



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, 505B Railway Street, Vancouver, BC, Canada, V6A 1A7

General Information		Lamp Details: CY4426		Driver Details: CY2022	
DUT Lab ID	SRIS 2823-2	Seasoning	0 Hour	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	SPC-CW-A-VA-120	Manufacturer	Bulbrite
Current Mode	AC	Manufacturer	Bulbrite	Catalog No.	Integrated LED Driver
Test Report	S2008113-R1	Lamp Catalog No.	(1) A21 Frosted LED16W	Maximum Power	16 W
Test Date	11 August 2020	Drive Current	133.3 mA	Input Voltage	120.00 V
Report Date	14 October 2020	Nominal Color	2700 K	Operating Frequency	60 Hz
Ambient	24.7 °C	Burning Position	Junction Axial	Input Power	15.76 W

Luminaire Data

General Information		Optics		Aperture (feet)	
Manufacturer	ANDlight	Reflector	Vanilla Spun Aluminum	X	-0.8750
Name	SPOT LIGHT VOLUMES	Housing	Aluminum Shade Profile	Y	-0.8750
Catalog No.	SPC-CW-A-VA-120	Lens	None	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).





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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

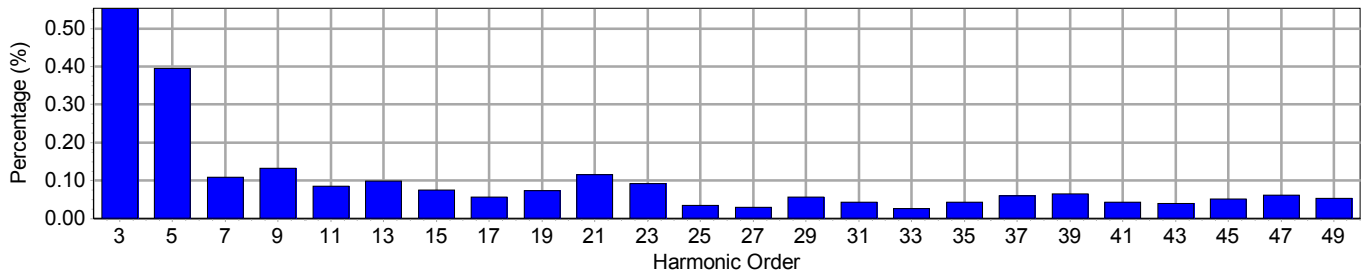


Electrical Measurements

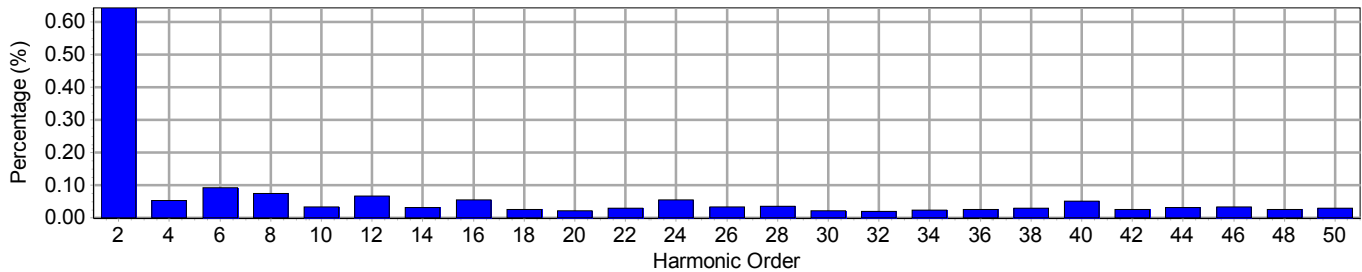
Input

Frequency	60 Hz	Active Power	15.76 W	THDV [ANSI]	1.01 %
Voltage	120.0 V(rms)	Apparent Power	16.30 VA	THDA [ANSI]	12.38 %
Current	0.1358 A(rms)	Power Factor	0.967	Max. Harmonic At	3rd order

