



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: CY4460		Driver Details: CY2029	
DUT Lab ID	SRIS 2831-7	Seasoning	0 Hour	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	BUT-90-CW-35	Manufacturer	Meanwell
Current Mode	AC	Manufacturer	EPISTAR	Catalog No.	IDLV-45-12
Test Report	S2008187-R1	Lamp Catalog No.	OMNICHIP (320404-xx-300-12-4.4)	Maximum Power	45 W
Test Date	18 August 2020	Drive Current	30 mA	Input Voltage	120.00 V
Report Date	20 November 2020	Nominal Color	3500 K	Operating Frequency	60 Hz
Ambient	24.3 °C	Burning Position	Junction Axial	Input Power	26.50 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	-2.9583
Catalog No.	BUT-90-CW-35	Lens	Opalin Acrylic Diffuser	Z	-2.9583

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

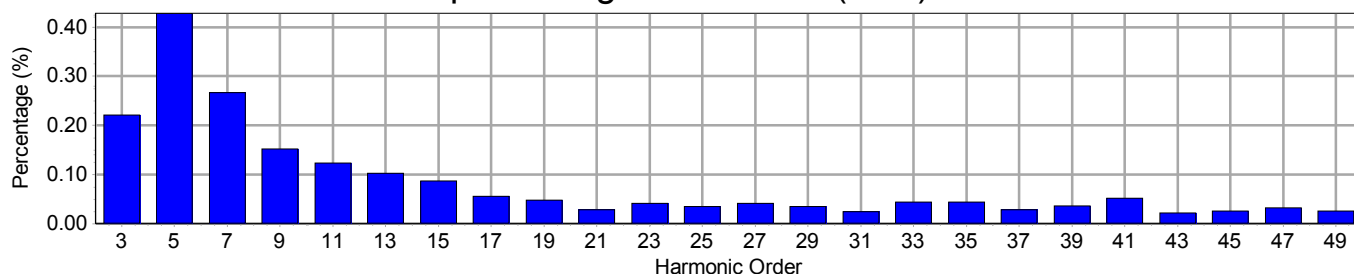


Electrical Measurements

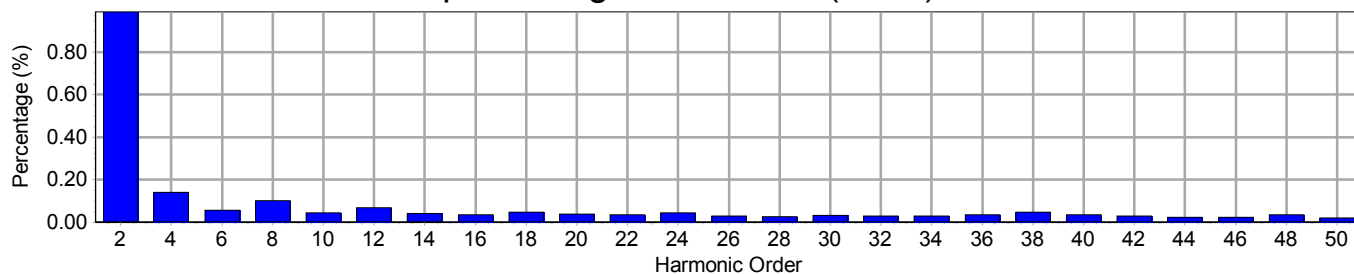
Input

Frequency	60 Hz	Active Power	26.50 W	THDV [ANSI]	1.19 %
Voltage	120.1 V(rms)	Apparent Power	27.11 VA	THDA [ANSI]	6.73 %
Current	0.2258 A(rms)	Power Factor	0.977	Max. Harmonic At	3rd order

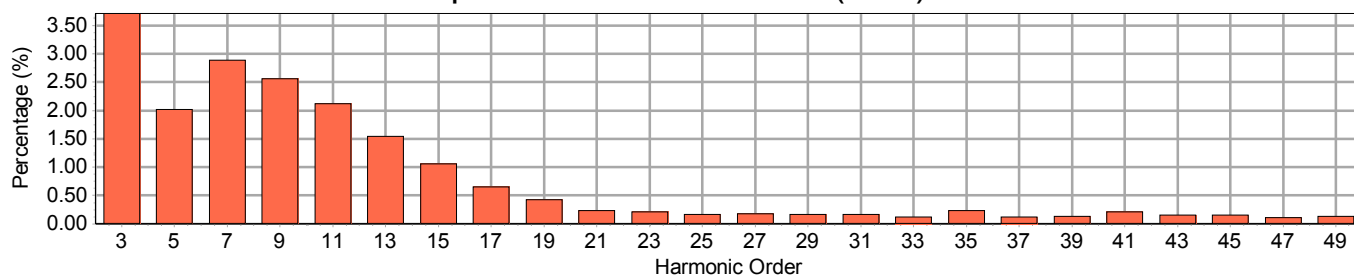
Input Voltage Harmonics (Odd)



