



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: CY4450		Driver Details: CY2019	
DUT Lab ID	SRIS 2832-5	Seasoning	0 Hour	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	BUT-60-CW-27	Manufacturer	Meanwell
Current Mode	AC	Manufacturer	EPISTAR	Catalog No.	IDLV-45-12
Test Report	S2008144-R1	Lamp Catalog No.	OMNICHIP (320404-xx-300-12-4.4)	Maximum Power	45 W
Test Date	14 August 2020	Drive Current	30 mA	Input Voltage	120.00 V
Report Date	20 Novembre 2020	Nominal Color	2700 K	Operating Frequency	60 Hz
Ambient	24.9 °C	Burning Position	Junction Axial	Input Power	21.75 W

Luminaire Data

General Information		Optics		Aperture (feet)	
Manufacturer	ANDlight	Reflector	None	X	0.0000
Name	BUTTON	Housing	Aluminum Body c/w Nylon Rope	Y	-1.9583
Catalog No.	BUT-60-CW-27	Lens	Opalin Acrylic Diffuser	Z	-1.9583

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	iRDC	CIF-3000A	974998	N.P.C.R.	N.P.C.R.
Input Power Meter	Yokogawa	WT210	27E116584	2020/07/22	2021/09/22
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	110802	2019/09/05	2020/09/05

Environment Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Temperature Humidity Sensor	Omega	HH311	120504176	2020/07/16	2021/07/16

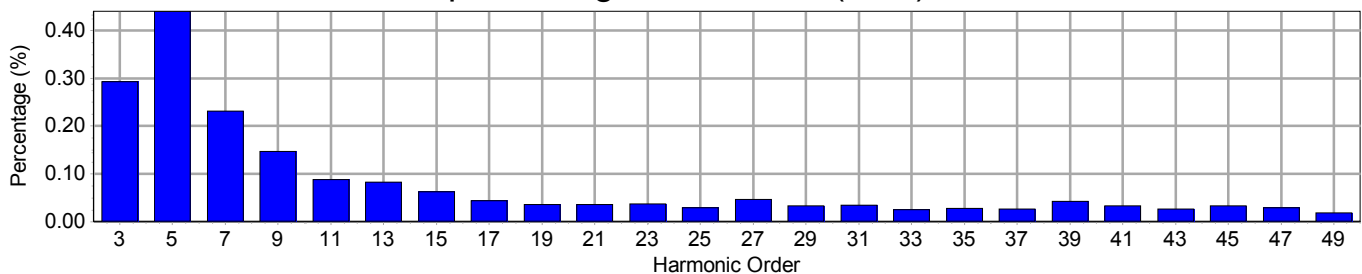


Electrical Measurements

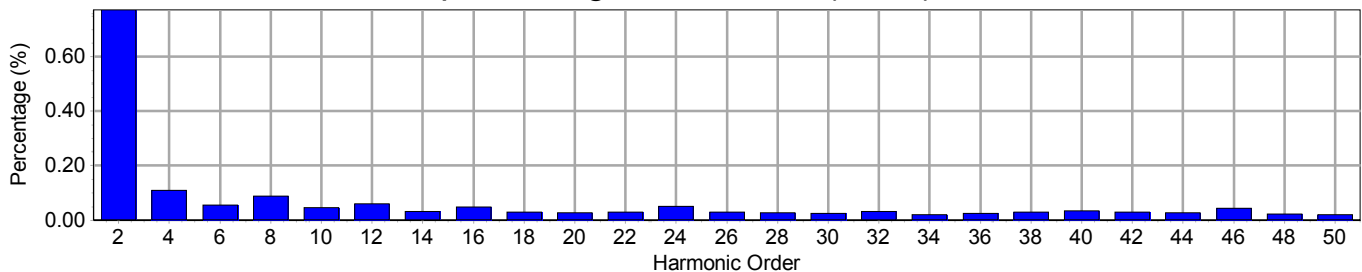
Input

Frequency	60 Hz	Active Power	21.75 W	THDV [ANSI]	1.02 %
Voltage	120.2 V(rms)	Apparent Power	22.49 VA	THDA [ANSI]	6.93 %
Current	0.1872 A(rms)	Power Factor	0.967	Max. Harmonic At	7th order

