



Spectra Lux

2750 Sabourin, Saint-Laurent (Quebec) H4S 1M2 Canada
Tel.: (514) 332-0082 Fax: (514) 332-3590 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, 1951 Franklin St., Vancouver, British Columbia , Canada, V5L 0C7

General Information		Lamp Details: CY4421		Driver Details: CY2019	
DUT Lab ID	SRIS 2824-5	Seasoning	€Á[~ !Á	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	SLA-20-P-27	Manufacturer	Meanwell
Current Mode	AC	Manufacturer	EPISTAR	Catalog No.	IDLV-45-12
Test Report	S2008064-R1	Lamp Catalog No.	OMNICHIP (320404-xx-300-12-4.4)	Maximum Power	45 W
Test Date	6 August 2020	Drive Current	180 mA	Input Voltage	120.00 V
Report Date	14 Decemb [^] ! Á G G E Á	Nominal Color	2700 K	Operating Frequency	60 Hz
Ambient	24.8 °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-27	Lens	Polycarbonate	Z	0.4583

Stabilization Time: I Í Á ã ~ ¢ • Á

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

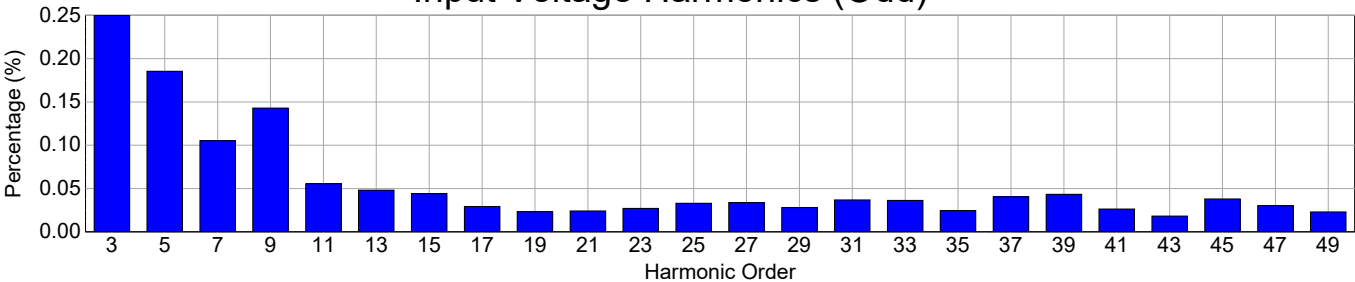


Electrical Measurements

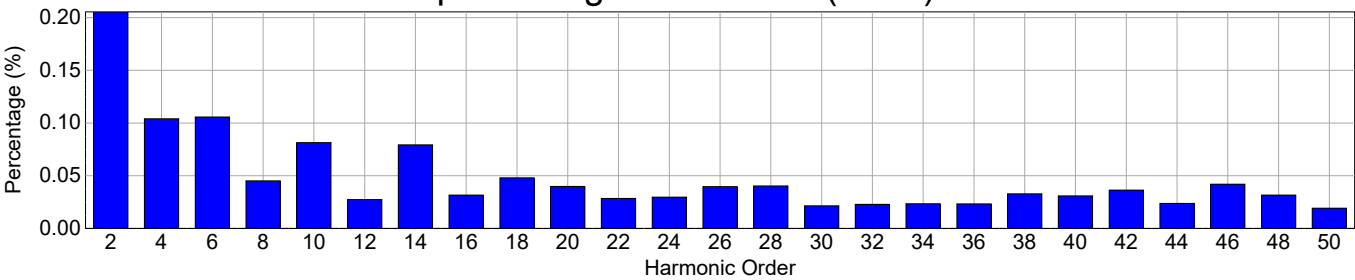
Input

Frequency	60 Hz	Active Power	3.54 W	THDV [ANSI]	0.49 %
Voltage	120.5 V(rms)	Apparent Power	6.32 VA	THDA [ANSI]	18.32 %
Current	0.0524 A(rms)	Power Factor	0.561	Max. Harmonic At	7th order

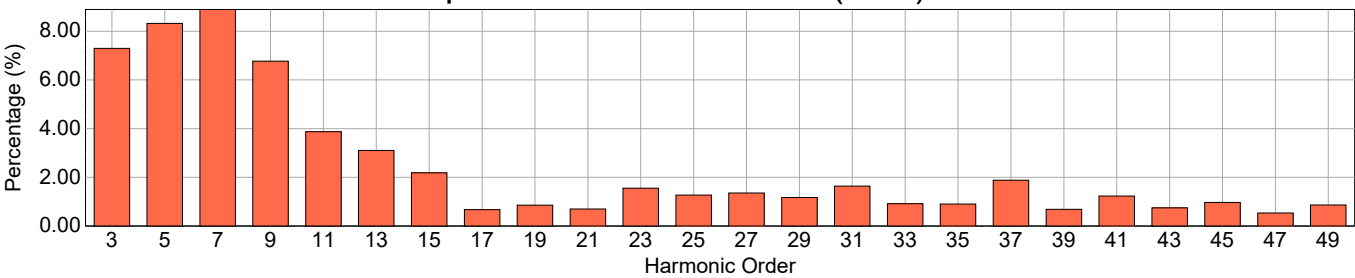
Input Voltage Harmonics (Odd)