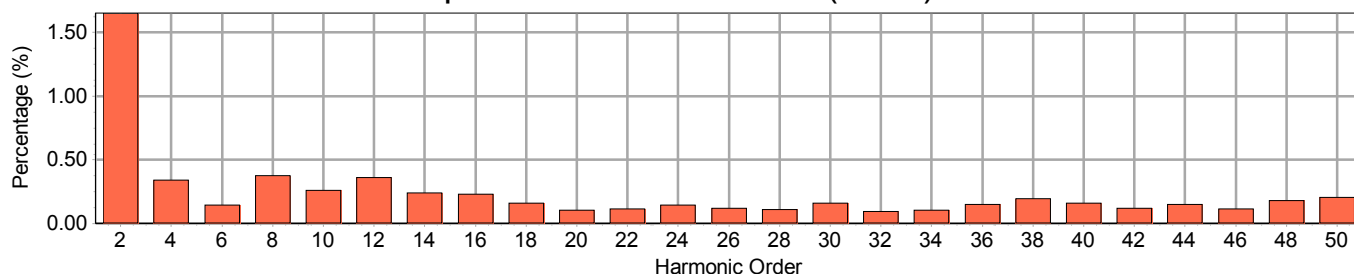
Input Voltage Harmonics (Even)



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	0.991	1.653
3	180	0.221	3.719	4	240	0.141	0.338
5	300	0.429	2.015	6	360	0.054	0.142
7	420	0.267	2.893	8	480	0.100	0.374
9	540	0.152	2.564	10	600	0.045	0.260
11	660	0.123	2.121	12	720	0.067	0.361
13	780	0.103	1.542	14	840	0.041	0.240
15	900	0.087	1.061	16	960	0.036	0.231
17	1020	0.056	0.655	18	1080	0.047	0.157
19	1140	0.047	0.420	20	1200	0.037	0.101
21	1260	0.027	0.231	22	1320	0.034	0.114
23	1380	0.041	0.208	24	1440	0.045	0.145
25	1500	0.035	0.169	26	1560	0.028	0.117
27	1620	0.042	0.178	28	1680	0.025	0.108
29	1740	0.034	0.166	30	1800	0.031	0.160
31	1860	0.023	0.163	32	1920	0.028	0.091
33	1980	0.044	0.119	34	2040	0.029	0.105
35	2100	0.044	0.235	36	2160	0.034	0.150
37	2220	0.028	0.117	38	2280	0.046	0.194
39	2340	0.036	0.127	40	2400	0.034	0.159
41	2460	0.051	0.204	42	2520	0.029	0.118
43	2580	0.022	0.154	44	2640	0.023	0.146
45	2700	0.026	0.157	46	2760	0.022	0.111
47	2820	0.031	0.104	48	2880	0.035	0.178
49	2940	0.026	0.128	50	3000	0.021	0.203



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Photometric Report: S2008187-R1

Prepared for: ANDlight · Test Date: 18 August 2020

Luminaire: BUTTON · Lumcat: BUT-90-CW-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		116	116	116	116	107	107	107	107	99	99	99	99	84	84	84	57	57	57	57	57	57	50
1		101	93	86	80	92	85	79	74	84	78	73	68	65	60	57	41	38	36	41	38	36	31
2		89	78	68	60	82	71	63	56	74	65	57	51	53	47	42	33	29	26	33	29	26	21
3		80	66	56	47	73	61	51	44	66	55	47	40	45	39	33	27	23	20	27	23	20	15
4		73	57	46	38	66	53	43	35	60	48	39	32	39	32	27	23	19	16	23	19	16	12
5		66	50	39	32	60	46	36	29	54	42	33	27	34	27	22	20	16	13	20	16	13	9
6		60	44	34	26	55	41	31	24	50	37	29	22	30	23	18	18	14	10	18	14	10	7
7		55	40	29	22	50	36	27	21	46	33	25	19	27	20	15	16	12	9	16	12	9	6
8		51	36	26	19	47	33	24	18	42	30	22	16	24	18	13	15	10	7	15	10	7	5
9		47	32	23	17	43	29	21	15	39	27	19	14	22	16	12	13	9	6	13	9	6	4
10		44	29	20	15	40	27	19	14	36	25	17	12	20	14	10	12	8	6	12	8	6	3

