



## 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: CY4440		Driver Details: CY2023	
<b>DUT Lab ID</b>	SRIS 2823-16	<b>Seasoning</b>	0 Hour	<b>Type</b>	LED Power Supply
<b>Lamp Type</b>	LED/SSL	<b>Test Product</b>	SPO-P-B-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>	S2008137-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>	24.2 °C	<b>Burning Position</b>	Vertical Base Up & Down	<b>Input Power</b>	14.84 W

### Luminaire Data

General Information		Optics		Aperture (feet)	
<b>Manufacturer</b>	ANDlight	<b>Reflector</b>	Vanilla Spun Aluminum	<b>X</b>	-1.1667
<b>Name</b>	SPOT LIGHT VOLUMES	<b>Housing</b>	Shades (B-D) - Aluminum Profile	<b>Y</b>	-1.1667
<b>Catalog No.</b>	SPO-P-B-D-VA-120	<b>Lens</b>	None	<b>Z</b>	0.0000

Stabilization Time: 1 hpur 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.

### 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



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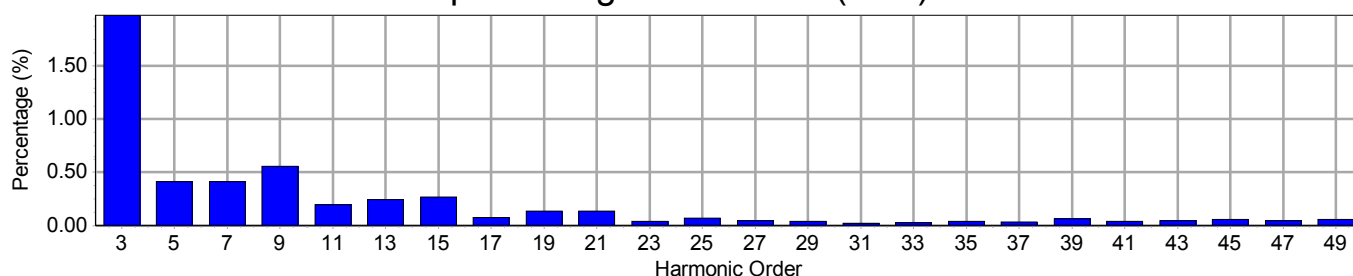
Lab Code: 200899-0

## Electrical Measurements

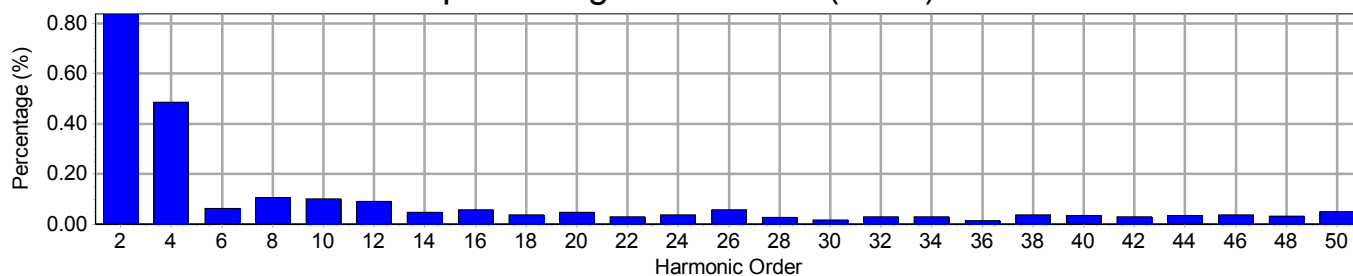
### Input

Frequency	60 Hz	Active Power	14.84 W	THDV [ANSI]	2.40 %
Voltage	120.2 V(rms)	Apparent Power	16.04 VA	THDA [ANSI]	38.29 %
Current	0.1335 A(rms)	Power Factor	0.925	Max. Harmonic At	3rd order