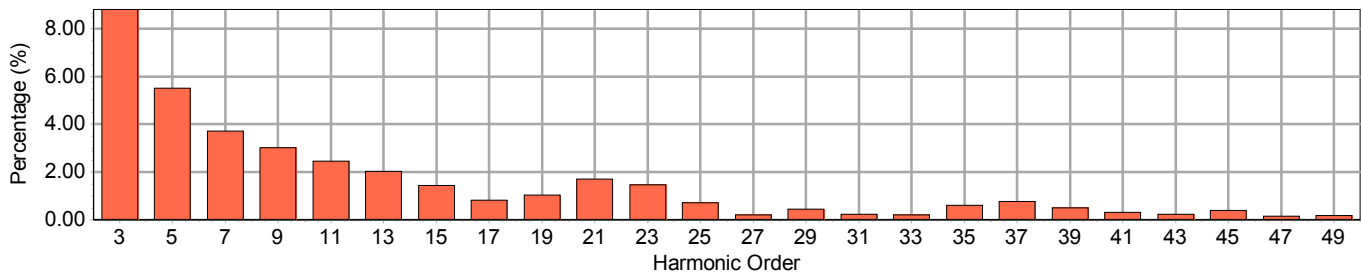
Input Voltage Harmonics (Odd)



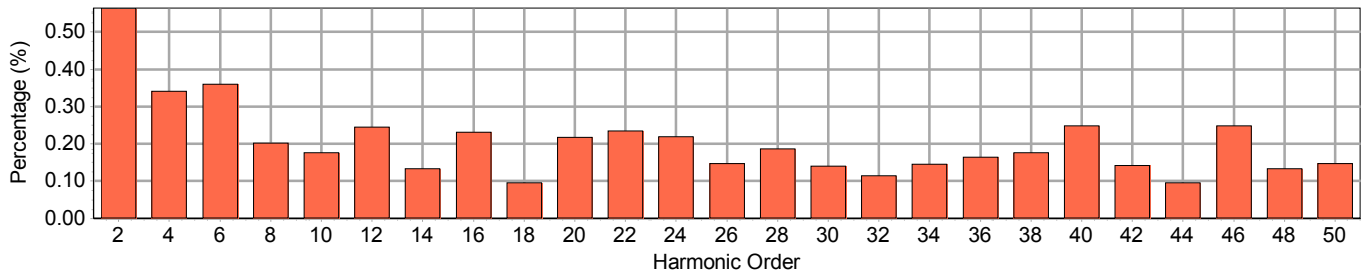
Input Voltage Harmonics (Even)



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	0.644	0.565
3	180	0.554	8.826	4	240	0.054	0.341
5	300	0.395	5.501	6	360	0.093	0.359
7	420	0.108	3.707	8	480	0.075	0.201
9	540	0.132	3.021	10	600	0.033	0.177
11	660	0.086	2.460	12	720	0.068	0.244
13	780	0.099	2.019	14	840	0.032	0.133
15	900	0.076	1.426	16	960	0.055	0.231
17	1020	0.057	0.823	18	1080	0.027	0.095
19	1140	0.074	1.027	20	1200	0.023	0.217
21	1260	0.115	1.710	22	1320	0.031	0.235
23	1380	0.092	1.462	24	1440	0.056	0.218
25	1500	0.035	0.716	26	1560	0.034	0.147
27	1620	0.030	0.191	28	1680	0.037	0.186
29	1740	0.056	0.435	30	1800	0.023	0.140
31	1860	0.043	0.241	32	1920	0.021	0.114
33	1980	0.025	0.199	34	2040	0.024	0.146
35	2100	0.043	0.610	36	2160	0.027	0.164
37	2220	0.061	0.763	38	2280	0.031	0.176
39	2340	0.065	0.492	40	2400	0.051	0.248
41	2460	0.042	0.318	42	2520	0.026	0.142
43	2580	0.039	0.235	44	2640	0.033	0.095
45	2700	0.052	0.390	46	2760	0.034	0.249
47	2820	0.061	0.150	48	2880	0.027	0.132
49	2940	0.053	0.180	50	3000	0.031	0.148