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	1	0.08	0.08
10 - 20	11	0.64	0.64
20 - 30	33	1.86	1.86
30 - 40	64	3.59	3.59
40 - 50	99	5.58	5.58
50 - 60	134	7.58	7.58
60 - 70	165	9.32	9.32
70 - 80	187	10.59	10.59
80 - 90	199	11.26	11.26
90 - 120	548	30.97	30.97
90 - 130	680	38.41	38.41
90 - 150	836	47.26	47.26
90 - 180	876	49.51	49.51
0 - 180	1769	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	436	319	18
55.0	624	465	28
65.0	938	701	43
75.0	1619	1220	76
85.0	4952	3753	235

Luminaire Luminous Flux: 1769

Measured Input Power: 26.50 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 66.8 lm/W

Luminaire Spacing Criterion (0 Degree): 9.8824

Luminaire Spacing Criterion (90 Degree): 2.6493

Category: Up and Down

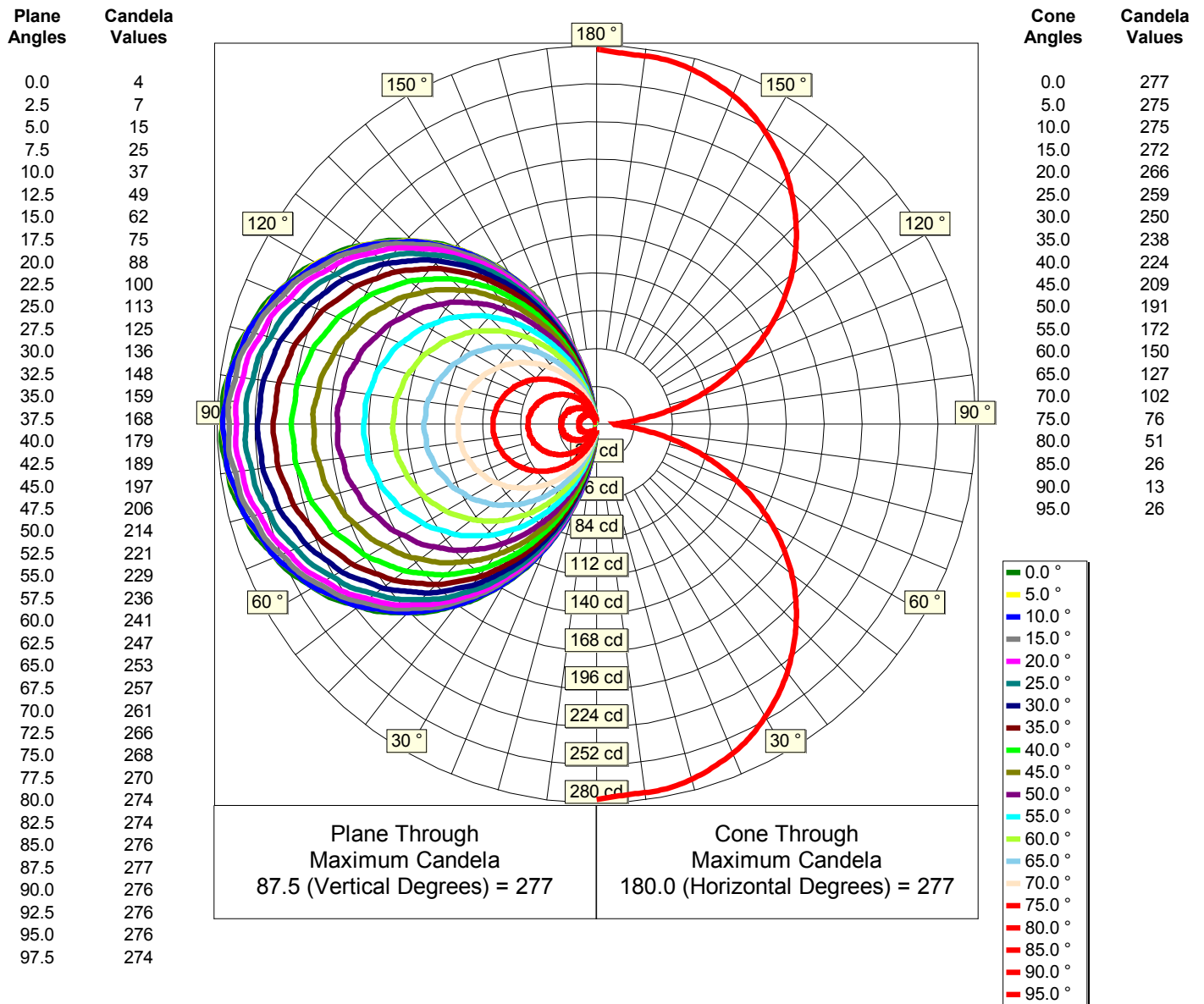


Photometric Report: S2008187-R1

Prepared for: ANDlight · Test Date: 18 August 2020

Luminaire: BUTTON · Lumcat: BUT-90-CW-35

Luminous Intensity - Polar Curve for each Plane(1)



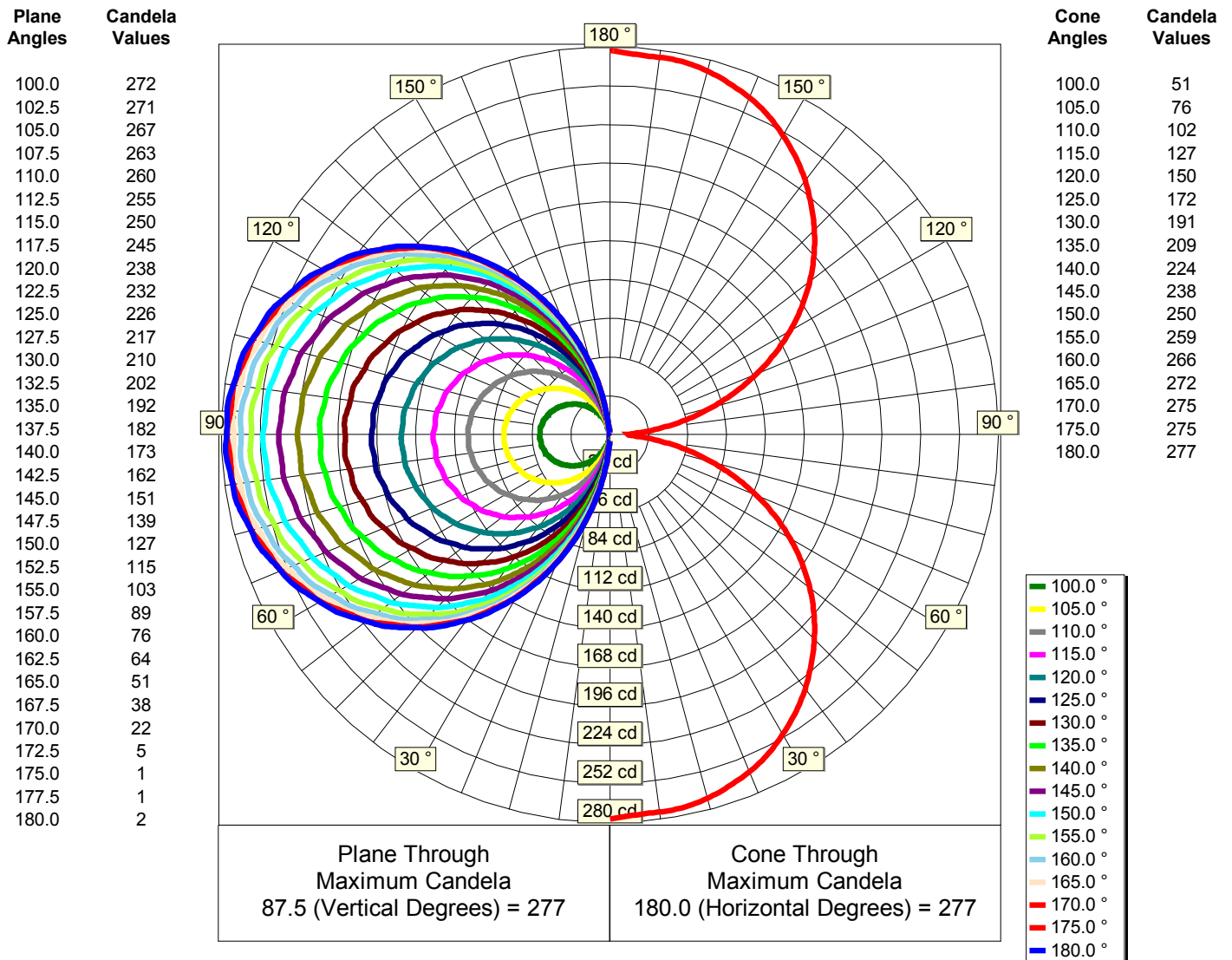


Photometric Report: S2008187-R1

Prepared for: ANDlight · Test Date: 18 August 2020

Luminaire: BUTTON · Lumcat: BUT-90-CW-35

Luminous Intensity - Polar Curve for each Plane(2)





