



Spectra Lux

2750 Sabourin, Saint-Laurent (Quebec) H4S 1M2 Canada
Tel.: (514) 332-0082 Fax: (514) 332-3590 www.spectralux.ca



Moving Mirror Goniophotometer Test Report

Standard(s): IES LM-63, IES LM-79, ANSI C82.77

Customer ANDlight, 1951 Franklin St., Vancouver, British Columbia , Canada, V5L 0C7

General Information		Lamp Details: CY4423		Driver Details: CY2019	
DUT Lab ID	SRIS 2824-7	Seasoning	€P[~!Á	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	SLA-20-P-35	Manufacturer	Meanwell
Current Mode	AC	Manufacturer	EPISTAR	Catalog No.	IDLV-45-12
Test Report	S2008057-R1	Lamp Catalog No.	OMNICHIP (320404-xx-300-12-4.4)	Maximum Power	45 W
Test Date	5 August 2020	Drive Current	Fì 0 mA	Input Voltage	120.00 V
Report Date	14 Decemb^!ÁGG€ Á	Nominal Color	3500 K	Operating Frequency	60 Hz
Ambient	2Í .2 °C	Burning Position	Junction Horizontal	Input Power	3.54 W

Luminaire Data

General Information		Optics		Aperture (feet)	
Manufacturer	ANDlight	Reflector	None	X	0.0260
Name	SLAB	Housing	Black Body	Y	0.5417
Catalog No.	SLA-20-P-35	Lens	Polycarbonate	Z	0.4583

Stabilization Time: I Í Á ã~ ¢•Á

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

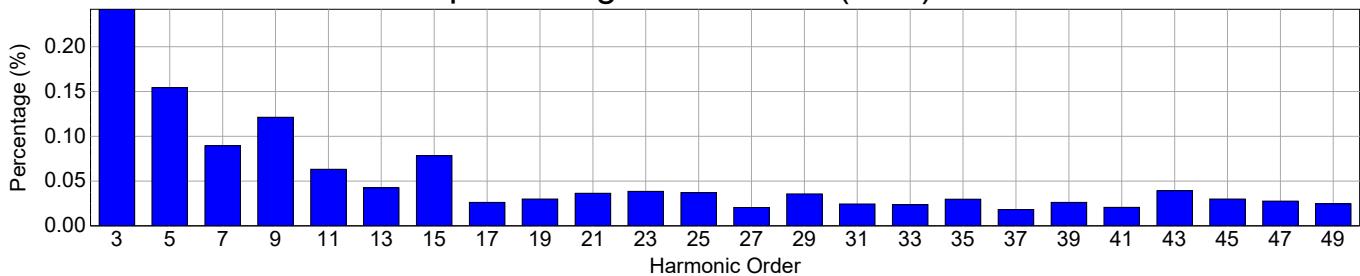


Electrical Measurements

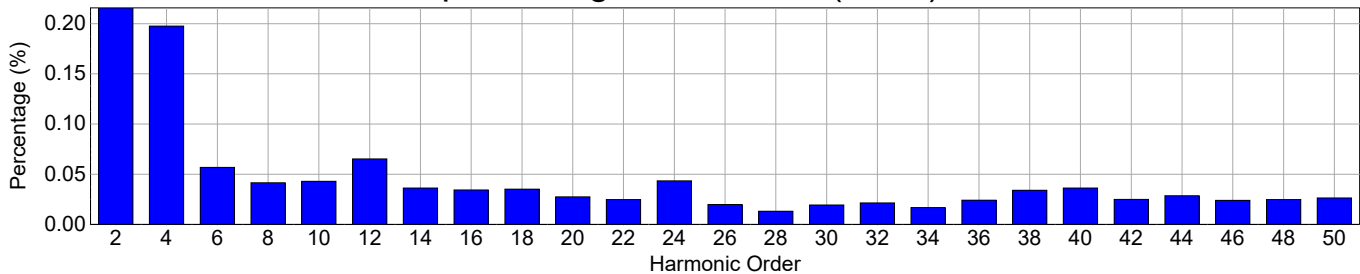
Input

Frequency	60 Hz	Active Power	3.54 W	THDV [ANSI]	0.49 %
Voltage	120.1 V(rms)	Apparent Power	5.81 VA	THDA [ANSI]	17.68 %
Current	0.0484 A(rms)	Power Factor	0.609	Max. Harmonic At	7th order