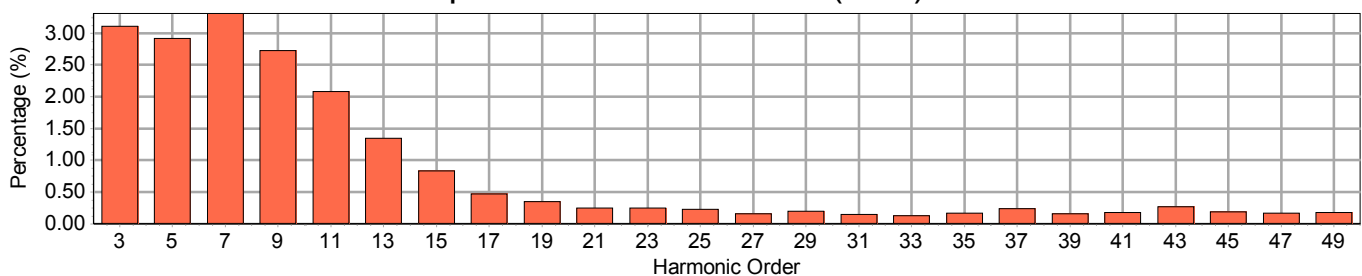
Input Voltage Harmonics (Odd)



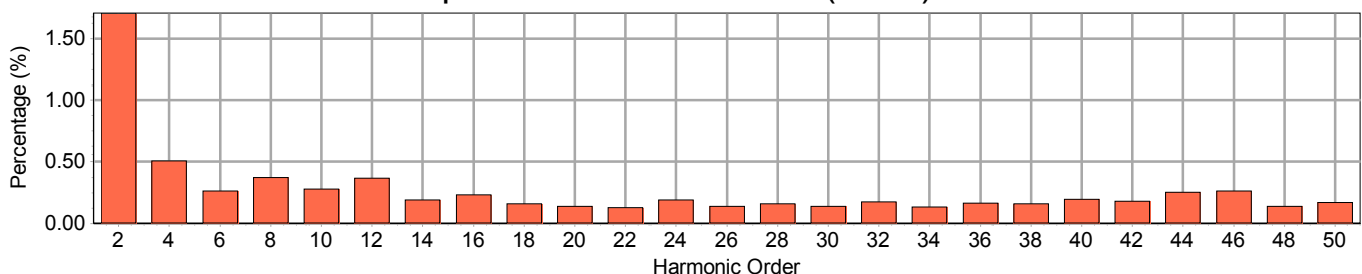
Input Voltage Harmonics (Even)



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	0.773	1.708
3	180	0.293	3.104	4	240	0.109	0.505
5	300	0.441	2.911	6	360	0.054	0.262
7	420	0.232	3.313	8	480	0.089	0.373
9	540	0.147	2.726	10	600	0.046	0.278
11	660	0.088	2.079	12	720	0.060	0.364
13	780	0.083	1.342	14	840	0.032	0.190
15	900	0.063	0.830	16	960	0.047	0.232
17	1020	0.044	0.468	18	1080	0.030	0.161
19	1140	0.035	0.350	20	1200	0.028	0.136
21	1260	0.035	0.246	22	1320	0.029	0.127
23	1380	0.037	0.247	24	1440	0.051	0.191
25	1500	0.029	0.231	26	1560	0.029	0.139
27	1620	0.046	0.152	28	1680	0.027	0.156
29	1740	0.033	0.194	30	1800	0.025	0.135
31	1860	0.034	0.141	32	1920	0.033	0.173
33	1980	0.025	0.126	34	2040	0.021	0.130
35	2100	0.028	0.170	36	2160	0.025	0.164
37	2220	0.027	0.233	38	2280	0.029	0.157
39	2340	0.042	0.152	40	2400	0.034	0.193
41	2460	0.033	0.178	42	2520	0.028	0.178
43	2580	0.026	0.269	44	2640	0.028	0.252
45	2700	0.033	0.184	46	2760	0.045	0.264
47	2820	0.029	0.168	48	2880	0.023	0.138
49	2940	0.018	0.176	50	3000	0.020	0.168



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Photometric Report: S2008144-R1

Prepared for: ANDlight · Test Date: 14 August 2020

Luminaire: BUTTON · Lumcat: BUT-60-CW-27

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	93	86	80	92	85	79	74	84	78	73	68	64	60	56	41	38	36	30
2		89	78	68	60	82	71	63	56	74	65	57	51	53	47	42	32	29	26	21
3		80	66	56	47	73	61	51	44	66	55	47	40	45	38	33	27	23	20	15
4		73	57	47	38	66	53	43	35	60	48	39	32	39	32	27	23	19	15	11
5		66	50	39	32	60	46	36	29	54	42	33	27	34	27	22	20	16	12	9
6		60	44	34	26	55	41	31	24	50	37	29	22	30	23	18	18	14	10	7
7		55	40	30	23	50	36	27	21	46	33	25	19	27	20	15	16	12	9	6
8		51	36	26	19	47	33	24	18	42	30	22	16	24	18	13	14	10	7	5
9		47	32	23	17	43	29	21	15	39	27	19	14	22	16	11	13	9	6	4
10		44	29	20	15	40	27	19	14	36	25	17	12	20	14	10	12	8	5	3