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IES File Headers

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IESNA:LM-63
[ISSUEDATE]      18 August 2020
[TESTLAB]        Spectra Lux
[TEST]           S2008187-R1
[MANUFAC]        ANDlight
[LUMCAT]          BUT-90-CW-35
[LUMINAIRE]       BUTTON
[LAMP]           Clusters of EPISTAR OMNICHIP (320404-xx-300-12-4.4) LEDs c/w Meanwell Driver IDLV-45-12 @ 120.00V
[_BURNING]        Axial (1,769 Luminaire Lumens)
[_REFLECTOR]      None
[_LENS]           Opalin Acrylic Diffuser
[_HOUSING]        Aluminum Body c/w Nylon Rope
[_NOMINAL COLOR]  3500K
[_DRIVE CURRENT]  30 mA
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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	4	4	4	4	4	4	4	4	4
	2.5	7	7	8	7	8	7	7	7	7
	5.0	15	15	15	15	14	13	13	12	11
	7.5	25	25	25	24	24	22	21	19	17
	10.0	37	36	37	35	35	31	30	28	25
	12.5	49	48	49	47	47	42	40	37	33
	15.0	62	61	62	60	58	53	50	47	42
	17.5	75	74	74	73	71	64	61	57	51
	20.0	88	87	87	85	83	76	72	67	60
	22.5	100	99	100	97	95	87	83	77	69
	25.0	113	111	112	110	107	98	93	87	79
	27.5	125	123	124	121	119	109	103	96	88
	30.0	136	136	136	132	129	120	114	106	96
	32.5	148	146	147	144	141	130	123	115	106
	35.0	159	157	157	155	151	140	133	124	114
	37.5	168	168	168	164	161	150	142	133	122
	40.0	179	177	178	175	171	166	158	141	130
	42.5	189	187	187	184	180	175	168	159	149
	45.0	197	197	197	192	188	183	176	168	157
A n g l e s	47.5	206	204	205	202	198	192	183	174	164
	50.0	214	212	213	209	205	191	182	171	158
	52.5	221	221	221	216	212	199	189	178	164
	55.0	229	227	227	225	220	204	195	184	170
	57.5	236	234	234	231	226	211	201	189	175
	60.0	241	241	241	236	231	218	207	195	180
	62.5	247	245	246	243	238	222	212	199	186
	65.0	253	251	251	248	243	227	216	204	189
	67.5	257	257	256	252	247	232	221	209	193
	70.0	261	259	260	257	252	235	224	211	197
	72.5	266	263	263	260	255	239	228	214	199
	75.0	268	267	267	262	257	242	231	218	202
	77.5	270	269	269	267	261	244	233	219	205
	80.0	274	271	271	268	263	246	235	221	206
	82.5	274	274	274	269	264	248	237	224	207
	85.0	276	274	274	272	266	248	237	224	209
	87.5	277	275	275	272	266	250	238	224	209
	90.0	276	276	276	271	266	250	239	225	209



