



# 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: CY4429		Driver Details: CY2022	
<b>DUT Lab ID</b>	SRIS 2823-5	<b>Seasoning</b>	0 Hour	<b>Type</b>	LED Power Supply
<b>Lamp Type</b>	LED/SSL	<b>Test Product</b>	SPC-CW-D-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>	S2008123-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>	24.8 °C	<b>Burning Position</b>	Vertical Base Up	<b>Input Power</b>	15.64 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 D - Aluminum Profile	<b>Y</b>	-0.4583
<b>Catalog No.</b>	SPC-CW-D-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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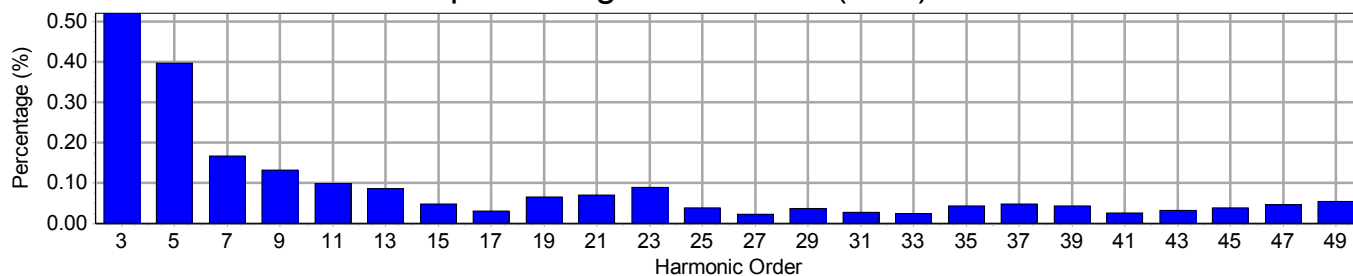


## Electrical Measurements

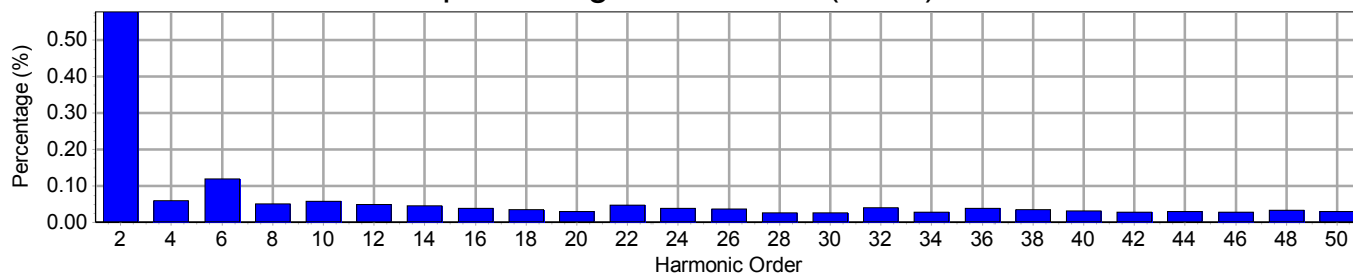
### Input

Frequency	60 Hz	Active Power	15.64 W	THDV [ANSI]	0.95 %
Voltage	120.4 V(rms)	Apparent Power	16.22 VA	THDA [ANSI]	12.94 %
Current	0.1348 A(rms)	Power Factor	0.964	Max. Harmonic At	3rd order

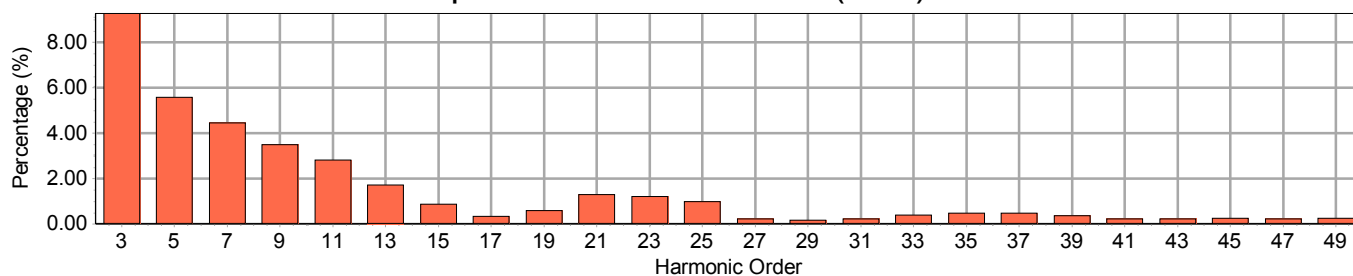
### Input Voltage Harmonics (Odd)