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	1	0.08	0.08
10 - 20	8	0.62	0.62
20 - 30	23	1.82	1.82
30 - 40	44	3.53	3.53
40 - 50	69	5.54	5.54
50 - 60	94	7.50	7.50
60 - 70	116	9.26	9.26
70 - 80	132	10.54	10.54
80 - 90	139	11.11	11.11
90 - 120	387	30.91	30.91
90 - 130	481	38.41	38.41
90 - 150	594	47.48	47.48
90 - 180	626	50.00	50.00
0 - 180	1251	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	685	464	44
55.0	1146	810	54
65.0	1489	1108	73
75.0	2589	1781	147
85.0	9121	6522	394

Luminaire Luminous Flux: 1251

Measured Input Power: 21.75 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 57.5 lm/W

Luminaire Spacing Criterion (0 Degree): 10.4319

Luminaire Spacing Criterion (90 Degree): 3.0053

Category: Up and Down

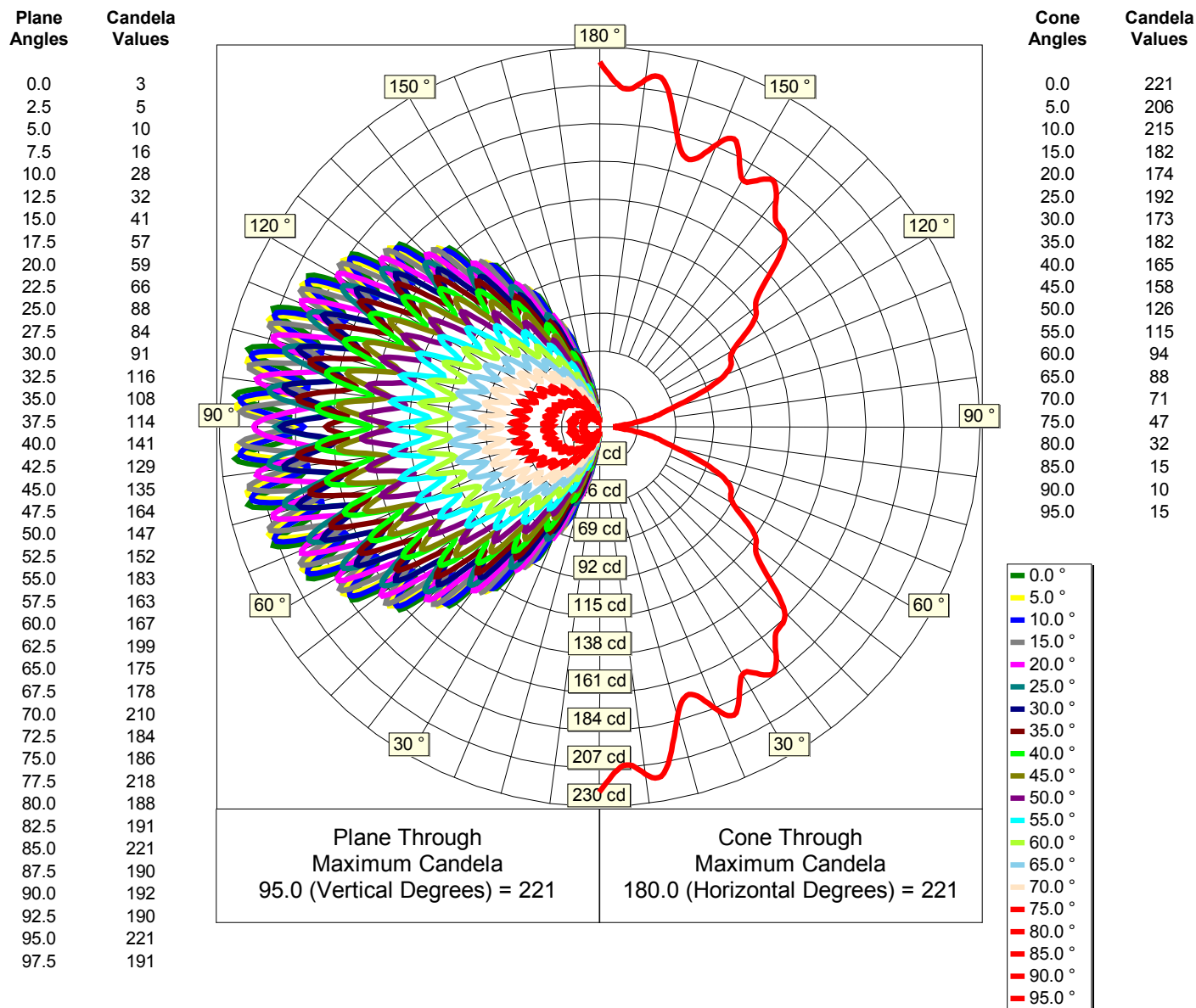


Photometric Report: S2008144-R1

Prepared for: ANDlight · Test Date: 14 August 2020

Luminaire: BUTTON · Lumcat: BUT-60-CW-27

Luminous Intensity - Polar Curve for each Plane(1)