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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	276	275	275	272	266	259	249	237	224	209
	95.0	276	274	274	271	265	258	249	237	223	208
	97.5	274	274	273	268	263	256	248	236	223	207
	100.0	272	271	271	268	262	255	245	234	220	206
	102.5	271	268	268	265	260	253	243	232	218	203
	105.0	267	266	266	262	256	249	241	230	217	200
	107.5	263	262	262	260	254	246	237	226	213	199
	110.0	260	258	258	255	250	243	234	222	209	195
	112.5	255	255	254	250	245	238	230	219	206	191
	115.0	250	249	249	246	241	234	224	214	201	188
	117.5	245	243	243	240	235	229	220	209	196	182
	120.0	238	239	238	234	229	222	215	204	192	177
	122.5	232	231	231	229	223	217	208	198	186	173
	125.0	226	224	223	221	216	210	202	192	180	167
	127.5	217	217	217	213	208	202	195	186	174	161
	130.0	210	209	208	206	201	195	187	177	166	155
	132.5	202	200	199	197	193	187	180	170	159	147
	135.0	192	192	191	188	183	178	172	163	152	140
A n g l e s	137.5	182	182	181	180	175	169	162	154	143	133
	140.0	173	171	171	169	165	160	153	145	135	125
	142.5	162	162	161	158	154	149	144	136	127	116
	145.0	151	150	150	148	144	139	133	126	117	108
	147.5	139	138	138	137	133	128	123	116	107	99
	150.0	127	127	127	125	121	117	112	106	98	90
	152.5	115	114	114	113	110	105	101	95	88	81
	155.0	103	102	101	101	98	94	90	84	78	72
	157.5	89	90	89	88	85	82	79	74	68	62
	160.0	76	76	76	76	73	70	67	63	58	53
	162.5	64	64	63	63	61	58	56	52	47	43
	165.0	51	51	50	50	48	45	43	39	35	32
	167.5	38	38	38	37	34	31	29	26	23	22
	170.0	22	21	20	20	18	17	16	15	13	13
	172.5	5	6	5	7	7	7	8	8	7	7
	175.0	1	2	1	1	2	2	3	3	3	3
	177.5	1	1	1	1	2	1	2	2	2	2
	180.0	2	2	2	2	2	2	2	2	2	2



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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	4	4	4	4	4	4	4	4	4
	2.5	6	6	6	5	5	5	5	4	5
	5.0	10	9	8	7	6	5	5	4	5
	7.5	16	13	12	10	8	7	6	5	4
	10.0	22	19	16	13	11	8	7	5	5
	12.5	29	25	21	18	14	10	8	5	5
	15.0	37	32	27	22	17	13	9	6	5
	17.5	45	39	33	27	21	15	10	7	5
	20.0	54	46	39	32	25	18	12	7	5
	22.5	62	54	46	38	29	21	14	8	5
	25.0	71	61	52	43	33	24	15	9	6
	27.5	79	69	59	48	37	27	17	10	6
	30.0	87	76	65	54	41	30	19	10	6
	32.5	95	83	71	59	46	33	21	11	6
	35.0	103	91	78	64	50	36	23	12	7
	37.5	110	97	84	70	54	39	25	13	7
	40.0	118	104	89	74	59	43	27	14	8
	42.5	125	110	95	79	62	46	29	15	8
	45.0	131	116	101	84	66	48	31	16	8
	47.5	138	122	106	88	70	51	33	17	9
	50.0	144	128	111	93	73	54	35	18	9
	52.5	149	133	116	97	77	57	37	19	10
	55.0	155	137	120	100	80	59	38	20	10
	57.5	160	143	124	105	83	62	40	21	10
	60.0	164	147	128	108	86	64	42	22	11
	62.5	170	150	131	111	89	66	43	22	11
	65.0	173	155	135	114	91	68	45	23	11
	67.5	176	158	138	117	93	69	46	24	12
	70.0	180	160	140	118	95	71	46	24	12
	72.5	182	164	143	121	97	72	48	25	12
	75.0	184	166	145	123	98	73	48	25	13
	77.5	187	167	146	123	100	74	49	25	13
	80.0	188	170	148	125	100	75	50	26	13
	82.5	189	170	149	126	101	75	50	26	13
	85.0	191	170	149	126	102	76	50	26	13
	87.5	191	172	150	127	102	76	51	26	13
	90.0	191	172	150	127	102	76	50	26	13
	92.5	191	171	149	126	102	76	50	26	13
	95.0	190	171	149	126	101	76	50	26	13
	97.5	189	170	149	126	101	75	50	26	13
	100.0	188	168	147	124	100	75	49	25	13
	102.5	186	167	146	123	98	74	49	25	13
	105.0	183	165	144	121	97	72	48	25	13
	107.5	181	162	141	119	96	71	47	24	12
	110.0	178	160	139	117	93	70	46	24	12
	112.5	174	156	136	115	92	68	45	23	12
	115.0	171	152	133	111	90	66	43	23	12
	117.5	166	149	130	108	86	64	42	22	11
	120.0	161	145	126	106	84	62	41	22	11
	122.5	157	140	121	101	81	60	39	21	11
	125.0	152	136	117	98	78	57	38	20	11
	127.5	145	130	113	94	74	55	36	19	11
	130.0	140	124	107	89	71	52	34	18	11
	132.5	134	119	103	85	67	49	33	18	10