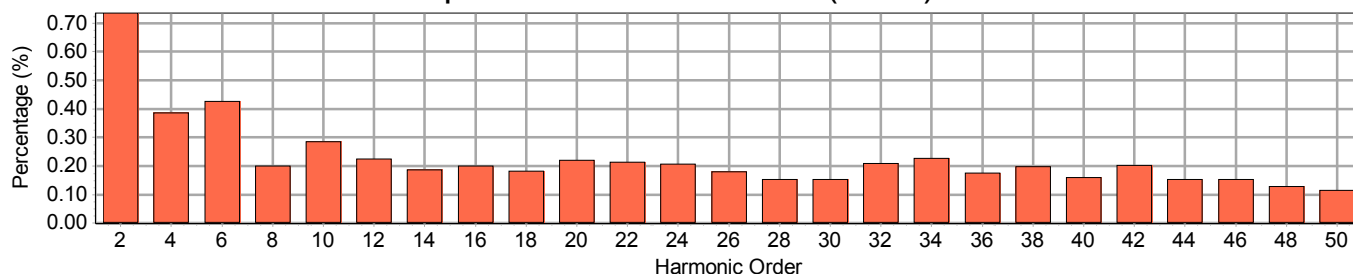
### Input Voltage Harmonics (Even)



### 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	0.579	0.736
3	180	0.521	9.286	4	240	0.060	0.385
5	300	0.397	5.565	6	360	0.119	0.426
7	420	0.168	4.441	8	480	0.049	0.200
9	540	0.133	3.479	10	600	0.057	0.286
11	660	0.100	2.820	12	720	0.048	0.225
13	780	0.087	1.707	14	840	0.044	0.187
15	900	0.049	0.868	16	960	0.038	0.201
17	1020	0.030	0.315	18	1080	0.034	0.184
19	1140	0.065	0.583	20	1200	0.029	0.221
21	1260	0.070	1.281	22	1320	0.047	0.213
23	1380	0.090	1.197	24	1440	0.037	0.208
25	1500	0.039	0.962	26	1560	0.036	0.180
27	1620	0.023	0.225	28	1680	0.025	0.152
29	1740	0.038	0.156	30	1800	0.026	0.153
31	1860	0.028	0.221	32	1920	0.040	0.209
33	1980	0.025	0.383	34	2040	0.028	0.228
35	2100	0.043	0.476	36	2160	0.037	0.176
37	2220	0.049	0.453	38	2280	0.034	0.198
39	2340	0.043	0.353	40	2400	0.031	0.159
41	2460	0.027	0.213	42	2520	0.027	0.203
43	2580	0.033	0.213	44	2640	0.028	0.152
45	2700	0.038	0.239	46	2760	0.027	0.152
47	2820	0.047	0.204	48	2880	0.032	0.128
49	2940	0.055	0.227	50	3000	0.029	0.116



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## Photometric Report: S2008123-R1

Prepared for: ANDlight · Test Date: 12 August 2020

Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPC-CW-D-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				100
1		114	110	106	103	111	108	104	101	109	105	102	100	101	99	97	94	92	91				89
2		106	99	93	88	104	97	92	87	101	95	90	86	92	88	84	86	83	81				79
3		99	90	83	77	97	88	82	77	94	87	81	76	84	79	75	79	75	72				70
4		92	82	74	68	90	81	73	68	88	79	73	68	77	71	67	73	69	65				63
5		86	75	67	61	84	74	67	61	83	73	66	61	71	65	60	67	63	59				57
6		81	69	61	56	79	68	61	55	78	67	60	55	66	59	55	63	58	54				52
7		76	64	56	51	75	63	56	51	73	62	56	51	61	55	50	59	53	50				48
8		72	60	52	47	70	59	52	47	69	58	51	47	57	51	46	55	50	46				44
9		68	56	48	43	66	55	48	43	65	54	48	43	53	47	43	52	46	43				41
10		64	52	45	40	63	52	45	40	62	51	45	40	50	44	40	49	43	40				38

### Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	24	7.59	7.59
10 - 20	66	20.82	20.82
20 - 30	67	21.07	21.07
30 - 40	55	17.48	17.48
40 - 50	45	14.07	14.07
50 - 60	30	9.32	9.32
60 - 70	19	5.85	5.85
70 - 80	10	3.03	3.03
80 - 90	2	0.76	0.76
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	317	100.00	100.00

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

Angle	0 Degree	45 Degree	90 Degree
45.0	5474	5474	5474
55.0	3686	3686	3686
65.0	2831	2831	2831
75.0	2333	2333	2333
85.0	1563	1563	1563

Luminaire Luminous Flux: 317

Measured Input Power: 15.64 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 20.3 lm/W