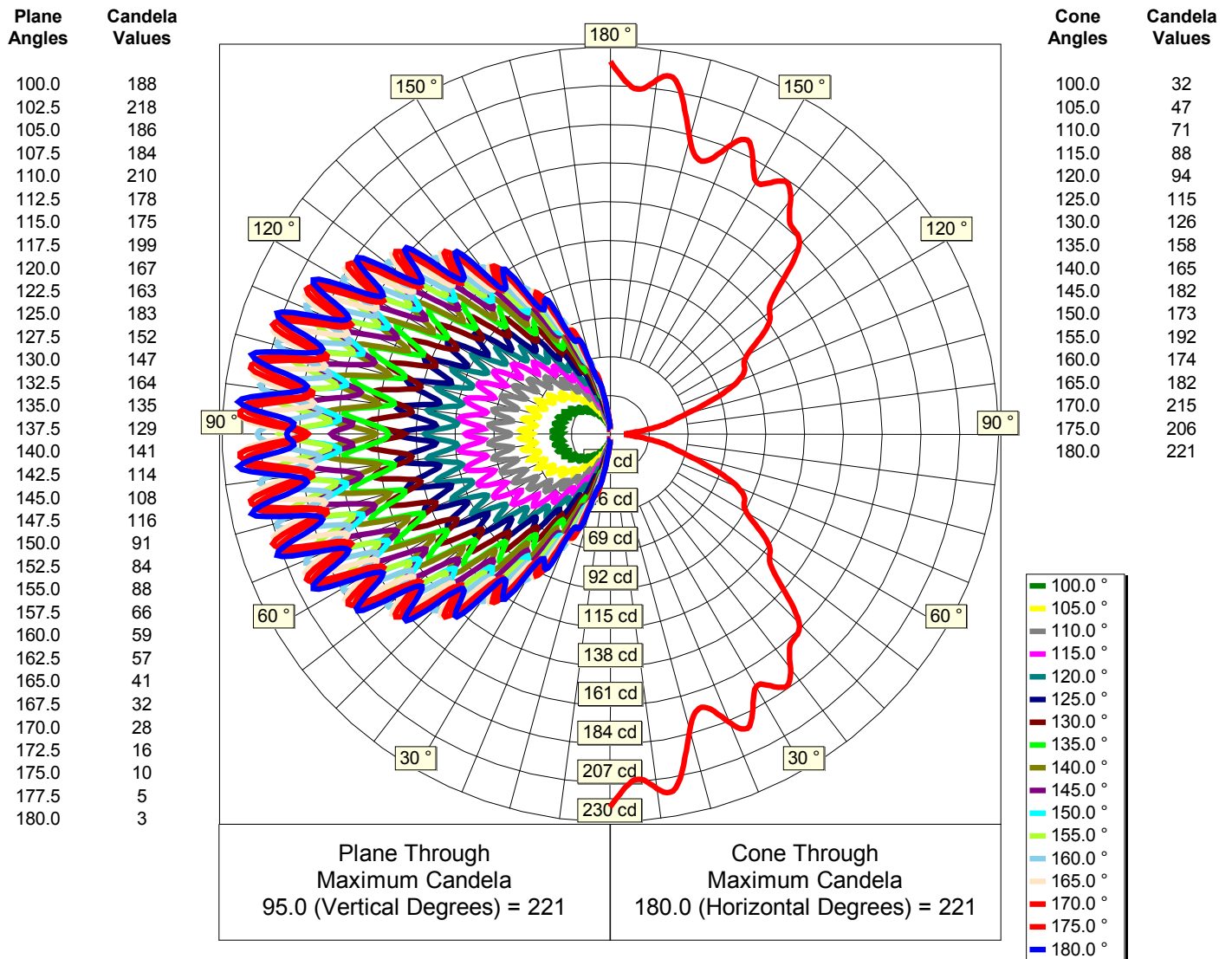


Photometric Report: S2008144-R1

Prepared for: ANDlight · Test Date: 14 August 2020

Luminaire: BUTTON · Lumcat: BUT-60-CW-27

Luminous Intensity - Polar Curve for each Plane(2)





IES File Headers

IESNA:LM-63
 [ISSUEDATE] 14 August 2020
 [TESTLAB] Spectra Lux
 [TEST] S2008144-R1
 [MANUFAC] ANDlight
 [LUMCAT] BUT-60-CW-27
 [LUMINAIRE] BUTTON
 [LAMP] EPISTAR OMNICHIP (320404-xx-300-12-4.4)LEDs c/w Meanwell Driver IDLV-45-12 @ 120.00V
 [_BURNING] Axial (1,251 Luminaire Lumens)
 [_REFLECTOR] None
 [_LENS] Opalin Acrylic Diffuser
 [_HOUSING] Aluminum Body c/w Nylon Rope
 [_NOMINAL COLOR] 2700 K
 [_DRIVE CURRENT] 30 mA

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	3	3	3	3	3	3	3	3	3
	2.5	5	5	5	4	4	5	5	5	5
	5.0	10	11	11	11	10	9	8	8	8
	7.5	16	16	16	16	18	16	14	11	11
	10.0	28	25	27	22	22	23	22	19	19
	12.5	32	36	35	36	31	27	27	25	22
	15.0	41	39	39	41	44	40	40	33	28
	17.5	57	52	55	46	45	49	44	45	40
	20.0	59	66	63	66	57	50	48	45	47
	22.5	66	64	63	67	73	66	66	55	46
	25.0	88	80	84	71	68	75	68	70	62
