



# Spectra Lux

2750 Sabourin, Saint-Laurent (Quebec) H4S 1M2 Canada  
Tel.: (514) 332-0082 Fax: (514) 332-3590 [www.spectralux.ca](http://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: CY4428		Driver Details: CY2022	
<b>DUT Lab ID</b>	SRIS 2823-4	<b>Seasoning</b>	0 Hour	<b>Type</b>	LED Power Supply
<b>Lamp Type</b>	LED/SSL	<b>Test Product</b>	SPC-CW-C-VA-120	<b>Manufacturer</b>	Bulbrite
<b>Current Mode</b>	AC	<b>Manufacturer</b>	Bulbrite	<b>Catalog No.</b>	Integrated LED Driver
<b>Test Report</b>	S2008121-R1	<b>Lamp Catalog No.</b>	(1) A21 Frosted LED16W	<b>Maximum Power</b>	16 W
<b>Test Date</b>	12 August 2020	<b>Drive Current</b>	133.3 mA	<b>Input Voltage</b>	120.00 V
<b>Report Date</b>	14 October 2020	<b>Nominal Color</b>	2700 K	<b>Operating Frequency</b>	60 Hz
<b>Ambient</b>	24.9 °C	<b>Burning Position</b>	Junction Axial	<b>Input Power</b>	15.65 W

### Luminaire Data

General Information		Optics		Aperture (feet)	
<b>Manufacturer</b>	ANDlight	<b>Reflector</b>	Vanilla Spun Aluminum	<b>X</b>	-0.4583
<b>Name</b>	SPOT LIGHT VOLUMES	<b>Housing</b>	Shade C - Aluminum Profile	<b>Y</b>	-0.4583
<b>Catalog No.</b>	SPC-CW-C-VA-120	<b>Lens</b>	None	<b>Z</b>	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.

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### 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

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### Environment Equipment

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

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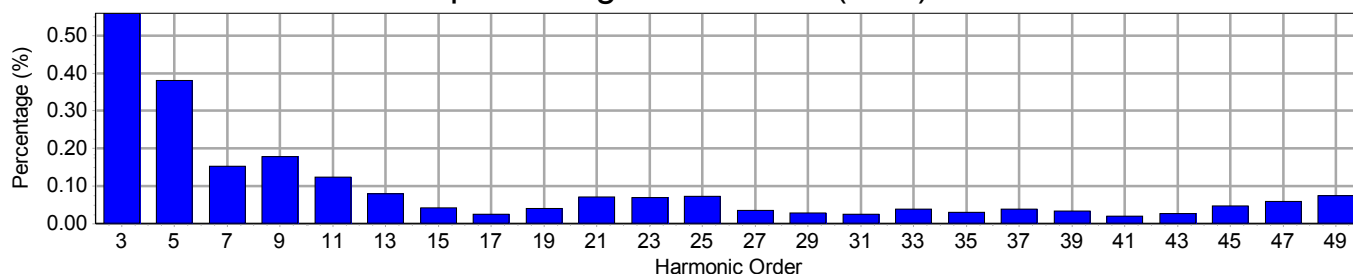


## Electrical Measurements

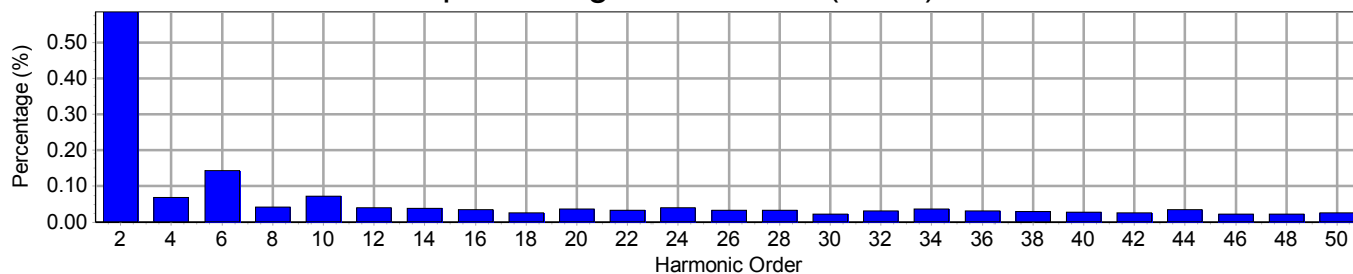
### Input

Frequency	60 Hz	Active Power	15.65 W	THDV [ANSI]	0.98 %
Voltage	120.1 V(rms)	Apparent Power	16.23 VA	THDA [ANSI]	12.63 %
Current	0.1352 A(rms)	Power Factor	0.964	Max. Harmonic At	3rd order