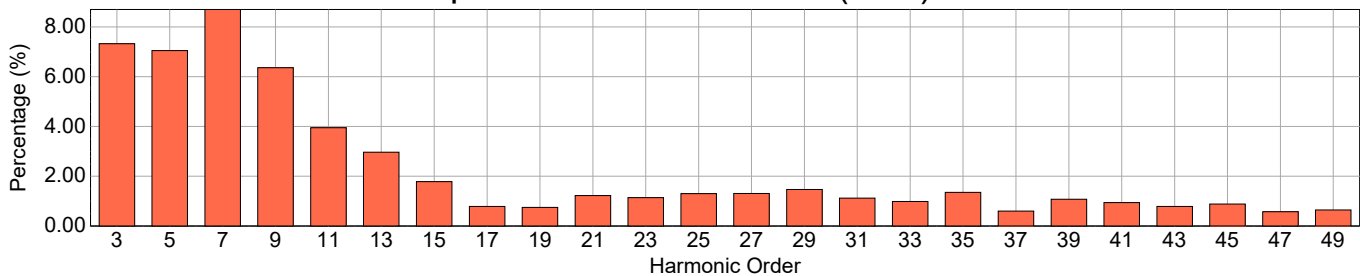
Input Voltage Harmonics (Odd)



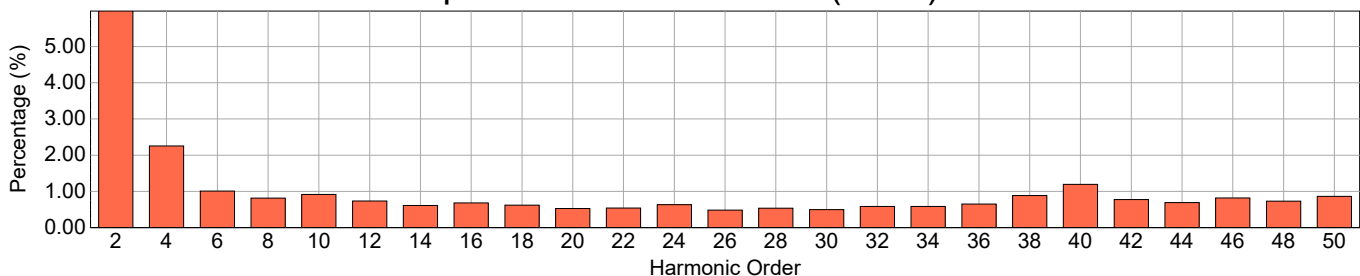
Input Voltage Harmonics (Even)



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	0.216	5.981
3	180	0.242	7.324	4	240	0.198	2.255
5	300	0.154	7.049	6	360	0.057	1.010
7	420	0.089	8.705	8	480	0.042	0.816
9	540	0.121	6.362	10	600	0.043	0.916
11	660	0.063	3.953	12	720	0.065	0.734
13	780	0.042	2.968	14	840	0.036	0.611
15	900	0.078	1.784	16	960	0.034	0.683
17	1020	0.026	0.785	18	1080	0.035	0.620
19	1140	0.030	0.750	20	1200	0.028	0.529
21	1260	0.036	1.222	22	1320	0.025	0.542
23	1380	0.039	1.139	24	1440	0.043	0.632
25	1500	0.037	1.305	26	1560	0.020	0.483
27	1620	0.020	1.308	28	1680	0.013	0.538
29	1740	0.036	1.467	30	1800	0.019	0.499
31	1860	0.024	1.122	32	1920	0.022	0.583
33	1980	0.024	0.986	34	2040	0.017	0.587
35	2100	0.030	1.352	36	2160	0.024	0.651
37	2220	0.018	0.603	38	2280	0.034	0.886
39	2340	0.026	1.079	40	2400	0.036	1.194
41	2460	0.021	0.941	42	2520	0.025	0.775
43	2580	0.039	0.789	44	2640	0.029	0.692
45	2700	0.030	0.883	46	2760	0.024	0.818
47	2820	0.028	0.573	48	2880	0.025	0.732
49	2940	0.025	0.644	50	3000	0.026	0.863