	27.5	84	95	91	95	82	72	70	66	69
	30.0	91	88	87	92	100	92	91	77	65
	32.5	116	106	112	94	91	100	90	94	83
	35.0	108	121	116	122	106	93	90	85	90
	37.5	114	109	108	115	125	116	114	97	82
	40.0	141	130	136	115	111	122	111	115	103
	42.5	129	146	138	146	127	111	109	102	109
	45.0	135	128	127	135	148	137	135	115	97
A n g l e s	47.5	164	151	158	133	129	142	128	134	120
	50.0	147	166	158	167	145	128	125	117	125
	52.5	152	145	143	152	167	155	153	131	110
	55.0	183	169	177	149	143	159	143	150	135
	57.5	163	184	175	185	161	141	138	130	139
	60.0	167	159	156	167	183	170	168	143	121
	62.5	199	184	192	162	156	172	156	164	147
	65.0	175	198	187	199	174	152	149	140	150
	67.5	178	169	167	177	195	182	179	153	129
	70.0	210	195	204	172	165	182	165	173	156
	72.5	184	208	197	209	183	160	157	147	158
	75.0	186	177	174	185	204	190	187	160	135
	77.5	218	202	211	178	171	189	171	179	162
	80.0	188	214	202	215	189	165	162	152	162
	82.5	191	181	178	189	208	195	192	164	138
	85.0	221	206	215	182	174	192	173	182	165
	87.5	190	216	204	217	191	166	163	153	164
	90.0	192	181	179	189	209	196	193	165	139