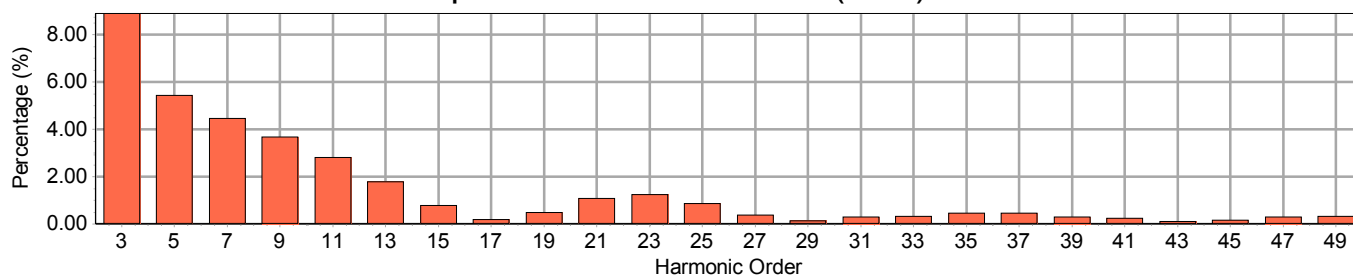
### Input Voltage Harmonics (Odd)



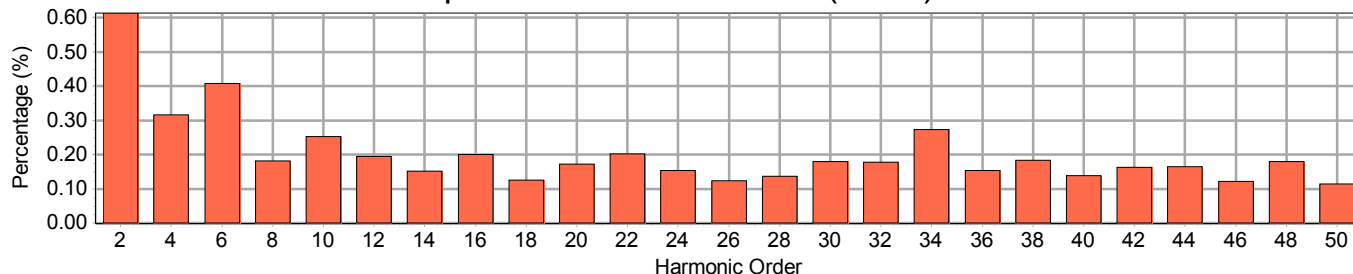
### Input Voltage Harmonics (Even)



### 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	0.587	0.614
3	180	0.560	8.905	4	240	0.068	0.317
5	300	0.381	5.438	6	360	0.143	0.407
7	420	0.152	4.451	8	480	0.043	0.182
9	540	0.177	3.675	10	600	0.073	0.254
11	660	0.123	2.811	12	720	0.040	0.194
13	780	0.080	1.775	14	840	0.038	0.152
15	900	0.041	0.774	16	960	0.035	0.201
17	1020	0.025	0.166	18	1080	0.026	0.126
19	1140	0.041	0.466	20	1200	0.037	0.172
21	1260	0.070	1.080	22	1320	0.034	0.202
23	1380	0.069	1.226	24	1440	0.041	0.153
25	1500	0.072	0.859	26	1560	0.033	0.124
27	1620	0.036	0.353	28	1680	0.033	0.138
29	1740	0.029	0.132	30	1800	0.023	0.180
31	1860	0.024	0.294	32	1920	0.031	0.178
33	1980	0.038	0.316	34	2040	0.036	0.273
35	2100	0.030	0.445	36	2160	0.031	0.154
37	2220	0.038	0.451	38	2280	0.029	0.183
39	2340	0.034	0.280	40	2400	0.028	0.139
41	2460	0.020	0.230	42	2520	0.026	0.163
43	2580	0.027	0.100	44	2640	0.035	0.165
45	2700	0.046	0.144	46	2760	0.022	0.123
47	2820	0.058	0.290	48	2880	0.023	0.180
49	2940	0.074	0.311	50	3000	0.026	0.114