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Lab Code: 200899-0

Photometric Report: S2008113-R1

Prepared for: ANDlight · Test Date: 11 August 2020

Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPC-CW-A-VA-120

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		122	122	122	122	119	119	119	119	116	116	116	116	111	111	111	102	102	102	102	102	102	100
1		109	103	97	92	106	101	96	91	104	98	94	89	94	90	86	86	84	81	86	84	81	79
2		98	87	79	72	95	85	77	71	92	83	76	70	80	73	68	73	69	65	73	69	65	63
3		88	75	65	57	86	73	64	57	83	72	63	56	69	61	55	63	58	53	63	58	53	50
4		80	65	55	47	77	64	54	46	75	63	53	46	60	52	45	55	49	44	55	49	44	42
5		73	58	47	39	71	56	46	39	68	55	46	39	53	45	38	49	42	37	49	42	37	35
6		67	51	41	33	65	50	40	33	63	49	40	33	47	39	33	44	37	32	44	37	32	30
7		62	46	36	29	60	45	36	29	58	44	35	29	43	35	29	40	33	28	40	33	28	26
8		57	42	32	26	56	41	32	25	54	40	31	25	39	31	25	36	30	25	36	30	25	23
9		53	38	29	23	52	37	29	23	50	37	28	23	36	28	22	33	27	22	33	27	22	20
10		50	35	26	20	48	34	26	20	47	34	26	20	33	25	20	31	24	20	31	24	20	18

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	27	2.28	2.28
10 - 20	78	6.52	6.52
20 - 30	125	10.38	10.38
30 - 40	166	13.77	13.77
40 - 50	194	16.16	16.16
50 - 60	212	17.59	17.59
60 - 70	211	17.52	17.52
70 - 80	147	12.23	12.23
80 - 90	43	3.54	3.54
90 - 120	0	0.00	0.00
90 - 130	0	0.00	0.00
90 - 150	0	0.00	0.00
90 - 180	0	0.00	0.00
0 - 180	1203	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	6531	6531	6531
55.0	7425	7425	7425
65.0	8909	8909	8909
75.0	9984	9984	9984
85.0	7590	7590	7590

Luminaire Luminous Flux: 1203

Measured Input Power: 15.76 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 76.4 lm/W

Luminaire Spacing Criterion (0 Degree): 1.4025

Luminaire Spacing Criterion (90 Degree): 1.4025

Category: Downlight



Photometric Report: S2008113-R1

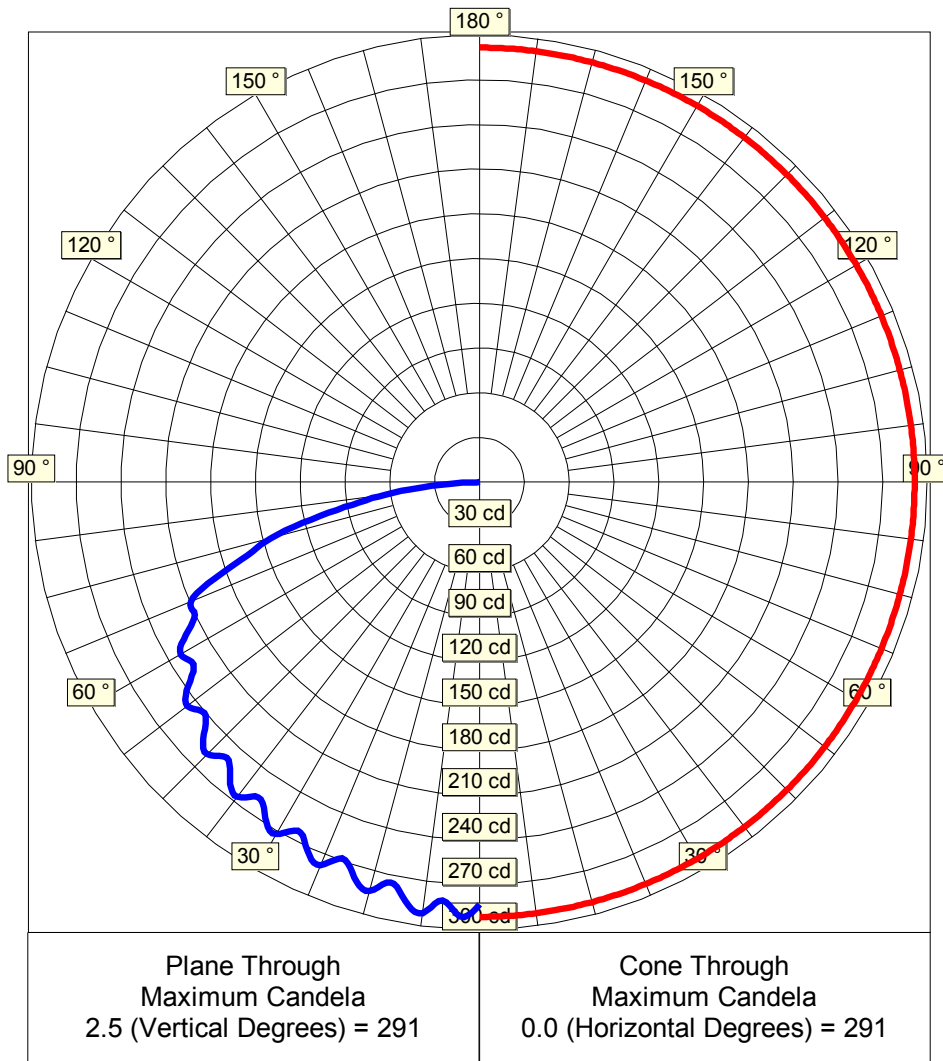
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Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPC-CW-A-VA-120