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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	190	216	204	217	191	166	163	153	164	142
	95.0	221	206	215	182	174	192	173	182	165	158
	97.5	191	181	178	189	208	195	192	164	138	131
	100.0	188	214	202	215	189	165	162	152	162	141
	102.5	218	202	211	178	171	189	171	179	162	155
	105.0	186	177	174	185	204	190	187	160	135	128
	107.5	184	208	197	209	183	160	157	147	158	137
	110.0	210	195	204	172	165	182	165	173	156	150
	112.5	178	169	167	177	195	182	179	153	129	122
	115.0	175	198	187	199	174	152	149	140	150	130
	117.5	199	184	192	162	156	172	156	164	147	141
	120.0	167	159	156	167	183	170	168	143	121	114
	122.5	163	184	175	185	161	141	138	130	139	121
	125.0	183	169	177	149	143	159	143	150	135	129
	127.5	152	145	143	152	167	155	153	131	110	104
A n g l e s	130.0	147	166	158	167	145	128	125	117	125	109
	132.5	164	151	158	133	129	142	128	134	120	115
	135.0	135	128	127	135	148	137	135	115	97	91
	137.5	129	146	138	146	127	111	109	102	109	94
	140.0	141	130	136	115	111	122	111	115	103	98
	142.5	114	109	108	115	125	116	114	97	82	77
	145.0	108	121	116	122	106	93	90	85	90	78
	147.5	116	106	112	94	91	100	90	94	83	79
	150.0	91	88	87	92	100	92	91	77	65	61
	152.5	84	95	91	95	82	72	70	66	69	60
	155.0	88	80	84	71	68	75	68	70	62	59
	157.5	66	64	63	67	73	66	66	55	46	43
	160.0	59	66	63	66	57	50	48	45	47	41
	162.5	57	52	55	46	45	49	44	45	40	38
	165.0	41	39	39	41	44	40	40	33	28	26
	167.5	32	36	35	36	31	27	27	25	26	22
	170.0	28	25	27	22	22	23	22	22	19	19
	172.5	16	16	16	16	18	16	16	14	11	11
	175.0	10	11	11	11	10	9	9	8	8	8
	177.5	5	5	5	4	4	5	5	5	5	5
	180.0	3	3	3	3	3	3	3	3	3	3



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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	3	3	3	3	3	3	3	3	3
	2.5	4	4	4	4	4	3	3	3	3
	5.0	8	6	5	5	4	4	3	3	3
	7.5	10	10	9	7	5	4	4	4	4
	10.0	14	13	11	10	8	6	5	4	4
	12.5	22	15	14	11	10	8	6	5	5
	15.0	24	23	20	15	10	8	6	5	5
	17.5	29	26	21	19	15	10	8	5	4
	20.0	40	28	25	20	17	13	9	6	4
	22.5	40	39	34	25	17	13	9	7	6
	25.0	45	41	33	30	23	15	11	7	5
	27.5	59	42	37	29	26	19	13	8	5
	30.0	56	56	48	36	25	19	12	8	7
	32.5	62	56	45	41	32	21	14	8	6
	35.0	77	55	50	39	34	26	17	9	6
	37.5	71	72	62	47	32	24	15	10	8
	40.0	76	70	57	52	41	26	18	10	7
	42.5	94	67	61	48	42	32	21	11	7
	45.0	85	86	74	57	39	30	18	12	9
	47.5	90	83	67	62	49	32	22	11	8
	50.0	109	78	71	56	50	38	24	13	8
	52.5	96	98	85	66	45	35	21	13	10
	55.0	102	94	76	71	56	36	25	13	9
	57.5	121	88	80	62	56	43	28	15	8
	60.0	106	109	95	73	50	39	24	15	10
	62.5	111	102	83	77	62	41	28	14	9
	65.0	131	95	86	68	61	48	30	16	9
	67.5	114	117	102	79	54	42	26	16	11
	70.0	119	109	89	82	67	44	30	15	10
	72.5	138	100	91	72	65	50	32	17	9
	75.0	119	123	107	83	57	44	28	17	11
	77.5	123	113	92	86	70	46	31	15	10
	80.0	142	104	95	74	66	53	33	18	9
	82.5	121	126	109	86	59	45	28	17	11
	85.0	126	115	94	88	71	47	32	15	10
	87.5	144	105	96	75	67	53	34	18	9
	90.0	122	126	110	86	59	45	28	17	10
	92.5	144	105	96	75	67	53	34	18	9
	95.0	126	115	94	88	71	47	32	15	10
	97.5	121	126	109	86	59	45	28	17	11
	100.0	142	104	95	74	66	53	33	18	9
	102.5	123	113	92	86	70	46	31	15	10
	105.0	119	123	107	83	57	44	28	17	11
	107.5	138	100	91	72	65	50	32	17	9
	110.0	119	109	89	82	67	44	30	15	10
	112.5	114	117	102	79	54	42	26	16	11
	115.0	131	95	86	68	61	48	30	16	9
	117.5	111	102	83	77	62	41	28	14	9
	120.0	106	109	95	73	50	39	24	15	10
	122.5	121	88	80	62	56	43	28	15	8
	125.0	102	94	76	71	56	36	25	13	9
	127.5	96	98	85	66	45	35	21	13	10
	130.0	109	78	71	56	50	38	24	13	8
	132.5	90	83	67	62	49	32	22	11	8



