	264	261	259
147.5	279	278	276	275	273	271	269	267	264	262
150.0	280	279	277	276	275	273	271	269	267	265
152.5	280	279	278	277	276	275	273	271	269	268
155.0	281	280	279	278	277	276	275	273	272	270
157.5	281	281	280	279	278	277	276	275	274	272
160.0	281	281	280	280	279	278	277	276	275	274
162.5	281	281	281	280	280	279	278	278	277	276
165.0	282	282	281	281	280	280	279	279	278	278
167.5	282	282	282	281	281	281	280	280	280	279
170.0	282	282	282	282	282	281	281	281	281	280
172.5	283	283	282	282	282	282	282	282	281	281
175.0	283	283	283	283	283	283	282	282	282	282
177.5	284	284	283	283	283	283	283	283	283	283
180.0	284	284	284	284	284	284	284	284	284	284

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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	277	277	277	277	277	277
	2.5	276	276	276	276	276	276
	5.0	275	275	275	275	275	275
	7.5	275	275	275	275	275	275
	10.0	275	274	274	274	274	274
	12.5	274	273	273	273	273	273
	15.0	273	272	272	271	271	271
	17.5	271	270	270	269	268	268
	20.0	269	268	267	266	266	266
	22.5	267	266	265	264	264	264
	25.0	265	264	263	262	261	261
	27.5	263	262	260	259	257	257
	30.0	261	259	257	256	253	253
	32.5	258	256	254	252	249	249
	35.0	255	252	249	247	244	244
	37.5	251	248	245	242	239	239
	40.0	247	243	240	237	233	232
	42.5	243	238	235	231	227	226
	45.0	238	234	229	225	220	219
	47.5	234	228	223	218	212	211
A n g l e s	50.0	228	222	216	210	203	202
	52.5	223	215	208	203	194	193
	55.0	217	207	201	195	185	184
	57.5	209	201	193	187	176	174
	60.0	203	194	185	178	166	164
	62.5	198	187	178	169	155	153
	65.0	193	181	169	159	144	141
	67.5	188	174	161	150	132	129
	70.0	183	168	154	140	120	117
	72.5	179	162	146	131	109	104
	75.0	175	157	139	122	97	91
	77.5	172	153	133	114	85	78
	80.0	168	149	128	107	72	65
	82.5	166	145	123	101	61	52
	85.0	164	143	120	97	52	40
	87.5	162	141	118	93	45	29
	90.0	162	140	117	92	42	26
	92.5	162	141	117	93	45	29
	95.0	164	142	119	96	51	39
	97.5	165	145	122	100	60	51
	100.0	168	148	127	106	70	64
	102.5	171	152	132	112	82	77
	105.0	174	157	138	120	94	90
	107.5	178	162	145	129	105	102
	110.0	183	168	152	138	117	115
	112.5	188	174	160	147	129	127
	115.0	193	180	167	156	141	139
	117.5	198	187	175	165	152	151
	120.0	204	193	183	174	163	162
	122.5	210	200	191	183	173	172
	125.0	215	207	199	192	183	182
	127.5	221	213	206	200	193	192
	130.0	226	219	213	208	202	201
	132.5	231	226	220	216	210	210



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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	135.0	236	231	227	223	220	219
	137.5	241	237	233	230	227	226
	140.0	246	242	239	236	234	233
	142.5	251	247	244	242	241	240
	145.0	256	252	250	248	246	246
	147.5	260	257	255	253	252	251
	150.0	262	261	259	258	257	256
	152.5	266	264	263	261	261	260
	155.0	269	268	266	265	264	264
	157.5	271	270	269	269	268	268
	160.0	274	273	272	272	271	271
	162.5	276	275	275	274	274	274
	165.0	277	277	277	276	276	276
	167.5	279	279	278	278	278	278
	170.0	280	280	280	280	280	280
	172.5	281	281	281	281	281	281
	175.0	282	282	282	282	282	282
	177.5	283	283	283	283	283	283
	180.0	284	284	284	284	284	284
A n g l e s							