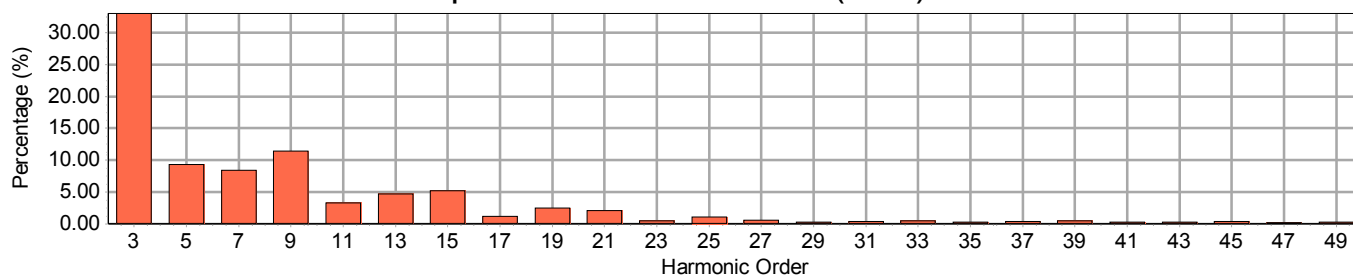
### Input Voltage Harmonics (Odd)



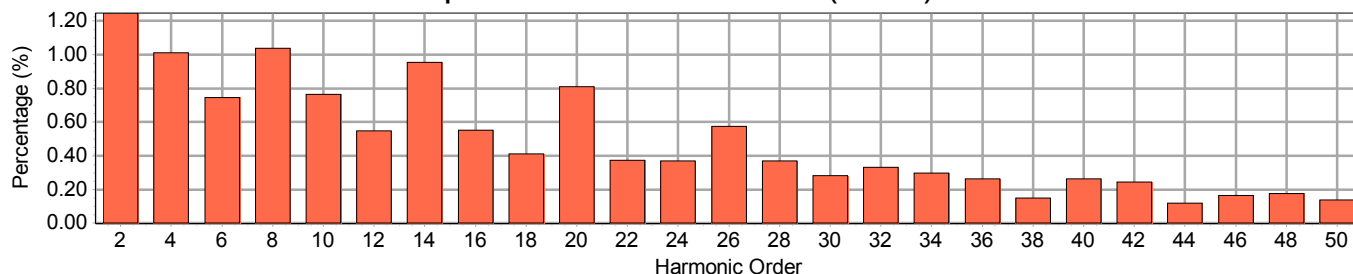
### Input Voltage Harmonics (Even)



### 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	0.839	1.248
3	180	1.974	33.102	4	240	0.486	1.010
5	300	0.409	9.286	6	360	0.063	0.743
7	420	0.409	8.439	8	480	0.106	1.039
9	540	0.556	11.441	10	600	0.100	0.765
11	660	0.195	3.229	12	720	0.091	0.547
13	780	0.245	4.656	14	840	0.046	0.952
15	900	0.265	5.201	16	960	0.057	0.550
17	1020	0.077	1.120	18	1080	0.037	0.410
19	1140	0.132	2.507	20	1200	0.046	0.810
21	1260	0.133	2.082	22	1320	0.029	0.373
23	1380	0.038	0.456	24	1440	0.038	0.369
25	1500	0.069	1.089	26	1560	0.057	0.574
27	1620	0.043	0.524	28	1680	0.027	0.371
29	1740	0.037	0.296	30	1800	0.018	0.283
31	1860	0.018	0.315	32	1920	0.030	0.333
33	1980	0.030	0.451	34	2040	0.030	0.297
35	2100	0.039	0.272	36	2160	0.014	0.263
37	2220	0.031	0.327	38	2280	0.036	0.152
39	2340	0.064	0.444	40	2400	0.034	0.265
41	2460	0.037	0.215	42	2520	0.028	0.245
43	2580	0.043	0.283	44	2640	0.035	0.118
45	2700	0.057	0.328	46	2760	0.037	0.166
47	2820	0.044	0.142	48	2880	0.033	0.175
49	2940	0.057	0.229	50	3000	0.049	0.138



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## Photometric Report: S2008137-R1