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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	85	86	74	57	39	30	18	12	9	12
	137.5	94	67	61	48	42	32	21	11	7	11
	140.0	76	70	57	52	41	26	18	10	7	10
	142.5	71	72	62	47	32	24	15	10	8	10
	145.0	77	55	50	39	34	26	17	9	6	9
	147.5	62	56	45	41	32	21	14	8	6	8
	150.0	56	56	48	36	25	19	12	8	7	8
	152.5	59	42	37	29	26	19	13	8	5	8
	155.0	45	41	33	30	23	15	11	7	5	7
	157.5	40	39	34	25	17	13	9	7	6	7
	160.0	40	28	25	20	17	13	9	6	4	6
	162.5	29	26	21	19	15	10	8	5	4	5
	165.0	24	23	20	15	10	8	6	5	5	5
	167.5	22	15	14	11	10	8	6	5	4	5
	170.0	14	13	11	10	8	6	5	4	3	4
	172.5	10	10	9	7	5	5	4	4	4	4
	175.0	8	6	5	5	5	4	4	3	3	3
	177.5	4	4	4	4	4	4	3	3	3	3
	180.0	3	3	3	3	3	3	3	3	3	3
A n g l e s											



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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
V e r t i c a l	0.0	3	3	3	3	3	3	3	3	3
	2.5	3	4	4	4	4	4	5	5	5
	5.0	4	4	5	5	5	6	8	8	8
	7.5	4	5	5	7	9	10	11	11	14
	10.0	5	6	8	10	11	13	14	19	22
	12.5	6	8	10	11	14	15	22	22	25
	15.0	6	8	10	15	20	23	24	26	33
	17.5	8	10	15	19	21	26	29	38	45
	20.0	9	13	17	20	25	28	40	41	45
	22.5	9	13	17	25	34	39	40	43	55
	25.0	11	15	23	30	33	41	45	59	62
	27.5	13	19	26	29	37	42	59	60	66
	30.0	12	19	25	36	48	56	61	65	77
	32.5	14	21	32	41	45	56	62	79	83
	35.0	17	26	34	39	50	55	77	78	90
	37.5	15	24	32	47	62	72	71	77	82
	40.0	18	26	41	52	57	70	76	98	103
	42.5	21	32	42	48	61	67	94	94	109
	45.0	18	30	39	57	74	86	85	91	97
	47.5	22	32	49	62	67	83	90	115	120
A n g l e s	50.0	24	38	50	56	71	78	109	109	125
	52.5	21	35	45	66	85	98	96	104	110
	55.0	25	36	56	71	76	94	102	129	135
	57.5	28	43	56	62	80	88	121	121	139
	60.0	24	39	50	73	95	109	106	114	121
	62.5	28	41	62	77	83	102	111	141	147
	65.0	30	48	61	68	86	95	131	130	150
	67.5	26	42	54	79	102	117	114	122	129
	70.0	30	44	67	82	89	109	119	150	156
	72.5	32	50	65	72	91	100	138	137	158
	75.0	28	44	57	83	107	123	119	128	135
	77.5	31	46	70	86	92	113	123	155	162
	80.0	33	53	66	74	95	104	142	141	162
	82.5	28	45	59	86	109	126	121	131	138
	85.0	32	47	71	88	94	115	126	158	165
	87.5	34	53	67	75	96	105	144	142	164
	90.0	28	45	59	86	110	126	122	132	139
	92.5	34	53	67	75	96	105	144	142	164
	95.0	32	47	71	88	94	115	126	158	165
	97.5	28	45	59	86	109	126	121	131	138
	100.0	33	53	66	74	95	104	142	141	162
	102.5	31	46	70	86	92	113	123	155	162
	105.0	28	44	57	83	107	123	119	128	135
	107.5	32	50	65	72	91	100	138	137	158
	110.0	30	44	67	82	89	109	119	150	156
	112.5	26	42	54	79	102	117	114	122	129
	115.0	30	48	61	68	86	95	131	130	150
	117.5	28	41	62	77	83	102	111	141	147
	120.0	24	39	50	73	95	109	106	114	121
	122.5	28	43	56	62	80	88	121	121	139
	125.0	25	36	56	71	76	94	102	129	135
	127.5	21	35	45	66	85	98	96	104	110
	130.0	24	38	50	56	71	78	109	109	125
	132.5	22	32	49	62	67	83	90	115	120



