



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: CY4447		Driver Details: CY2019	
DUT Lab ID	SRIS 2832-2	Seasoning	0 Hour	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	BUT-60-P-30	Manufacturer	Meanwell
Current Mode	AC	Manufacturer	EPISTAR	Catalog No.	IDLV-45-12
Test Report	S20081313-R1	Lamp Catalog No.	OMNICHIP (320404-xx-300-12-4.4)	Maximum Power	45 W
Test Date	13 August 2020	Drive Current	30 mA	Input Voltage	120.00 V
Report Date	20 November 2020	Nominal Color	3000 K	Operating Frequency	60 Hz
Ambient	24.7 °C	Burning Position	Junction Axial	Input Power	22.80 W

Luminaire Data

General Information		Optics		Aperture (feet)	
Manufacturer	ANDlight	Reflector	None	X	-1.9583
Name	BUTTON	Housing	Aluminum Body c/w Nylon Rope	Y	-1.9583
Catalog No.	BUT-60-P-30	Lens	Opalin Acrylic Diffuser	Z	0.0000

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).





Spectra Lux

2750 Sabourin, Saint-Laurent (Quebec) H4S 1M2 Canada
Tel.: (514) 332-0082 Fax: (514) 332-3590 www.spectralux.ca



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

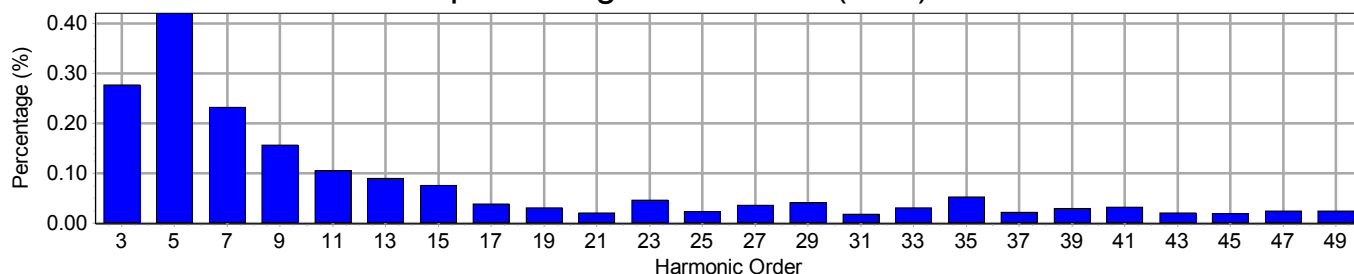


Electrical Measurements

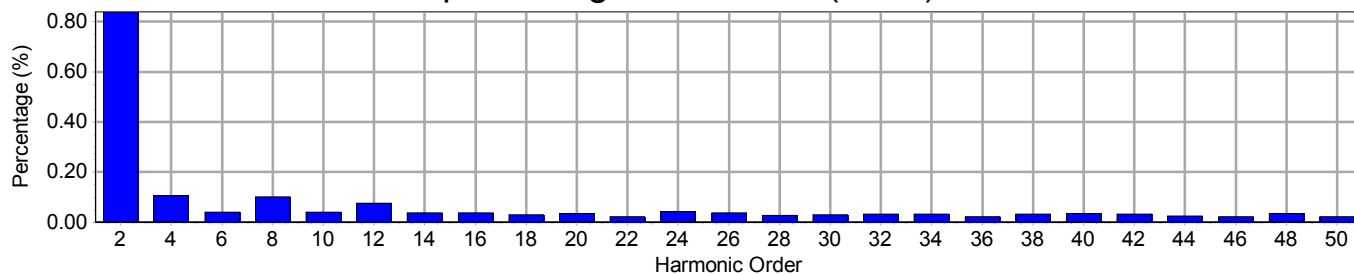
Input

Frequency	60 Hz	Active Power	22.80 W	THDV [ANSI]	1.06 %
Voltage	120.1 V(rms)	Apparent Power	23.47 VA	THDA [ANSI]	7.00 %
Current	0.1954 A(rms)	Power Factor	0.971	Max. Harmonic At	3rd order