Prepared for: ANDlight · Test Date: 13 August 2020

Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPO-P-B-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		119	119	119	119	114	114	114	114	109	109	109	109	100	100	100	84	84	84	84	84	84	80
1		110	105	101	97	105	101	97	93	100	96	93	90	88	86	83	75	73	71	75	73	71	68
2		100	92	85	79	96	88	82	76	91	84	79	74	78	73	69	66	63	60	66	63	60	57
3		92	80	72	65	87	77	70	63	83	74	67	62	68	63	58	58	54	51	58	54	51	48
4		84	71	62	55	80	68	60	54	76	66	58	52	61	54	49	52	47	44	52	47	44	41
5		77	63	54	47	73	61	52	46	70	58	51	45	54	47	42	46	42	38	46	42	38	35
6		71	57	47	41	67	54	46	40	64	52	45	39	49	42	37	42	37	33	42	37	33	31
7		65	51	42	36	62	49	41	35	59	47	40	34	44	37	32	38	33	29	38	33	29	27
8		61	46	37	31	58	45	36	31	55	43	35	30	40	33	29	35	30	26	35	30	26	24
9		56	42	34	28	54	41	33	27	51	39	32	27	37	30	26	32	27	23	32	27	23	21
10		53	39	31	25	50	37	30	25	48	36	29	24	34	28	23	30	25	21	30	25	21	19

### Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	14	2.57	2.57
10 - 20	39	7.39	7.39
20 - 30	60	11.33	11.33
30 - 40	75	14.14	14.14
40 - 50	85	16.07	16.07
50 - 60	82	15.50	15.50
60 - 70	46	8.78	8.78
70 - 80	18	3.35	3.35
80 - 90	4	0.71	0.71
90 - 120	10	1.85	1.85
90 - 130	19	3.59	3.59
90 - 150	51	9.72	9.72
90 - 180	107	20.16	20.16
0 - 180	529	100.00	100.00

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

Angle	0 Degree	45 Degree	90 Degree
45.0	1570	1570	1570
55.0	1645	1645	1645
65.0	1107	1107	1107
75.0	646	646	646
85.0	351	351	351

Luminaire Luminous Flux: 529

Measured Input Power: 14.84 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 35.7 lm/W

Luminaire Spacing Criterion (0 Degree): 1.2983

Luminaire Spacing Criterion (90 Degree): 1.2983

Category: Up and Down



## Photometric Report: S2008137-R1

Prepared for: ANDlight · Test Date: 13 August 2020

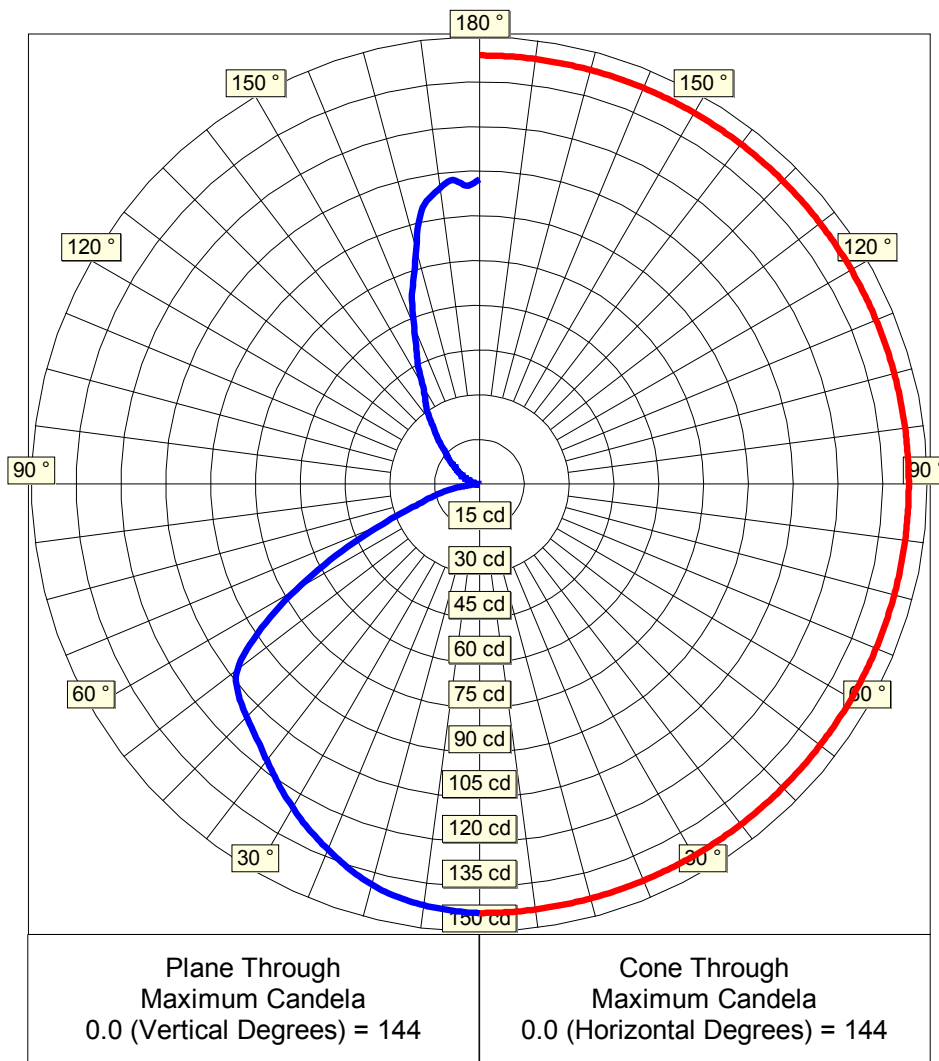
Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPO-P-B-D-VA-120