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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	18	30	39	57	74	86	85	91	97	115
137.5	21	32	42	48	61	67	94	94	109	102
140.0	18	26	41	52	57	70	76	98	103	115
142.5	15	24	32	47	62	72	71	77	82	97
145.0	17	26	34	39	50	55	77	78	90	85
147.5	14	21	32	41	45	56	62	79	83	94
150.0	12	19	25	36	48	56	56	61	65	77
152.5	13	19	26	29	37	42	59	60	69	66
155.0	11	15	23	30	33	41	45	59	62	70
157.5	9	13	17	25	34	39	40	43	46	55
160.0	9	13	17	20	25	28	40	41	47	45
162.5	8	10	15	19	21	26	29	38	40	45
165.0	6	8	10	15	20	23	24	26	28	33
167.5	6	8	10	11	14	15	22	22	26	25
170.0	5	6	8	10	11	13	14	19	19	22
172.5	4	5	5	7	9	10	10	11	11	14
175.0	4	4	5	5	5	6	8	8	8	8
177.5	3	4	4	4	4	4	4	5	5	5
180.0	3	3	3	3	3	3	3	3	3	3

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Lab Code: 200899-0

Lateral Angles

	150.0	155.0	160.0	165.0	170.0	175.0	180.0
V e r t i c a l A n g l e s	0.0	3	3	3	3	3	3
	2.5	5	5	4	4	5	5
	5.0	9	9	10	11	11	10
	7.5	16	16	18	16	16	16
	10.0	22	23	22	22	27	28
	12.5	27	27	31	36	35	32
	15.0	40	40	44	41	39	41
	17.5	44	49	45	46	55	57
	20.0	48	50	57	66	63	59
	22.5	66	66	73	67	63	66
	25.0	68	75	68	71	84	88
	27.5	70	72	82	95	91	84
	30.0	91	92	100	92	87	91
	32.5	90	100	91	94	112	106
	35.0	90	93	106	122	116	121
	37.5	114	116	125	115	108	109
	40.0	111	122	111	115	136	130
	42.5	109	111	127	146	138	146
	45.0	135	137	148	135	127	128
	47.5	128	142	129	133	158	151
	50.0	125	128	145	167	158	166
	52.5	153	155	167	152	143	145
	55.0	143	159	143	149	177	169
	57.5	138	141	161	185	175	184
	60.0	168	170	183	167	156	159
	62.5	156	172	156	162	192	184
	65.0	149	152	174	199	187	198
	67.5	179	182	195	177	167	169
	70.0	165	182	165	172	204	195
	72.5	157	160	183	209	197	208
	75.0	187	190	204	185	174	177
	77.5	171	189	171	178	211	202
	80.0	162	165	189	215	202	214
	82.5	192	195	208	189	178	181
	85.0	173	192	174	182	215	206
	87.5	163	166	191	217	204	216
	90.0	193	196	209	189	179	181
	92.5	163	166	191	217	204	216
	95.0	173	192	174	182	215	206
	97.5	192	195	208	189	178	181
	100.0	162	165	189	215	202	214
	102.5	171	189	171	178	211	202
	105.0	187	190	204	185	174	177
	107.5	157	160	183	209	197	208
	110.0	165	182	165	172	204	195
	112.5	179	182	195	177	167	169
	115.0	149	152	174	199	187	198
	117.5	156	172	156	162	192	184
	120.0	168	170	183	167	156	159
	122.5	138	141	161	185	175	184
	125.0	143	159	143	149	177	169
	127.5	153	155	167	152	143	145
	130.0	125	128	145	167	158	166
	132.5	128	142	129	133	158	151



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Lateral Angles

	150.0	155.0	160.0	165.0	170.0	175.0	180.0
135.0	135	137	148	135	127	128	135
137.5	109	111	127	146	138	146	129
140.0	111	122	111	115	136	130	141
142.5	114	116	125	115	108	109	114
145.0	90	93	106	122	116	121	108
147.5	90	100	91	94	112	106	116
150.0	91	92	100	92	87	88	91
152.5	70	72	82	95	91	95	84
155.0	68	75	68	71	84	80	88
157.5	66	66	73	67	63	64	66
160.0	48	50	57	66	63	66	59
162.5	44	49	45	46	55	52	57
165.0	40	40	44	41	39	39	41
167.5	27	27	31	36	35	36	32
170.0	22	23	22	22	27	25	28
172.5	16	16	18	16	16	16	16
175.0	9	9	10	11	11	11	10
177.5	5	5	4	4	5	5	5
180.0	3	3	3	3	3	3	3

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