Luminous Intensity - Polar Curve for each Plane(1)

Plane
Angles

Plane Angles	Candela Values
0.0	283
2.5	291
5.0	282
7.5	291
10.0	285
12.5	275
15.0	284
17.5	278
20.0	268
22.5	278
25.0	272
27.5	263
30.0	273
32.5	267
35.0	258
37.5	266
40.0	260
42.5	250
45.0	258
47.5	250
50.0	241
52.5	246
55.0	238
57.5	227
60.0	231
62.5	221
65.0	210
67.5	209
70.0	189
72.5	163
75.0	144
77.5	115
80.0	87
82.5	63
85.0	37
87.5	15
90.0	0
92.5	0
95.0	0
97.5	0



Cone
Angles

Cone Angles	Candela Values
0.0	291

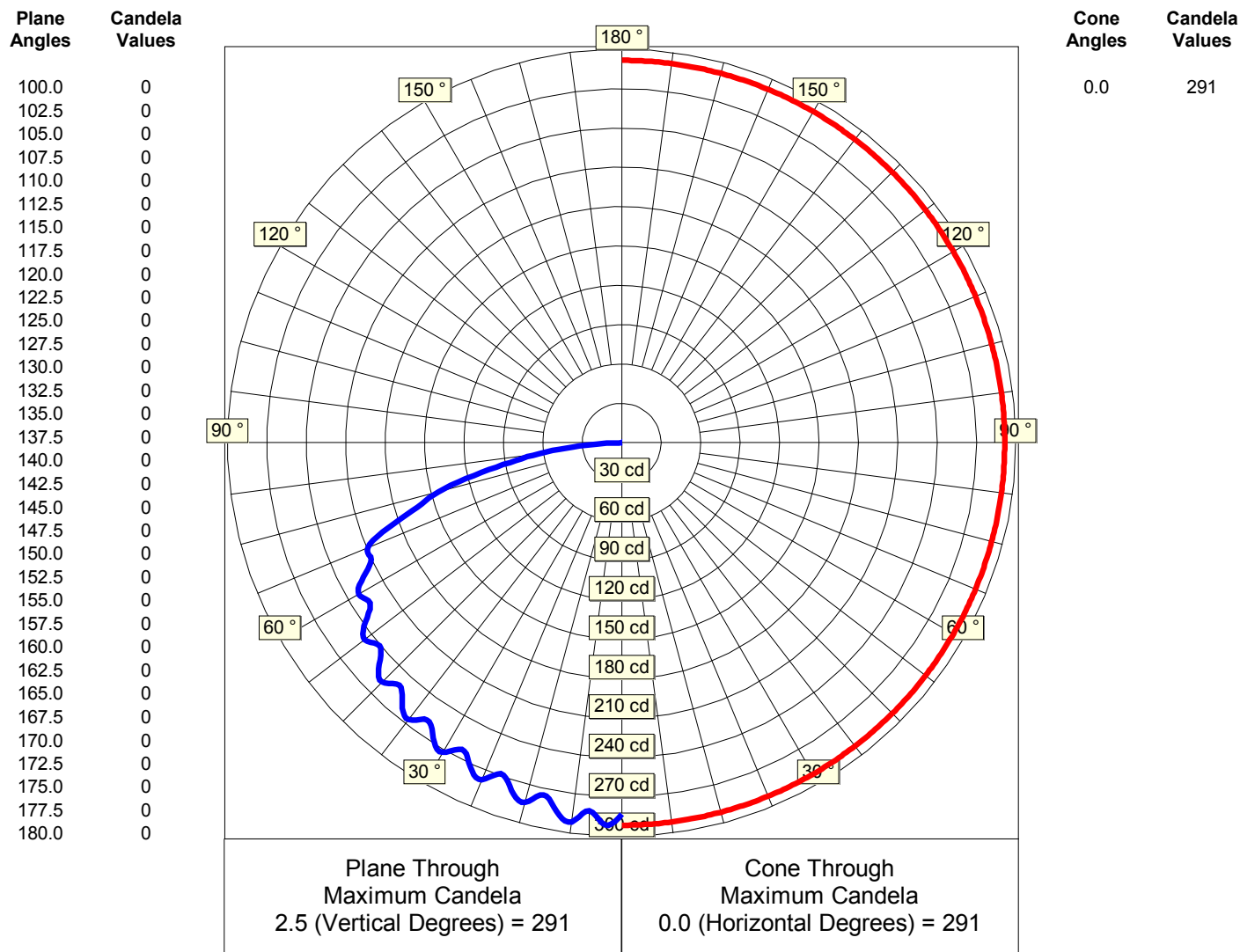


Photometric Report: S2008113-R1

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Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPC-CW-A-VA-120

Luminous Intensity - Polar Curve for each Plane(2)





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IES File Headers

IESNA:LM-63
[ISSUEDATE] 11 August 2020
[TESTLAB] Spectra Lux
[TEST] S2008113-R1
[MANUFAC] ANDlight
[LUMCAT] SPC-CW-A-VA-120
[LUMINAIRE] SPOT LIGHT VOLUMES