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

Plane  
Angles

Candela  
Values

0.0	144
2.5	143
5.0	143
7.5	142
10.0	142
12.5	140
15.0	139
17.5	137
20.0	135
22.5	133
25.0	130
27.5	128
30.0	125
32.5	122
35.0	120
37.5	117
40.0	114
42.5	112
45.0	110
47.5	108
50.0	106
52.5	102
55.0	94
57.5	83
60.0	71
62.5	59
65.0	46
67.5	35
70.0	26
72.5	20
75.0	17
77.5	13
80.0	9
82.5	6
85.0	3
87.5	0
90.0	0
92.5	0
95.0	1
97.5	1



Cone  
Angles

Candela  
Values

0.0	144
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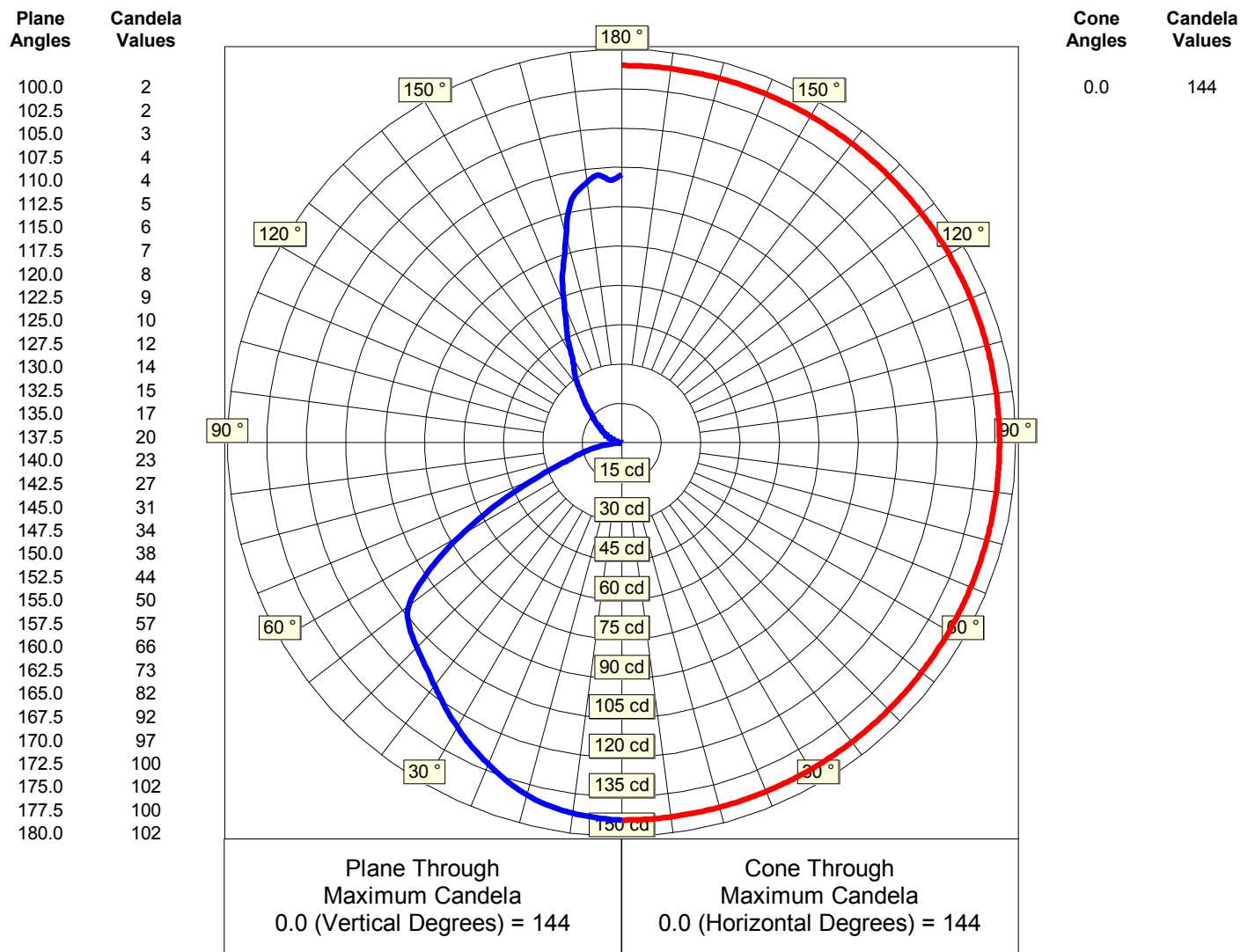


## Photometric Report: S2008137-R1

Prepared for: ANDlight · Test Date: 13 August 2020

Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPO-P-B-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] S2008137-R1  
[MANUFAC] ANDlight  
[LUMCAT] SPO-P-B-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 (529 Luminaire Lumens)  
[\_REFLECTOR] Vanilla Spun Aluminum  
[\_LENS] None  