Luminaire Spacing Criterion (0 Degree): 0.8909

Luminaire Spacing Criterion (90 Degree): 0.8909

Category: Downlight



## Photometric Report: S2008123-R1

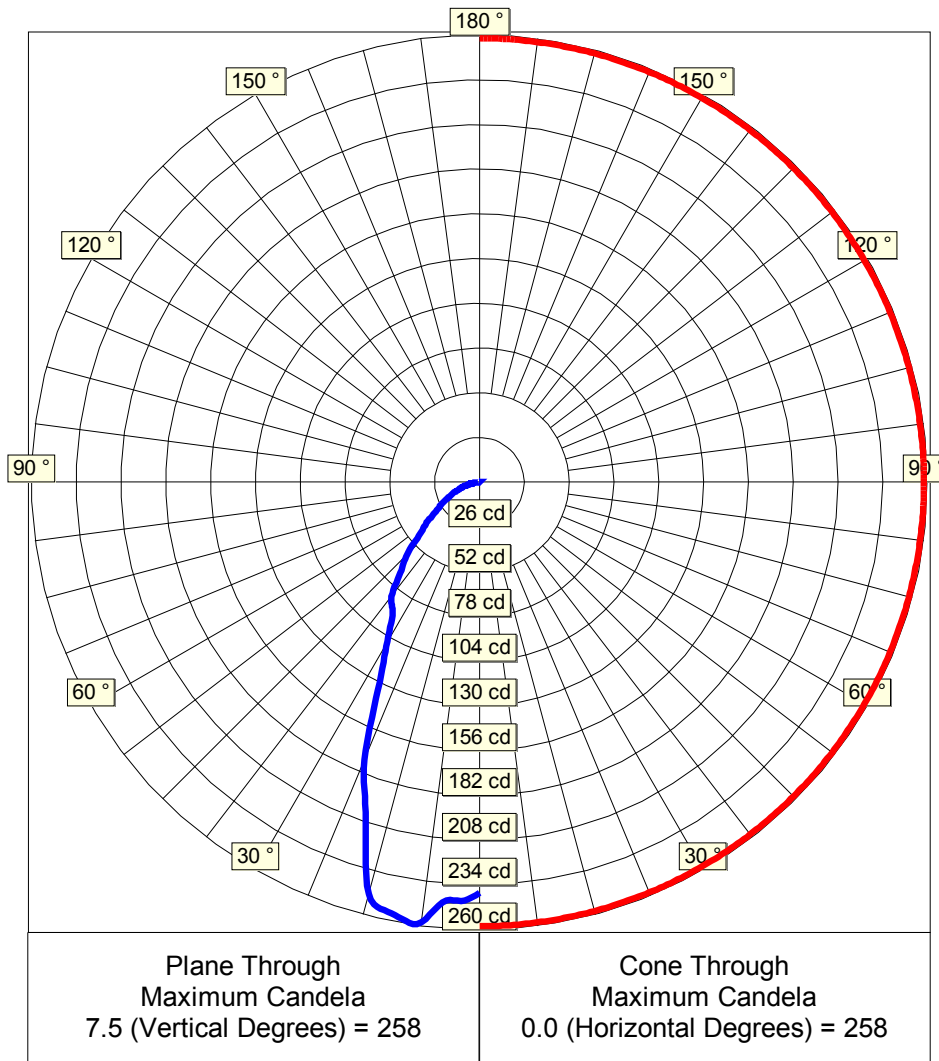
Prepared for: ANDlight · Test Date: 12 August 2020

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

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

Plane  
Angles

Plane Angles	Candela Values
0.0	239
2.5	244
5.0	245
7.5	258
10.0	258
12.5	255
15.0	248
17.5	219
20.0	194
22.5	174
25.0	144
27.5	122
30.0	107
32.5	94
35.0	88
37.5	84
40.0	74
42.5	66
45.0	59
47.5	50
50.0	43
52.5	38
55.0	32
57.5	28
60.0	25
62.5	21
65.0	18
67.5	16
70.0	13
72.5	11
75.0	9
77.5	7
80.0	5
82.5	4
85.0	2
87.5	1
90.0	0
92.5	0
95.0	0
97.5	0