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Lab Code: 200899-0

Photometric Report: S2008057-R1

Prepared for: ANDlight · Test Date: 05 August 2020

Luminaire: SLAB · Lumcat: SLA-20-P-35

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	113	113	113	113	108	108	108	108	98	98	98	80	80	80				76
1		107	101	95	90	101	96	91	86	96	91	87	83	82	79	76	67	65	63				59
2		97	87	79	72	92	83	76	69	87	79	72	67	71	66	62	58	55	52				48
3		88	76	67	59	83	73	64	57	79	69	61	55	63	56	51	51	47	44				40
4		81	67	57	50	76	64	55	48	72	61	53	47	56	49	44	46	41	37				34
5		74	60	50	43	70	57	48	42	66	55	46	40	50	43	38	41	36	33				30
6		68	54	44	37	65	52	43	36	61	49	41	35	45	38	33	37	33	29				26
7		63	49	39	33	60	47	38	32	57	45	37	31	41	34	29	34	29	26				23
8		59	44	35	29	56	43	34	28	53	41	33	28	38	31	26	32	27	23				21
9		55	41	32	26	52	39	31	26	49	37	30	25	35	28	23	29	24	21				19
10		51	37	29	24	49	36	28	23	46	35	27	22	32	26	21	27	22	19				17

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	3	2.46	2.46
10 - 20	9	7.09	7.09
20 - 30	13	10.38	10.38
30 - 40	14	11.69	11.69
40 - 50	14	11.37	11.37
50 - 60	13	10.32	10.32
60 - 70	11	8.92	8.92
70 - 80	9	7.47	7.47
80 - 90	8	6.23	6.23
90 - 120	18	14.50	14.50
90 - 130	22	18.06	18.06
90 - 150	28	22.73	22.73
90 - 180	29	24.07	24.07
0 - 180	122	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	1094	1194	851
55.0	954	1161	824
65.0	885	1274	837
75.0	1000	1736	1092
85.0	2268	4182	2482

Luminaire Luminous Flux: 122

Measured Input Power: 3.54 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 34.4 lm/W