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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	127	113	97	81	64	47	31	17	10	17
	137.5	120	106	91	75	60	44	29	16	10	16
	140.0	113	100	86	71	56	41	27	15	10	15
	142.5	105	93	80	66	52	38	25	14	9	14
	145.0	97	86	73	60	48	35	23	13	9	13
	147.5	89	79	67	55	43	32	21	13	9	13
	150.0	80	71	61	50	39	28	19	12	8	12
	152.5	72	64	54	44	35	25	17	10	7	10
	155.0	64	57	48	39	30	22	15	9	7	9
	157.5	55	49	41	33	26	19	13	8	6	8
	160.0	47	41	34	28	22	16	11	7	6	7
	162.5	37	33	27	22	17	13	9	6	5	6
	165.0	28	24	20	16	13	10	7	5	5	5
	167.5	19	16	14	11	9	7	5	4	4	4
	170.0	12	11	9	7	6	5	4	4	4	4
	172.5	6	6	5	4	4	4	3	3	3	3
	175.0	3	3	3	3	3	3	3	3	3	3
	177.5	2	2	2	2	2	2	2	2	2	2
	180.0	2	2	2	2	2	2	2	2	2	2
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	4	4	4	4	4	4	4	4	4
	2.5	5	5	5	6	6	6	7	7	7
	5.0	5	6	6	7	8	9	10	11	13
	7.5	6	7	8	10	12	13	16	17	21
	10.0	7	8	11	13	16	19	22	25	30
	12.5	8	10	14	18	21	25	29	33	40
	15.0	9	13	17	22	27	32	37	42	50
	17.5	10	15	21	27	33	39	45	51	61
	20.0	12	18	25	32	39	46	54	60	72
	22.5	14	21	29	38	46	54	62	69	83
	25.0	15	24	33	43	52	61	71	79	93
	27.5	17	27	37	48	59	69	79	88	103
	30.0	19	30	41	54	65	76	87	96	114
	32.5	21	33	46	59	71	83	95	106	123
	35.0	23	36	50	64	78	91	103	114	133
	37.5	25	39	54	70	84	97	110	122	142
	40.0	27	43	59	74	89	104	118	130	150
	42.5	29	46	62	79	95	110	125	137	159
	45.0	31	48	66	84	101	116	131	144	168
	47.5	33	51	70	88	106	122	138	152	174
A n g l e s	50.0	35	54	73	93	111	128	144	158	182
	52.5	37	57	77	97	116	133	149	164	189
	55.0	38	59	80	100	120	137	155	170	195
	57.5	40	62	83	105	124	143	160	175	201
	60.0	42	64	86	108	128	147	164	180	207
	62.5	43	66	89	111	131	150	170	186	212
	65.0	45	68	91	114	135	155	173	189	216
	67.5	46	69	93	117	138	158	176	193	221
	70.0	46	71	95	118	140	160	180	197	224
	72.5	48	72	97	121	143	164	182	199	228
	75.0	48	73	98	123	145	166	184	202	231
	77.5	49	74	100	123	146	167	187	205	233
	80.0	50	75	100	125	148	170	188	206	235
	82.5	50	75	101	126	149	170	189	207	237
	85.0	50	76	102	126	149	170	191	209	237
	87.5	51	76	102	127	150	172	191	209	238
	90.0	50	76	102	127	150	172	191	209	239
	92.5	50	76	102	126	149	171	191	209	237
	95.0	50	76	101	126	149	171	190	208	237
	97.5	50	75	101	126	149	170	189	207	236
	100.0	49	75	100	124	147	168	188	206	234
	102.5	49	74	98	123	146	167	186	203	232
	105.0	48	72	97	121	144	165	183	200	230
	107.5	47	71	96	119	141	162	181	199	226
	110.0	46	70	93	117	139	160	178	195	222
	112.5	45	68	92	115	136	156	174	191	219
	115.0	43	66	90	111	133	152	171	188	214
	117.5	42	64	86	108	130	149	166	182	209
	120.0	41	62	84	106	126	145	161	177	204
	122.5	39	60	81	101	121	140	157	173	198
	125.0	38	57	78	98	117	136	152	167	192
	127.5	36	55	74	94	113	130	145	161	186
	130.0	34	52	71	89	107	124	140	155	177
	132.5	33	49	67	85	103	119	134	147	170