Cone  
Angles

Cone Angles	Candela Values
0.0	258



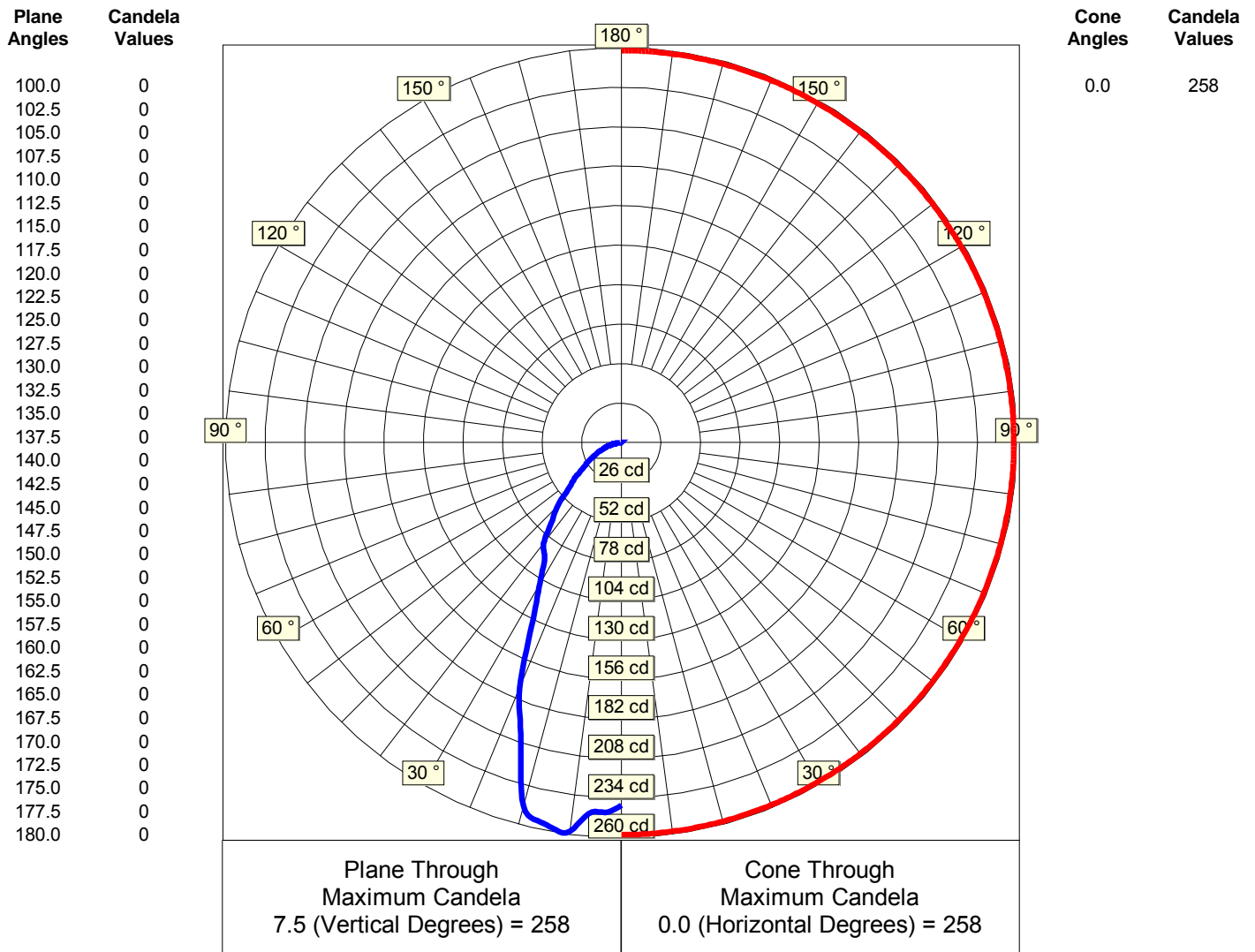


## Photometric Report: S2008123-R1

Prepared for: ANDlight · Test Date: 12 August 2020

Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPC-CW-D-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] S2008123-R1  
[MANUFAC] ANDlight  
[LUMCAT] SPC-CW-D-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 (317 Luminaire Lumens)  
[\_REFLECTOR] Vanilla Spun Aluminum  
[\_LENS] None  
[\_HOUSING] Shade D - Aluminum Profile  
[\_NOMINAL COLOR] 2700 K  
[\_DRIVE CURRENT] 133.3 mA

## Candela Table

### Lateral Angles

	0.0
V e r t i c a l	0.0 239
	2.5 244
	5.0 245
	7.5 258
	10.0 258
	12.5 255
	15.0 248
	17.5 219
	20.0 194
	22.5 174
	25.0 144
	27.5 122
	30.0 107
	32.5 94
	35.0 88
	37.5 84
	40.0 74
	42.5 66
A n g l e s	45.0 59
	47.5 50
	50.0 43
	52.5 38
	55.0 32
	57.5 28
	60.0 25
	62.5 21
	65.0 18
	67.5 16
	70.0 13
	72.5 11
	75.0 9
	77.5 7
	80.0 5
	82.5 4
	85.0 2
	87.5 1
	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