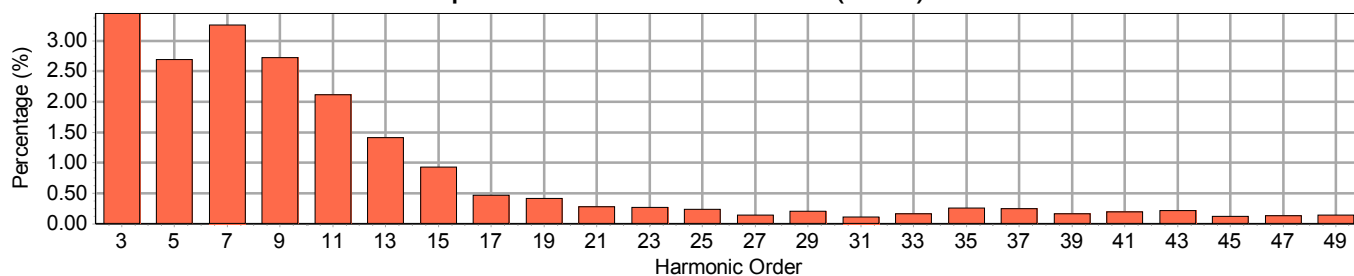
Input Voltage Harmonics (Odd)



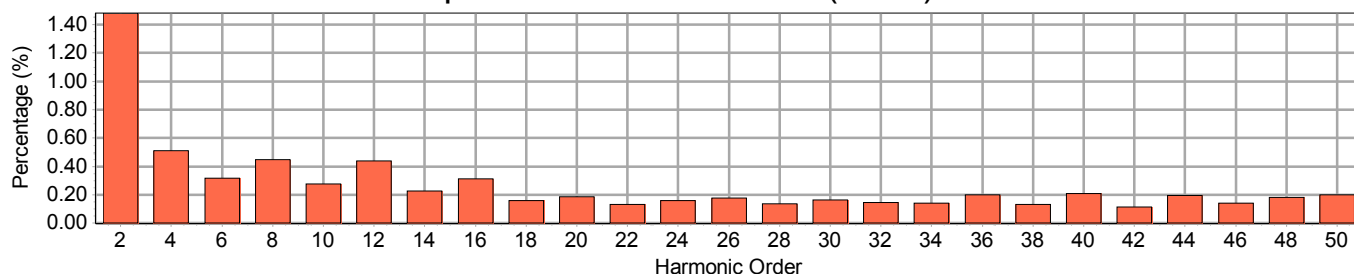
Input Voltage Harmonics (Even)



Input Current Harmonics (Odd)



Input Current Harmonics (Even)





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

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	0.841	1.482
3	180	0.277	3.456	4	240	0.107	0.512
5	300	0.421	2.695	6	360	0.040	0.320
7	420	0.233	3.257	8	480	0.102	0.450
9	540	0.156	2.723	10	600	0.039	0.275
11	660	0.106	2.114	12	720	0.076	0.437
13	780	0.091	1.415	14	840	0.038	0.226
15	900	0.076	0.930	16	960	0.038	0.311
17	1020	0.039	0.472	18	1080	0.030	0.158
19	1140	0.032	0.415	20	1200	0.034	0.187
21	1260	0.022	0.278	22	1320	0.022	0.135
23	1380	0.046	0.271	24	1440	0.041	0.158
25	1500	0.024	0.235	26	1560	0.038	0.179
27	1620	0.037	0.142	28	1680	0.027	0.138
29	1740	0.042	0.206	30	1800	0.030	0.166
31	1860	0.019	0.112	32	1920	0.033	0.145
33	1980	0.032	0.161	34	2040	0.033	0.144
35	2100	0.053	0.260	36	2160	0.022	0.203
37	2220	0.022	0.250	38	2280	0.032	0.134
39	2340	0.030	0.160	40	2400	0.034	0.212
41	2460	0.033	0.194	42	2520	0.033	0.117
43	2580	0.021	0.217	44	2640	0.024	0.198
45	2700	0.020	0.124	46	2760	0.022	0.143
47	2820	0.025	0.127	48	2880	0.036	0.184
49	2940	0.025	0.147	50	3000	0.023	0.200