Luminaire Spacing Criterion (0 Degree): 1.2103

Luminaire Spacing Criterion (90 Degree): 1.1292

Category: Up and Down

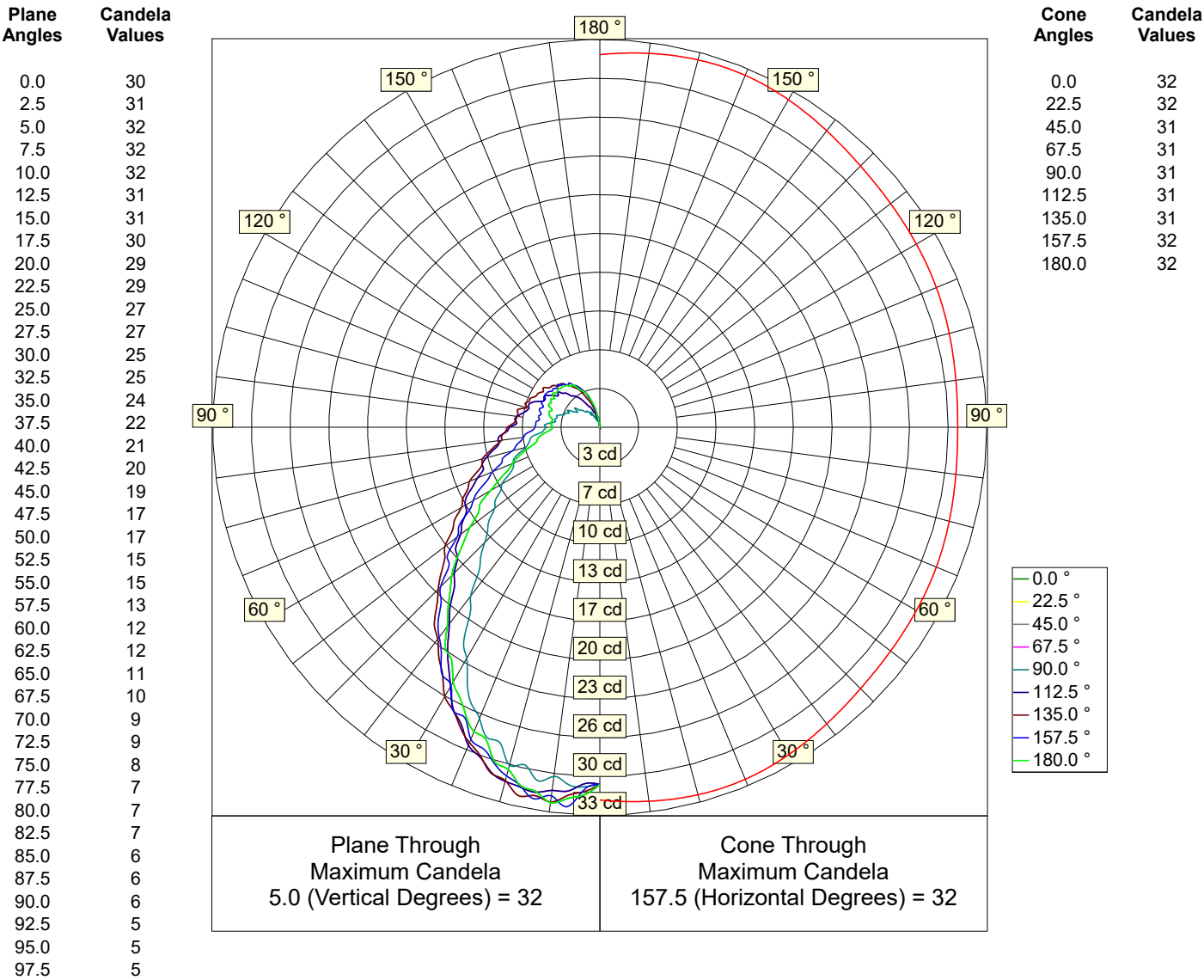


Photometric Report: S2008057-R1

Prepared for: ANDlight · Test Date: 05 August 2020

Luminaire: SLAB · Lumcat: SLA-20-P-35

Luminous Intensity - Polar Curve for each Plane(1)



