



## 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: CY4437		Driver Details: CY2023	
<b>DUT Lab ID</b>	SRIS 2823-13	<b>Seasoning</b>	0 Hour	<b>Type</b>	LED Power Supply
<b>Lamp Type</b>	LED/SSL	<b>Test Product</b>	SPO-P-A-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>	S2008134-R1	<b>Lamp Catalog No.</b>	(2) G25 Frosted LED 7W	<b>Nominal Power</b>	14 W
<b>Test Date</b>	13 August 2020	<b>Drive Current</b>	116.7 mA	<b>Input Voltage</b>	120.00 V
<b>Report Date</b>	15 October 2020	<b>Nominal Color</b>	2700 K	<b>Operating Frequency</b>	60 Hz
<b>Ambient</b>	24.7 °C	<b>Burning Position</b>	Vertical Base Up & Down	<b>Input Power</b>	14.73 W

### Luminaire Data

General Information		Optics		Aperture (feet)	
<b>Manufacturer</b>	ANDlight	<b>Reflector</b>	Vanilla Spun Aluminum	<b>X</b>	-0.8750
<b>Name</b>	SPOT LIGHT VOLUMES	<b>Housing</b>	Shades (A-D) - Aluminum Profile	<b>Y</b>	-0.8750
<b>Catalog No.</b>	SPO-P-A-D-VA-120	<b>Lens</b>	None	<b>Z</b>	0.0000

Stabilization Time: 1 hour 15 minutes

**Approved Signatory: Chrisnel Blot**

**Signature:**



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### 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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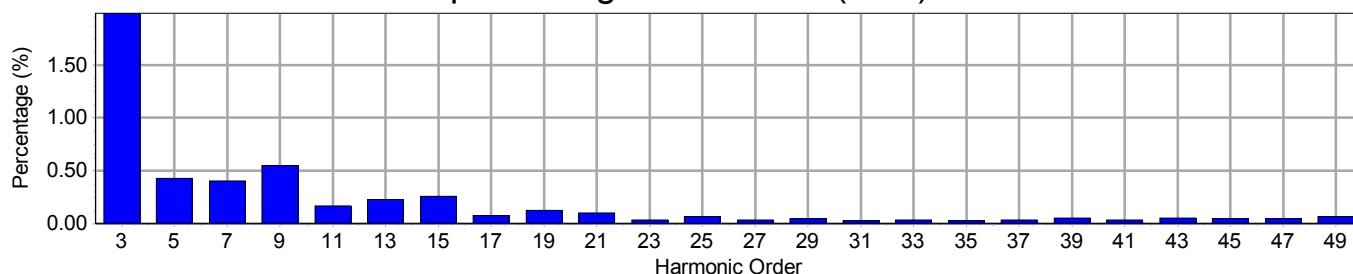


## Electrical Measurements

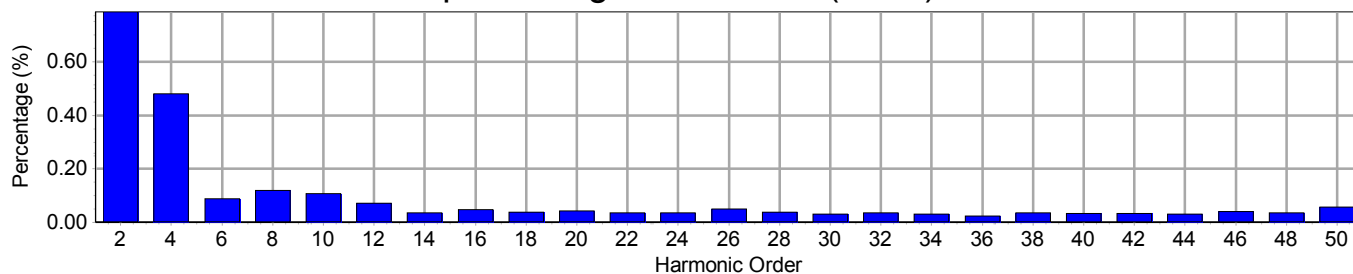
### Input

Frequency	60 Hz	Active Power	14.73 W	THDV [ANSI]	2.39 %
Voltage	120.1 V(rms)	Apparent Power	15.91 VA	THDA [ANSI]	38.09 %
Current	0.1325 A(rms)	Power Factor	0.926	Max. Harmonic At	3rd order