Spectra Lux

2750 Sabourin, Saint-Laurent (Quebec) H4S 1M2 Canada
Tel.: (514) 332-0082 Fax: (514) 332-3590 www.spectralux.ca



Photometric Report: S20081313-R1

Prepared for: ANDlight · Test Date: 13 August 2020

Luminaire: BUTTON · Lumcat: BUT-60-P-30

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		121	121	121	121	117	117	117	117	114	114	114	114	107	107	107	96	96	96	96	96	96	93
1		111	106	101	97	107	103	98	94	104	100	96	92	94	91	88	85	83	81	85	83	81	78
2		101	92	84	78	97	89	83	77	94	87	81	75	82	77	73	74	71	67	74	71	67	65
3		92	80	72	65	89	78	70	64	86	76	69	63	72	66	61	65	61	57	65	61	57	55
4		84	71	62	55	81	69	61	54	78	68	59	53	64	57	52	58	53	49	58	53	49	47
5		77	63	54	47	75	62	53	46	72	60	52	46	57	50	45	52	47	42	52	47	42	40
6		71	57	47	41	69	56	47	40	67	54	46	40	52	44	39	47	42	37	47	42	37	35
7		66	51	42	36	64	50	42	35	62	49	41	35	47	40	34	43	37	33	43	37	33	31
8		61	47	38	32	59	46	37	32	57	45	37	31	43	36	31	40	34	30	40	34	30	28
9		57	43	34	29	55	42	34	28	54	41	33	28	40	33	28	37	31	27	37	31	27	25
10		54	40	31	26	52	39	31	26	50	38	30	25	37	30	25	34	28	24	34	28	24	22

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	44	3.06	3.06
10 - 20	127	8.82	8.82
20 - 30	194	13.43	13.43
30 - 40	233	16.19	16.19
40 - 50	244	16.93	16.93
50 - 60	221	15.34	15.34
60 - 70	167	11.55	11.55
70 - 80	92	6.37	6.37
80 - 90	25	1.71	1.71
90 - 120	37	2.54	2.54
90 - 130	52	3.60	3.60
90 - 150	80	5.54	5.54
90 - 180	95	6.60	6.60
0 - 180	1442	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	1644	1567	1588
55.0	1414	1544	1706
65.0	1557	1479	1314
75.0	1187	1160	1221
85.0	572	808	1078

Luminaire Luminous Flux: 1442

Measured Input Power: 22.80 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 63.2 lm/W