[\_HOUSING] Shades(B-D)- Aluminum Profile  
[\_NOMINAL COLOR] 2700 K  
[\_DRIVE CURRENT] 116.7 mA

## Candela Table

### Lateral Angles

	0.0
	0.0 144
	2.5 143
	5.0 143
	7.5 142
	10.0 142
	12.5 140
	15.0 139
	17.5 137
	20.0 135
V e r t i c a l	22.5 133
	25.0 130
	27.5 128
	30.0 125
	32.5 122
	35.0 120
	37.5 117
	40.0 114
	42.5 112
	45.0 110
A n g l e s	47.5 108
	50.0 106
	52.5 102
	55.0 94
	57.5 83
	60.0 71
	62.5 59
	65.0 46
	67.5 35
	70.0 26
	72.5 20
	75.0 17
	77.5 13
	80.0 9
	82.5 6
	85.0 3
	87.5 0
	90.0 0



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## Lateral Angles

	0.0
V e r t i c a l	92.5 0
	95.0 1
	97.5 1
	100.0 2
	102.5 2
	105.0 3
	107.5 4
	110.0 4
	112.5 5
	115.0 6
	117.5 7
	120.0 8
	122.5 9
	125.0 10
	127.5 12
	130.0 14
	132.5 15
	135.0 17
A n g l e s	137.5 20
	140.0 23
	142.5 27
	145.0 31
	147.5 34
	150.0 38
	152.5 44
	155.0 50
	157.5 57
	160.0 66
	162.5 73
	165.0 82
	167.5 92
	170.0 97
	172.5 100
	175.0 102
	177.5 100
	180.0 102