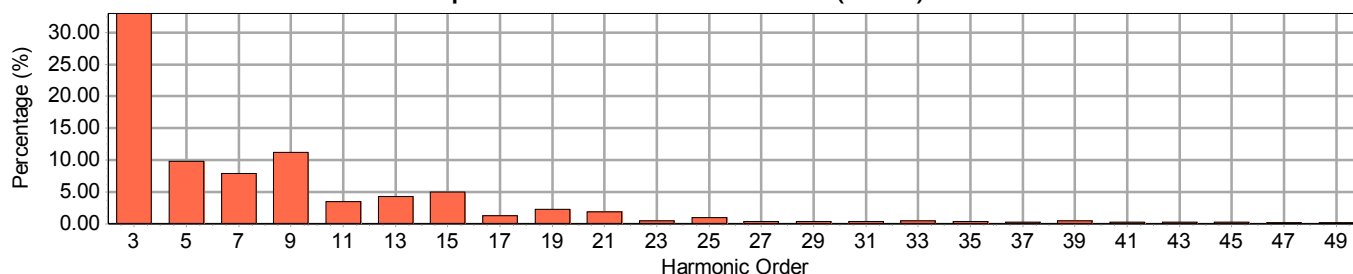
### Input Voltage Harmonics (Odd)



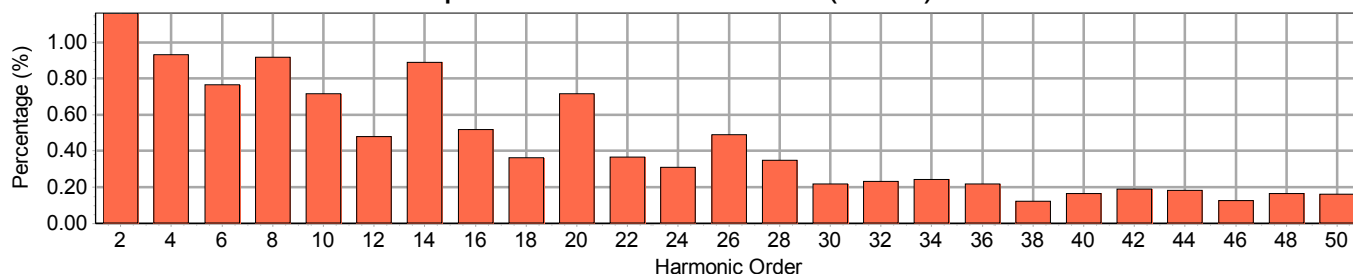
### Input Voltage Harmonics (Even)



### Input Current Harmonics (Odd)



### Input Current Harmonics (Even)





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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	0.789	1.165
3	180	1.992	33.065	4	240	0.482	0.931
5	300	0.426	9.825	6	360	0.087	0.766
7	420	0.404	7.849	8	480	0.118	0.920
9	540	0.550	11.232	10	600	0.108	0.717
11	660	0.168	3.446	12	720	0.071	0.481
13	780	0.228	4.226	14	840	0.035	0.889
15	900	0.259	4.960	16	960	0.047	0.518
17	1020	0.074	1.219	18	1080	0.037	0.361
19	1140	0.124	2.225	20	1200	0.042	0.719
21	1260	0.101	1.850	22	1320	0.034	0.366
23	1380	0.032	0.473	24	1440	0.036	0.309
25	1500	0.063	0.926	26	1560	0.049	0.491
27	1620	0.034	0.400	28	1680	0.037	0.350
29	1740	0.047	0.338	30	1800	0.029	0.217
31	1860	0.027	0.311	32	1920	0.035	0.232
33	1980	0.033	0.480	34	2040	0.030	0.241
35	2100	0.030	0.319	36	2160	0.022	0.217
37	2220	0.033	0.289	38	2280	0.034	0.123
39	2340	0.053	0.449	40	2400	0.034	0.163
41	2460	0.032	0.212	42	2520	0.032	0.191
43	2580	0.053	0.237	44	2640	0.030	0.183
45	2700	0.047	0.299	46	2760	0.039	0.124
47	2820	0.047	0.140	48	2880	0.035	0.165
49	2940	0.062	0.148	50	3000	0.056	0.161