Luminaire Spacing Criterion (0 Degree): 1.1993

Luminaire Spacing Criterion (90 Degree): 1.3121

Category: Up and Down



Photometric Report: S20081313-R1

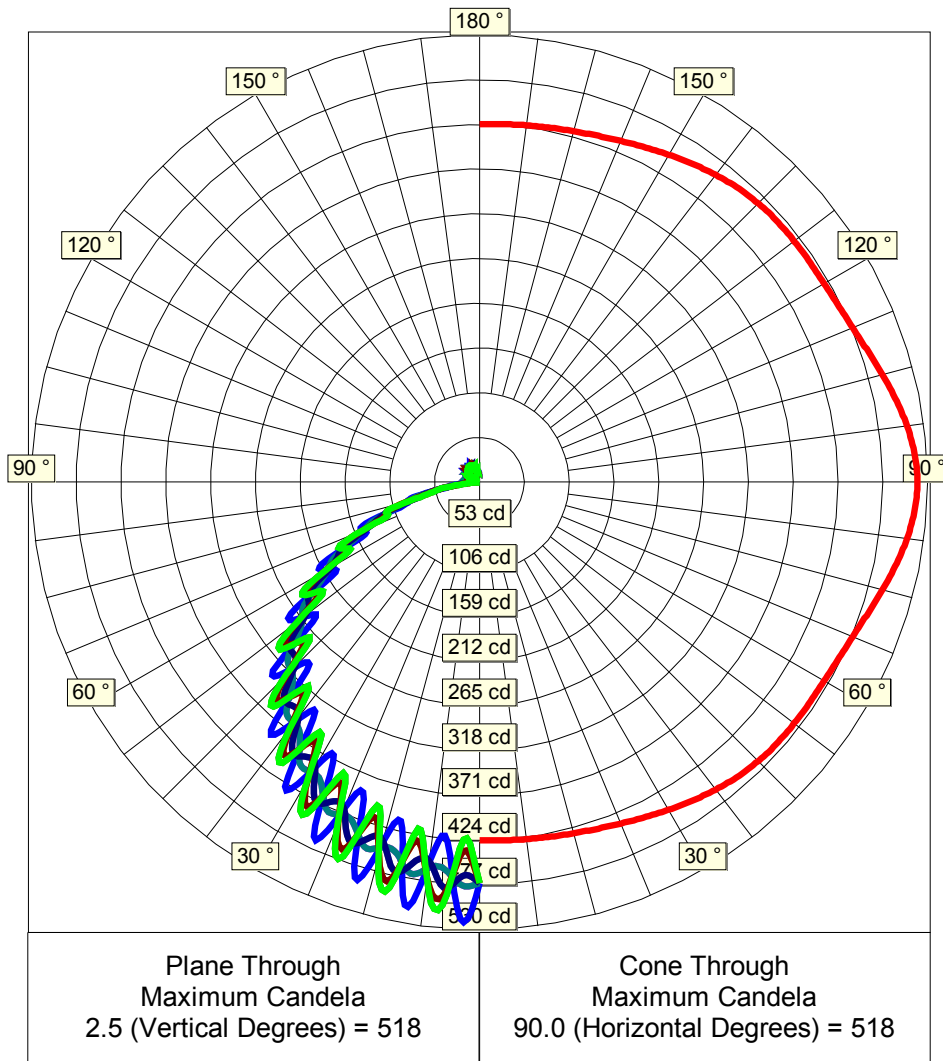
Prepared for: ANDlight · Test Date: 13 August 2020

Luminaire: BUTTON · Lumcat: BUT-60-P-30

Luminous Intensity - Polar Curve for each Plane(1)

Plane
Angles

Plane Angles	Candela Values
0.0	475
2.5	518
5.0	428
7.5	455
10.0	509
12.5	420
15.0	442
17.5	491
20.0	400
22.5	420
25.0	463
27.5	374
30.0	392
32.5	427
35.0	342
37.5	356
40.0	383
42.5	302
45.0	312
47.5	331
50.0	258
52.5	263
55.0	272
57.5	207
60.0	208
62.5	209
65.0	155
67.5	149
70.0	143
72.5	98
75.0	88
77.5	76
80.0	46
82.5	35
85.0	26
87.5	15
90.0	13
92.5	14
95.0	11
97.5	12



Cone
Angles

Cone Angles	Candela Values
0.0	424
22.5	438
45.0	467
67.5	478
90.0	518
112.5	478
135.0	467
157.5	438
180.0	424