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Lab Code: 200899-0

## Photometric Report: S2008121-R1

Prepared for: ANDlight · Test Date: 12 August 2020

Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPC-CW-C-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		113	108	104	100	110	106	102	99	107	104	100	97	99	97	94	92	90	89	89	89	89	86
2		104	96	89	84	101	94	88	83	99	92	86	82	88	84	80	82	79	76	76	76	76	74
3		96	85	77	71	93	83	76	70	91	82	75	69	79	73	68	74	70	66	66	66	66	64
4		88	76	67	61	86	75	67	60	84	73	66	60	71	64	59	67	62	58	58	58	58	56
5		81	68	59	53	79	67	59	53	77	66	58	52	64	57	52	60	55	51	51	51	51	49
6		75	62	53	47	73	61	53	46	72	60	52	46	58	51	46	55	50	45	45	45	45	43
7		70	56	48	42	68	55	47	41	67	55	47	41	53	46	41	50	45	40	40	40	40	39
8		65	51	43	37	64	51	43	37	62	50	42	37	49	42	37	46	41	36	36	36	36	35
9		61	47	39	34	60	47	39	34	58	46	39	33	45	38	33	43	37	33	33	33	33	31
10		57	44	36	31	56	43	36	31	55	43	35	30	42	35	30	40	34	30	30	30	30	28

### Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	24	3.63	3.63
10 - 20	75	11.18	11.18
20 - 30	124	18.41	18.41
30 - 40	143	21.26	21.26
40 - 50	127	18.84	18.84
50 - 60	89	13.20	13.20
60 - 70	56	8.29	8.29
70 - 80	28	4.17	4.17
80 - 90	7	1.02	1.02
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	673	100.00	100.00

### Average Luminance (Cd/m<sup>2</sup>)

Angle	0 Degree	45 Degree	90 Degree
45.0	15226	15226	15226
55.0	11542	11542	11542
65.0	8522	8522	8522
75.0	6595	6595	6595
85.0	4586	4586	4586

Luminaire Luminous Flux: 673

Measured Input Power: 15.65 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 43.0 lm/W