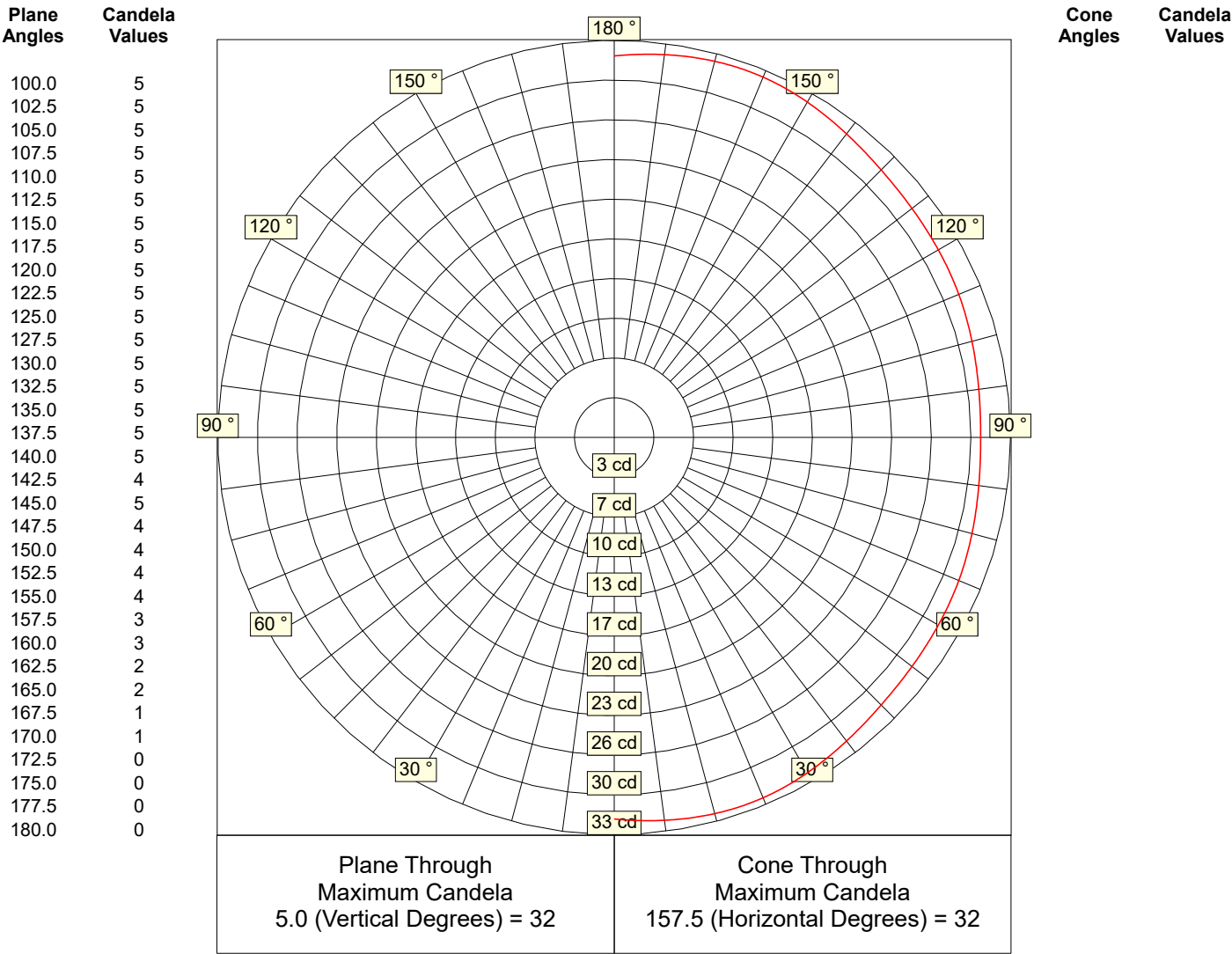


Photometric Report: S2008057-R1

Prepared for: ANDlight · Test Date: 05 August 2020

Luminaire: SLAB · Lumcat: SLA-20-P-35

Luminous Intensity - Polar Curve for each Plane(2)





IES File Headers

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IESNA:LM-63
[ISSUEDATE]      05 August 2020
[TESTLAB]        Spectra Lux
[TEST]           S2008057-R1
[MANUFAC]        ANDlight
[LUMCAT]          SLA-20-P-35
[LUMINAIRE]       SLAB
[LAMP]           Clusters of EPISTAR OMNICHIP (320404-xx-300-12-4.4) LEDs c/w Meanwell Driver IDLV-45-12 @ 120.00V
[_BURNING]        Horizontal (122 Luminaire Lumens)
[_REFLECTOR]      None
[_LENS]           Polycarbonate
[_HOUSING]        Black Body
[_NOMINAL COLOR] 3500 K
[_DRIVE CURRENT] 180 mA