0.0 °
22.5 °
45.0 °
67.5 °
90.0 °
112.5 °
135.0 °
157.5 °
180.0 °



Photometric Report: S20081313-R1

Prepared for: ANDlight · Test Date: 13 August 2020

Luminaire: BUTTON · Lumcat: BUT-60-P-30

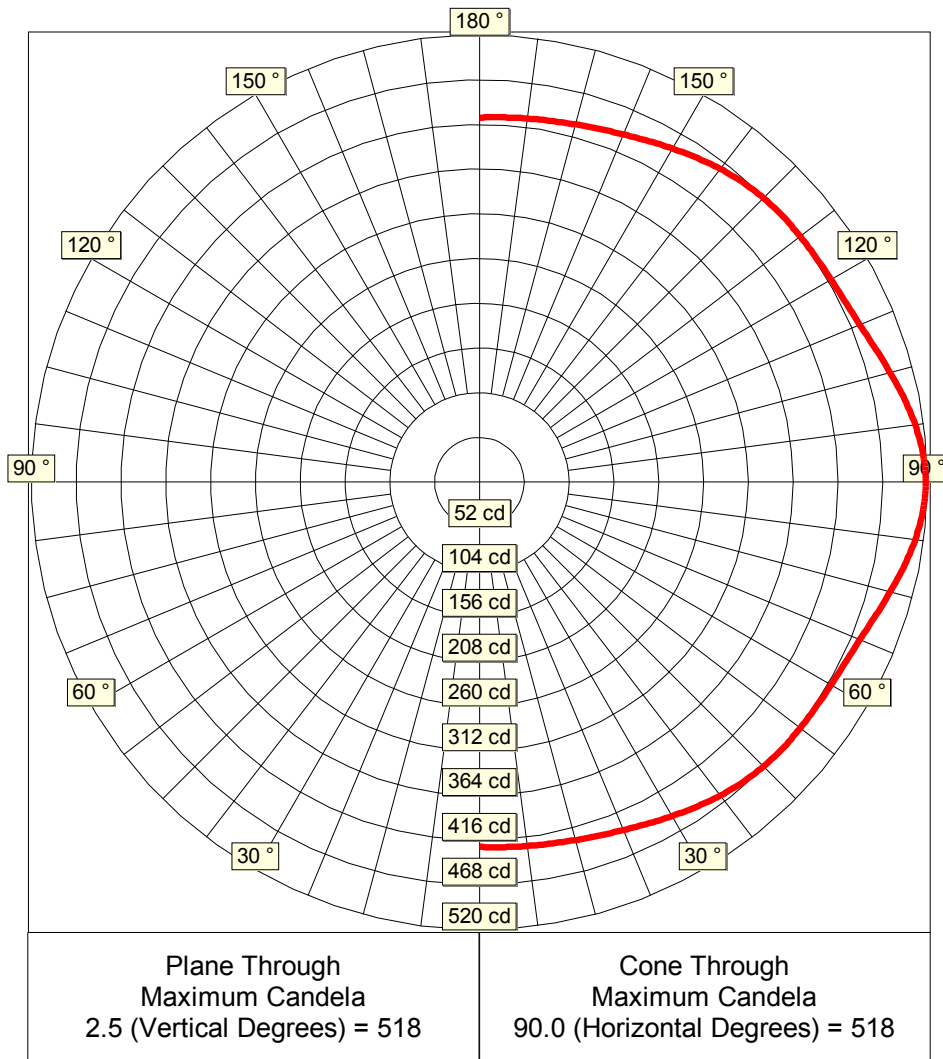
Luminous Intensity - Polar Curve for each Plane(2)

Plane
Angles

100.0
102.5
105.0
107.5
110.0
112.5
115.0
117.5
120.0
122.5
125.0
127.5
130.0
132.5
135.0
137.5
140.0
142.5
145.0
147.5
150.0
152.5
155.0
157.5
160.0
162.5
165.0
167.5
170.0
172.5
175.0
177.5
180.0

Candela
Values

14
12
14
15
13
16
17
15
17
19
17
19
21
18
20
23
19
21
23
19
21
23
19
21
23
18
19
17
11
11
9
4
5



Cone
Angles

Candela
Values



IES File Headers

IESNA:LM-63
 [ISSUEDATE] 13 August 2020
 [TESTLAB] Spectra Lux
 [TEST] S20081313-R1
 [MANUFAC] ANDlight
 [LUMCAT] BUT-60-P-30
 [LUMINAIRE] BUTTON
 [LAMP] EPISTAR OMNICHIP (320404-xx-300-12-4.4) LEDs c/w Meanwell Driver IDLV-45-12 @ 120.00V
 [_BURNING] Vertical Base Up (1,442 Luminaire Lumens)
 [_REFLECTOR] None
 [_LENS] Opalin Acrylic Diffuser
 [_HOUSING] Aluminum Body c/w Nylon Rope
 [_NOMINAL COLOR] 3000 K
 [_DRIVE CURRENT] 30 mA