Luminaire Spacing Criterion (0 Degree): 1.4088

Luminaire Spacing Criterion (90 Degree): 1.4088

Category: Downlight



## Photometric Report: S2008121-R1

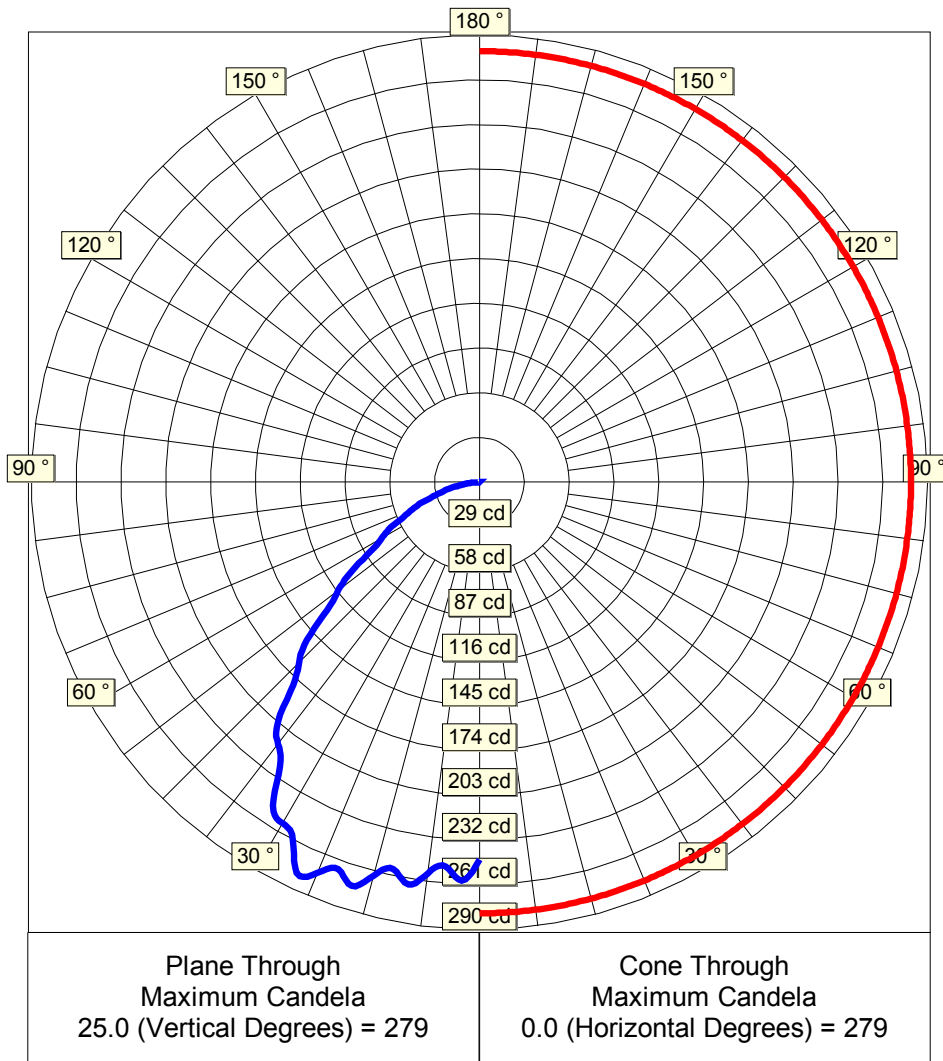
Prepared for: ANDlight · Test Date: 12 August 2020

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

### Luminous Intensity - Polar Curve for each Plane(1)

Plane  
Angles

Plane Angles	Candela Values
0.0	245
2.5	259
5.0	250
7.5	256
10.0	265
12.5	257
15.0	264
17.5	274
20.0	267
22.5	274
25.0	279
27.5	261
30.0	255
32.5	249
35.0	225
37.5	214
40.0	203
42.5	178
45.0	165
47.5	151
50.0	129
52.5	115
55.0	101
57.5	83
60.0	73
62.5	66
65.0	55
67.5	48
70.0	41
72.5	32
75.0	26
77.5	21
80.0	15
82.5	10
85.0	6
87.5	2
90.0	0
92.5	0
95.0	0
97.5	0