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## Photometric Report: S2008134-R1

Prepared for: ANDlight · Test Date: 13 August 2020

Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPO-P-A-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		120	120	120	120	114	114	114	114	110	110	110	110	100	100	100	84	84	84	84	84	84	81
1		109	104	99	95	104	99	95	91	99	95	91	88	87	84	82	74	72	70	74	72	70	67
2		99	89	82	75	94	86	79	73	90	82	76	71	76	71	66	64	61	58	64	61	58	55
3		90	78	69	62	85	75	66	60	81	72	64	58	66	60	55	56	52	48	56	52	48	45
4		82	68	59	51	78	66	57	50	74	63	55	49	58	51	46	49	44	41	49	44	41	38
5		75	60	51	44	71	58	49	42	68	56	48	41	52	45	39	44	39	35	44	39	35	32
6		69	54	44	37	65	52	43	37	62	50	42	36	46	39	34	39	34	30	39	34	30	28
7		63	49	39	33	60	47	38	32	57	45	37	31	42	35	30	36	31	27	36	31	27	24
8		59	44	35	29	56	42	34	28	53	41	33	27	38	31	26	33	28	24	33	28	24	21
9		55	40	31	26	52	39	31	25	50	37	30	24	35	28	23	30	25	21	30	25	21	19
10		51	37	28	23	49	36	28	22	47	34	27	22	32	26	21	28	23	19	28	23	19	17

### Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	13	2.33	2.33
10 - 20	36	6.56	6.56
20 - 30	55	9.91	9.91
30 - 40	69	12.51	12.51
40 - 50	80	14.49	14.49
50 - 60	84	15.16	15.16
60 - 70	68	12.23	12.23
70 - 80	36	6.41	6.41
80 - 90	7	1.18	1.18
90 - 120	10	1.76	1.76
90 - 130	19	3.42	3.42
90 - 150	51	9.26	9.26
90 - 180	107	19.22	19.22
0 - 180	555	100.00	100.00

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

Angle	0 Degree	45 Degree	90 Degree
45.0	2647	2647	2647
55.0	2983	2983	2983
65.0	2912	2912	2912
75.0	2318	2318	2318
85.0	966	966	966

Luminaire Luminous Flux: 555

Measured Input Power: 14.73 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 37.7 lm/W