[LAMP] (1) BulBrite A21 Frosted LED 16W Bulb c/w Integrated LED Driver @ 120.00V
[_BURNING] Vertical Base Up (1,203 Luminaire Lumens)
[_REFLECTOR] Vanilla Spun Aluminum
[_LENS] None
[_HOUSING] Aluminum Shade Profile
[_NOMINAL COLOR] 2700 K
[_DRIVE CURRENT] 133.3 mA

Candela Table

Lateral Angles

	0.0
V e r t i c a l	0.0 283
	2.5 291
	5.0 282
	7.5 291
	10.0 285
	12.5 275
	15.0 284
	17.5 278
	20.0 268
	22.5 278
	25.0 272
	27.5 263
	30.0 273
	32.5 267
	35.0 258
	37.5 266
	40.0 260
A n g l e s	42.5 250
	45.0 258
	47.5 250
	50.0 241
	52.5 246
	55.0 238
	57.5 227
	60.0 231
	62.5 221
	65.0 210
	67.5 209
	70.0 189
	72.5 163
	75.0 144
	77.5 115
	80.0 87
	82.5 63
	85.0 37
	87.5 15
	90.0 0



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Lateral Angles

	0.0
	92.5
	95.0
	97.5
	100.0
	102.5
	105.0
	107.5
	110.0
	112.5
V e r t i c a l	115.0
	117.5
	120.0
	122.5
	125.0
	127.5
	130.0
	132.5
	135.0
	137.5
A n g l e s	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