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Candela Table

Lateral Angles

		0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
V e r t i c a l	0.0	30	30	30	30	30	30	30	30	30
	2.5	31	31	31	30	31	30	31	31	31
	5.0	32	32	31	31	31	31	31	32	32
	7.5	32	32	32	31	30	31	32	32	32
	10.0	31	32	32	32	31	32	32	32	31
	12.5	31	31	32	31	29	31	32	31	31
	15.0	30	31	31	31	30	31	31	31	30
	17.5	30	30	31	31	28	31	31	30	30
	20.0	28	29	30	30	28	30	30	29	28
	22.5	28	29	29	29	27	29	29	29	28
	25.0	27	27	28	28	26	28	28	27	27
	27.5	26	27	27	27	24	27	27	27	26
	30.0	25	25	26	25	23	25	26	25	25
	32.5	24	25	25	24	22	24	25	25	24
	35.0	23	24	24	23	19	23	24	24	23
	37.5	21	22	23	21	18	21	23	22	21
	40.0	20	21	22	20	16	20	22	21	20
	42.5	19	20	21	18	15	18	21	20	19
	45.0	18	19	19	18	14	18	19	19	18
	47.5	17	17	18	16	13	16	18	17	17
A n g l e s	50.0	15	17	17	16	12	16	17	17	15
	52.5	14	15	17	15	11	15	17	15	14
	55.0	13	15	15	14	11	14	15	15	13
	57.5	12	13	15	14	10	14	15	13	12
	60.0	11	12	14	13	10	13	14	12	11
	62.5	10	12	13	13	9	13	13	12	10
	65.0	9	11	12	12	8	12	12	11	9
	67.5	8	10	12	11	8	11	12	10	8
	70.0	7	9	11	11	8	11	11	9	7
	72.5	7	9	11	11	7	11	11	9	7
	75.0	6	8	10	10	7	10	10	8	6
	77.5	5	7	10	9	6	9	10	7	5
	80.0	5	7	9	9	6	9	9	7	5
	82.5	5	7	8	9	6	9	8	7	5
	85.0	5	6	8	9	5	9	8	6	5
	87.5	4	6	8	8	5	8	8	6	4
	90.0	4	6	8	8	5	8	8	6	4



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Lateral Angles

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0	
V e r t i c a l	92.5	4	5	7	7	5	7	7	5	4
	95.0	4	5	7	7	4	7	7	5	4
	97.5	4	5	7	7	4	7	7	5	4
	100.0	4	5	7	7	4	7	7	5	4
	102.5	4	5	7	6	4	6	7	5	4
	105.0	4	5	6	6	4	6	6	5	4
	107.5	5	5	7	6	3	6	7	5	5
	110.0	4	5	6	6	3	6	6	5	4
	112.5	5	5	6	6	3	6	6	5	5
	115.0	5	5	6	5	3	5	6	5	5
	117.5	5	5	6	5	3	5	6	5	5
	120.0	5	5	6	5	3	5	6	5	5
	122.5	5	5	6	5	2	5	6	5	5
	125.0	5	5	6	5	2	5	6	5	5
	127.5	5	5	6	4	3	4	6	5	5
	130.0	5	5	5	5	2	5	5	5	5
	132.5	5	5	5	4	2	4	5	5	5
	135.0	5	5	5	4	2	4	5	5	5
	137.5	5	5	5	4	2	4	5	5	5
	140.0	5	5	5	3	2	3	5	5	5
A n g l e s	142.5	4	4	5	3	2	3	5	4	4
	145.0	4	5	4	3	1	3	4	5	4
	147.5	4	4	4	3	1	3	4	4	4
	150.0	4	4	4	2	1	2	4	4	4
	152.5	4	4	3	2	1	2	3	4	4
	155.0	3	4	3	2	1	2	3	4	3
	157.5	3	3	3	2	1	2	3	3	3
	160.0	3	3	2	1	1	1	2	3	3
	162.5	2	2	2	1	1	1	2	2	2
	165.0	2	2	1	1	1	1	1	2	2
167.5	1	1	1	1	0	1	1	1	1	
170.0	1	1	1	1	0	1	1	1	1	
172.5	0	0	0	0	0	0	0	0	0	
175.0	0	0	0	0	0	0	0	0	0	
177.5	0	0	0	0	0	0	0	0	0	
180.0	0	0	0	0	0	0	0	0	0	