Luminaire Spacing Criterion (0 Degree): 1.2261

Luminaire Spacing Criterion (90 Degree): 1.2261

Category: Up and Down



## Photometric Report: S2008134-R1

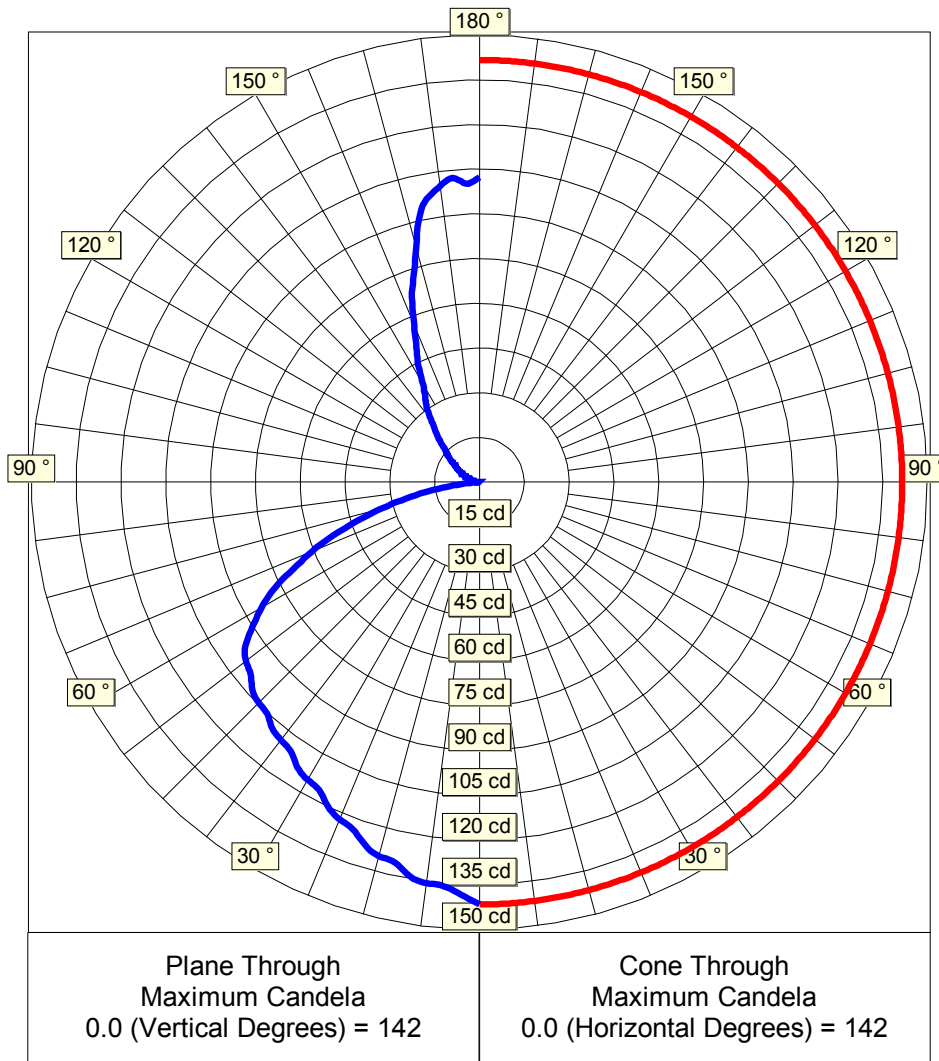
Prepared for: ANDlight · Test Date: 13 August 2020

Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPO-P-A-D-VA-120

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

Plane  
Angles

Plane Angles	Candela Values
0.0	142
2.5	138
5.0	136
7.5	136
10.0	134
12.5	131
15.0	130
17.5	128
20.0	124
22.5	122
25.0	120
27.5	116
30.0	115
32.5	113
35.0	110
37.5	109
40.0	108
42.5	105
45.0	105
47.5	103
50.0	100
52.5	99
55.0	96
57.5	90
60.0	84
62.5	77
65.0	69
67.5	61
70.0	52
72.5	42
75.0	34
77.5	25
80.0	17
82.5	10
85.0	5
87.5	1
90.0	0
92.5	0
95.0	1
97.5	1