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	475	475	475	475	475	475	475	475
	2.5	424	438	467	478	478	467	438	424
	5.0	503	492	482	461	428	461	492	503
	7.5	475	473	453	461	455	461	473	475
	10.0	417	430	459	471	509	471	430	417
	12.5	492	481	471	451	420	451	481	492
	15.0	461	459	440	448	442	448	459	461
	17.5	402	416	443	453	491	453	416	402
	20.0	471	461	451	432	400	432	461	471
	22.5	438	436	418	426	420	426	436	438
	25.0	380	392	418	428	463	418	392	380
	27.5	443	433	423	404	374	404	433	443
	30.0	407	406	388	397	392	397	406	407
	32.5	351	363	386	395	427	395	363	351
	35.0	405	396	386	370	342	370	396	405
	37.5	368	368	352	359	356	359	368	368
	40.0	315	325	345	355	383	355	325	315
	42.5	360	352	343	328	302	328	352	360
A n g l e s	45.0	323	322	308	315	312	315	322	323
	47.5	273	282	299	307	331	307	282	273
	50.0	308	300	292	280	258	280	300	308
	52.5	271	271	259	264	263	259	271	271
	55.0	226	232	246	253	272	246	232	226
	57.5	248	242	235	225	207	225	242	248
	60.0	212	212	203	208	208	203	212	212
	62.5	172	177	188	194	209	188	177	172
	65.0	183	179	174	167	155	167	179	183
	67.5	150	150	144	149	149	144	150	150
	70.0	116	120	127	132	143	127	120	116
	72.5	115	113	110	107	98	107	113	115
	75.0	85	87	84	88	88	84	87	85
	77.5	59	62	66	70	76	66	62	59
	80.0	49	50	49	49	46	49	50	49
	82.5	29	30	31	34	35	31	30	29
	85.0	14	16	20	23	26	20	16	14
	87.5	6	9	12	16	15	12	9	6
	90.0	3	6	9	12	13	9	6	3



Spectra Lux

2750 Sabourin, Saint-Laurent (Quebec) H4S 1M2 Canada
Tel.: (514) 332-0082 Fax: (514) 332-3590 www.spectralux.ca



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	5	6	10	12	14	12	10	6	5
	95.0	7	8	10	11	11	11	10	8	7
	97.5	8	8	10	12	12	12	10	8	8
	100.0	7	8	11	12	14	12	11	8	7
	102.5	9	10	11	12	12	12	11	10	9
	105.0	10	10	11	13	14	13	11	10	10
	107.5	9	10	12	14	15	14	12	10	9
	110.0	12	12	13	14	13	14	13	12	12
	112.5	12	12	13	15	16	15	13	12	12
	115.0	11	12	14	16	17	16	14	12	11
	117.5	14	14	15	16	15	16	15	14	14
	120.0	14	15	15	17	17	17	15	15	14
	122.5	13	15	17	18	19	18	17	15	13
	125.0	17	17	17	18	17	18	17	17	17
	127.5	16	17	17	18	19	18	17	17	16
	130.0	15	17	19	20	21	20	19	17	15
	132.5	19	20	20	20	18	20	20	20	19
	135.0	18	19	19	20	20	20	19	19	18
	137.5	17	18	20	21	23	21	20	18	17
	A n g l e s	140.0	21	21	21	20	19	20	21	21
142.5		20	20	20	21	21	21	20	20	20
145.0		18	19	21	22	23	22	21	19	18
147.5		22	22	21	21	19	21	21	22	22
150.0		20	20	20	21	21	21	20	20	20
152.5		19	19	21	22	23	22	21	19	19
155.0		22	21	21	21	19	21	21	21	22
157.5		20	19	20	21	21	21	20	19	20
160.0		18	18	20	21	23	21	20	18	18
162.5		20	20	19	19	18	19	19	20	20
165.0	17	17	16	17	19	17	16	17	17	
167.5	15	15	15	16	17	16	15	15	15	
170.0	15	14	13	13	11	13	13	14	15	
172.5	11	11	10	10	11	10	10	11	11	
175.0	7	8	8	9	9	9	8	8	7	
177.5	5	5	4	5	4	5	4	5	5	
180.0	5	5	5	5	5	5	5	5	5	