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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	31	47	64	81	97	113	127	140	152	163
137.5	29	44	60	75	91	106	120	133	143	154
140.0	27	41	56	71	86	100	113	125	135	145
142.5	25	38	52	66	80	93	105	116	127	136
145.0	23	35	48	60	73	86	97	108	117	126
147.5	21	32	43	55	67	79	89	99	107	116
150.0	19	28	39	50	61	71	80	90	98	106
152.5	17	25	35	44	54	64	72	81	88	95
155.0	15	22	30	39	48	57	64	72	78	84
157.5	13	19	26	33	41	49	55	62	68	74
160.0	11	16	22	28	34	41	47	53	58	63
162.5	9	13	17	22	27	33	37	43	47	52
165.0	7	10	13	16	20	24	28	32	35	39
167.5	5	7	9	11	14	16	19	22	23	26
170.0	4	5	6	7	9	11	12	13	13	15
172.5	3	4	4	4	5	6	6	7	7	8
175.0	3	3	3	3	3	3	3	3	3	3
177.5	2	2	2	2	2	2	2	2	2	2
180.0	2	2	2	2	2	2	2	2	2	2

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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	4	4	4	4	4	4
	2.5	7	8	8	7	8	7
	5.0	13	14	15	15	15	15
	7.5	22	23	24	24	25	25
	10.0	31	34	35	35	37	36
	12.5	42	45	47	47	49	48
	15.0	53	57	58	60	62	61
	17.5	64	69	71	73	74	74
	20.0	76	81	83	85	87	87
	22.5	87	92	95	97	100	99
	25.0	98	104	107	110	112	111
	27.5	109	115	119	121	124	123
	30.0	120	126	129	132	136	136
	32.5	130	137	141	144	147	146
	35.0	140	147	151	155	157	157
	37.5	150	156	161	164	168	168
	40.0	158	166	171	175	178	177
	42.5	168	175	180	184	187	187
	45.0	176	183	188	192	197	197
	47.5	183	192	198	202	205	204
A n g l e s	50.0	191	200	205	209	213	212
	52.5	199	206	212	216	221	221
	55.0	204	214	220	225	227	227
	57.5	211	220	226	231	234	234
	60.0	218	225	231	236	241	241
	62.5	222	231	238	243	246	245
	65.0	227	237	243	248	251	251
	67.5	232	240	247	252	256	257
	70.0	235	245	252	257	260	259
	72.5	239	249	255	260	263	263
	75.0	242	250	257	262	267	267
	77.5	244	254	261	267	269	269
	80.0	246	256	263	268	271	271
	82.5	248	256	264	269	274	274
	85.0	248	258	266	272	274	274
	87.5	250	259	266	272	275	275
	90.0	250	258	266	271	276	276
	92.5	249	259	266	272	275	275
	95.0	249	258	265	271	274	274
	97.5	248	256	263	268	273	274
	100.0	245	255	262	268	271	271
	102.5	243	253	260	265	268	268
	105.0	241	249	256	262	266	266
	107.5	237	246	254	260	262	262
	110.0	234	243	250	255	258	258
	112.5	230	238	245	250	254	255
	115.0	224	234	241	246	249	249
	117.5	220	229	235	240	243	243
	120.0	215	222	229	234	238	239
	122.5	208	217	223	229	231	231
	125.0	202	210	216	221	223	224
	127.5	195	202	208	213	217	217
	130.0	187	195	201	206	208	209
	132.5	180	187	193	197	199	200



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Lateral Angles

	150.0	155.0	160.0	165.0	170.0	175.0	180.0
135.0	172	178	183	188	191	192	192
137.5	162	169	175	180	181	182	182
140.0	153	160	165	169	171	171	173
142.5	144	149	154	158	161	162	162
145.0	133	139	144	148	150	150	151
147.5	123	128	133	137	138	138	139
150.0	112	117	121	125	127	127	127
152.5	101	105	110	113	114	114	115
155.0	90	94	98	101	101	102	103
157.5	79	82	85	88	89	90	89
160.0	67	70	73	76	76	76	76
162.5	56	58	61	63	63	64	64
165.0	43	45	48	50	50	51	51
167.5	29	31	34	37	38	38	38
170.0	16	17	18	20	20	21	22
172.5	8	7	7	7	5	6	5
175.0	3	2	2	1	1	2	1
177.5	2	1	2	1	1	1	1
180.0	2	2	2	2	2	2	2

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