Cone  
Angles

Cone Angles	Candela Values
0.0	142



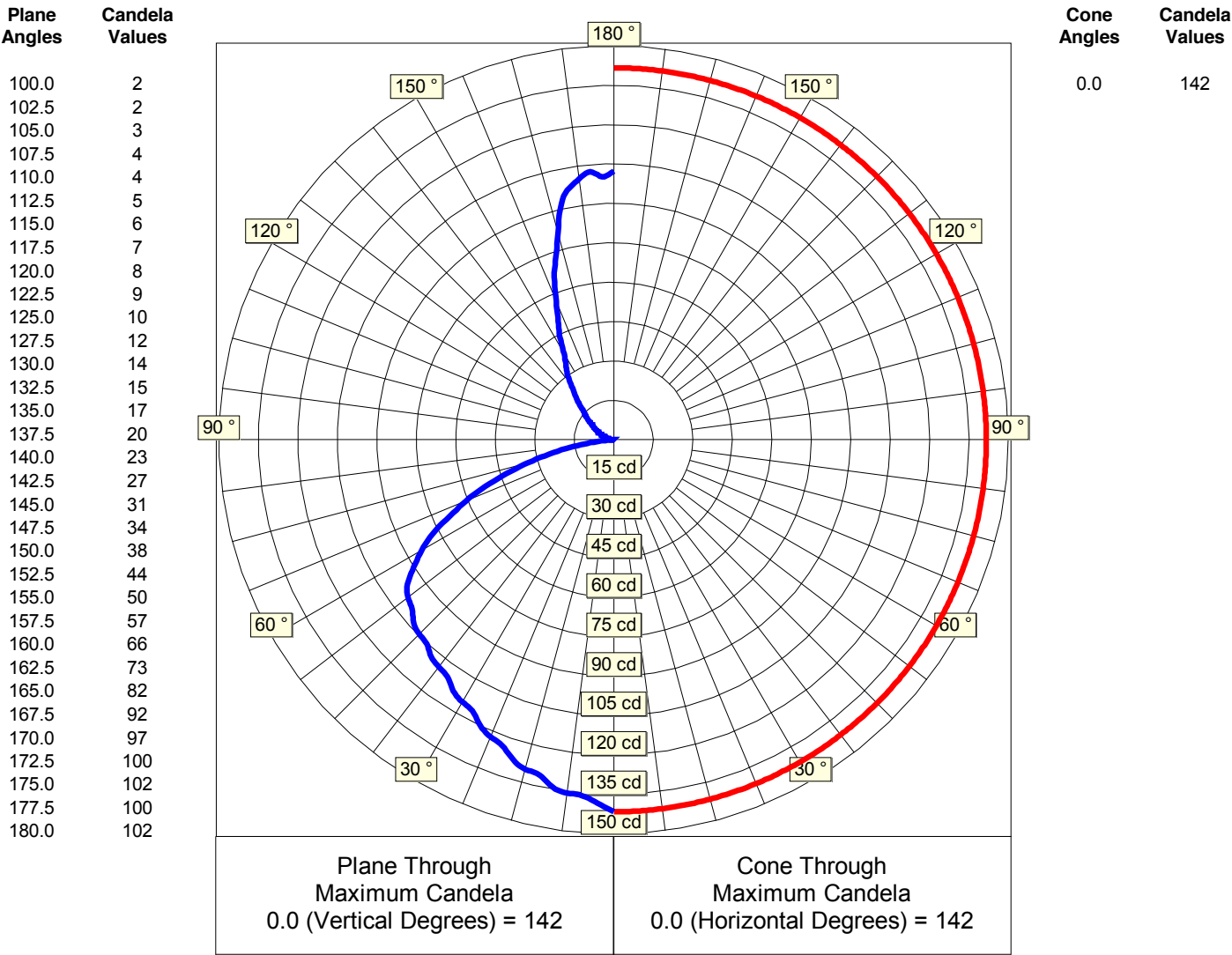


Photometric Report: S2008134-R1

Prepared for: ANDlight · Test Date: 13 August 2020

Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPO-P-A-D-VA-120

Luminous Intensity - Polar Curve for each Plane(2)







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## IES File Headers

IESNA:LM-63  
[ISSUEDATE] 13 August 2020  
[TESTLAB] Spectra Lux  
[TEST] S2008134-R1  
[MANUFAC] ANDlight  
[LUMCAT] SPO-P-A-D-VA-120  
[LUMINAIRE] SPOT LIGHT VOLUMES  
[LAMP] (2)BulBrite G25 Frosted LED 7W Bulb c/w Integrated LED Driver @ 120.00V  
[\_BURNING] Vertical Base Up & Down (555 Luminaire Lumens)  
[\_REFLECTOR] Vanilla Spun Aluminum  
[\_LENS] None  
[\_HOUSING] Shades (A-D)- Aluminum Profile  
[\_NOMINAL COLOR] 2700 K  
[\_DRIVE CURRENT] 116.7 mA

## Candela Table

### Lateral Angles

	0.0
V e r t i c a l	0.0 142
	2.5 138
	5.0 136
	7.5 136
	10.0 134
	12.5 131
	15.0 130
	17.5 128
	20.0 124
	22.5 122
	25.0 120
	27.5 116
	30.0 115
	32.5 113
	35.0 110
	37.5 109
	40.0 108
	42.5 105
A n g l e s	45.0 105
	47.5 103
	50.0 100
	52.5 99
	55.0 96
	57.5 90
	60.0 84
	62.5 77
	65.0 69
	67.5 61
	70.0 52
	72.5 42
	75.0 34
	77.5 25
	80.0 17
	82.5 10
	85.0 5
	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