Cone  
Angles

Cone Angles	Candela Values
0.0	279



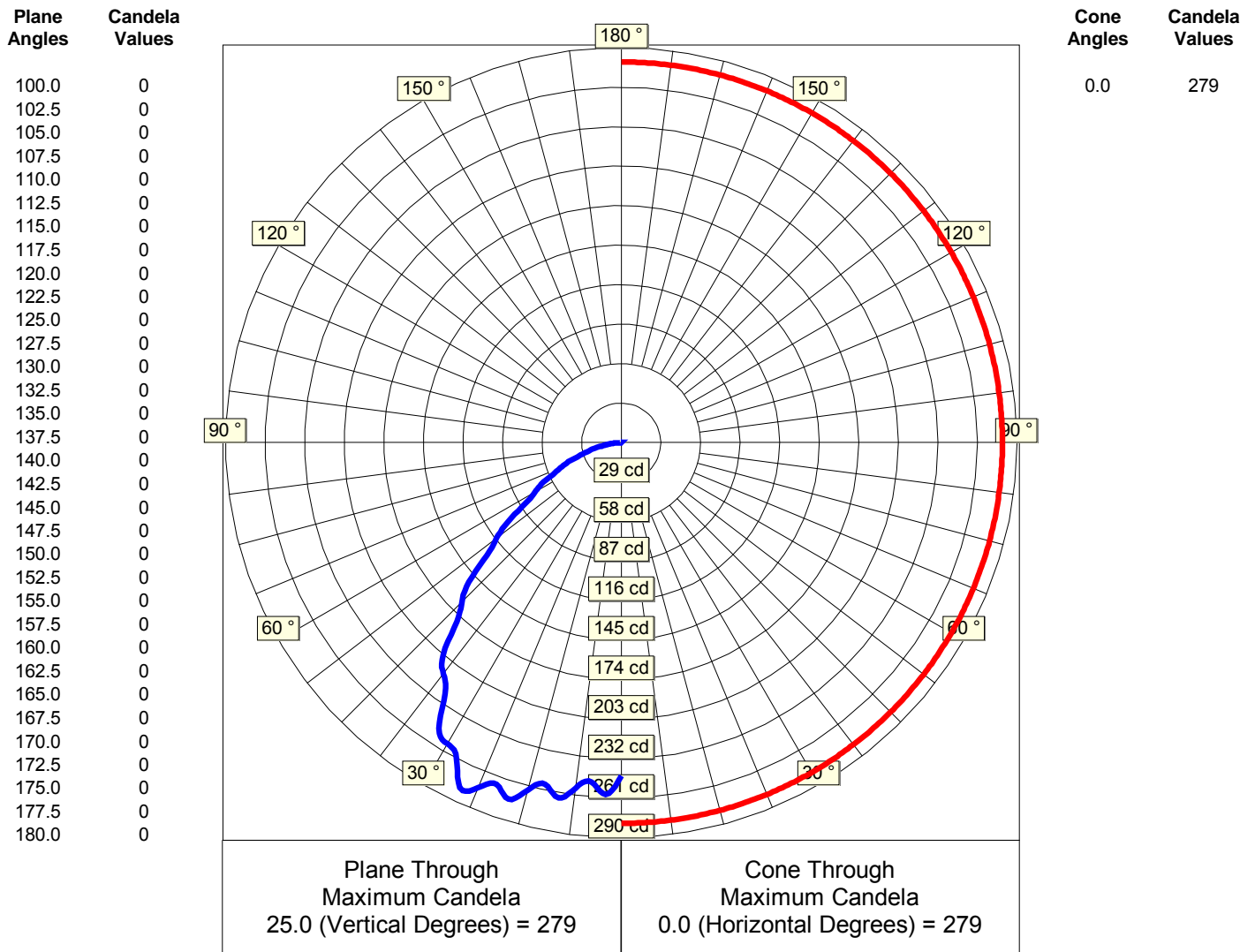


## Photometric Report: S2008121-R1

Prepared for: ANDlight · Test Date: 12 August 2020

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

### Luminous Intensity - Polar Curve for each Plane(2)







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## IES File Headers

IESNA:LM-63  
[ISSUEDATE] 12 August 2020  
[TESTLAB] Spectra Lux  
[TEST] S2008121-R1  
[MANUFAC] ANDlight  
[LUMCAT] SPC-CW-C-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 (673 Luminaire Lumens)  
[\_REFLECTOR] Vanilla Spun Aluminum  
[\_LENS] None  
[\_HOUSING] Shade C - Aluminum Profile  
[\_NOMINAL COLOR] 2700 K  
[\_DRIVE CURRENT] 133.3 mA

## Candela Table

### Lateral Angles

	0.0
	0.0 245
	2.5 259
	5.0 250
	7.5 256
	10.0 265
	12.5 257
	15.0 264
	17.5 274
	20.0 267
V e r t i c a l	22.5 274
	25.0 279
	27.5 261
	30.0 255
	32.5 249
	35.0 225
	37.5 214
	40.0 203
	42.5 178
	45.0 165
A n g l e s	47.5 151
	50.0 129
	52.5 115
	55.0 101
	57.5 83
	60.0 73
	62.5 66
	65.0 55
	67.5 48
	70.0 41
	72.5 32
	75.0 26
	77.5 21
	80.0 15
	82.5 10
	85.0 6
	87.5 2
	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