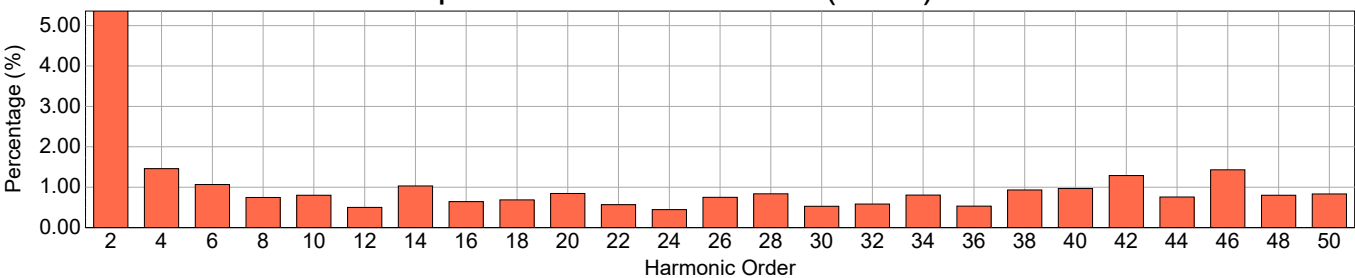
Input Voltage Harmonics (Even)



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	0.206	5.362
3	180	0.250	7.299	4	240	0.104	1.459
5	300	0.186	8.321	6	360	0.106	1.067
7	420	0.105	8.897	8	480	0.045	0.745
9	540	0.143	6.772	10	600	0.082	0.802
11	660	0.056	3.875	12	720	0.027	0.502
13	780	0.048	3.107	14	840	0.079	1.030
15	900	0.044	2.186	16	960	0.032	0.644
17	1020	0.029	0.671	18	1080	0.048	0.687
19	1140	0.023	0.855	20	1200	0.040	0.846
21	1260	0.024	0.703	22	1320	0.028	0.570
23	1380	0.027	1.552	24	1440	0.030	0.446
25	1500	0.033	1.270	26	1560	0.040	0.750
27	1620	0.034	1.356	28	1680	0.040	0.836
29	1740	0.028	1.175	30	1800	0.022	0.529
31	1860	0.037	1.638	32	1920	0.023	0.586
33	1980	0.036	0.914	34	2040	0.024	0.808
35	2100	0.024	0.901	36	2160	0.023	0.532
37	2220	0.040	1.885	38	2280	0.033	0.933
39	2340	0.043	0.687	40	2400	0.031	0.969
41	2460	0.026	1.230	42	2520	0.036	1.290
43	2580	0.018	0.749	44	2640	0.024	0.760
45	2700	0.038	0.968	46	2760	0.042	1.432
47	2820	0.030	0.535	48	2880	0.032	0.803
49	2940	0.023	0.864	50	3000	0.019	0.832



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Photometric Report: S2008064-R1

Prepared for: ANDlight · Test Date: 06 August 2020

Luminaire: SLAB · Lumcat: SLA-20-P-27

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	87	96	91	87	83	83	79	76	67	65	63				60
2		97	87	79	72	92	83	76	70	87	79	73	67	72	66	62	59	55	52				49
3		88	76	67	60	84	73	64	58	79	69	62	56	63	57	52	52	48	44				41
4		81	67	58	50	77	64	56	49	72	62	53	47	56	49	44	46	42	38				35
5		74	60	50	43	70	58	49	42	67	55	47	41	50	43	38	42	37	33				30
6		69	54	45	38	65	52	43	37	62	50	41	36	45	39	33	38	33	29				27
7		64	49	40	33	60	47	38	32	57	45	37	31	41	35	30	35	30	26				24
8		59	45	36	30	56	43	35	29	53	41	33	28	38	31	26	32	27	23				21
9		55	41	32	27	52	39	31	26	50	38	30	25	35	28	24	30	25	21				19
10		52	38	29	24	49	36	29	23	47	35	28	23	32	26	22	28	23	19				18

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	3	2.59	2.59
10 - 20	8	7.35	7.35
20 - 30	12	10.61	10.61
30 - 40	13	11.76	11.76
40 - 50	13	11.29	11.29
50 - 60	11	10.26	10.26
60 - 70	10	8.87	8.87
70 - 80	8	7.38	7.38
80 - 90	7	6.15	6.15
90 - 120	16	14.29	14.29
90 - 130	20	17.79	17.79
90 - 150	25	22.41	22.41
90 - 180	26	23.74	23.74
0 - 180	111	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	1013	1062	746
55.0	913	1041	727
65.0	856	1141	794
75.0	964	1489	1009
85.0	1955	3613	2465

Luminaire Luminous Flux: 111

Measured Input Power: 3.54 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 31.4 lm/W

Luminaire Spacing Criterion (0 Degree): 1.1903

Luminaire Spacing Criterion (90 Degree): 1.1056

Category: Up and Down

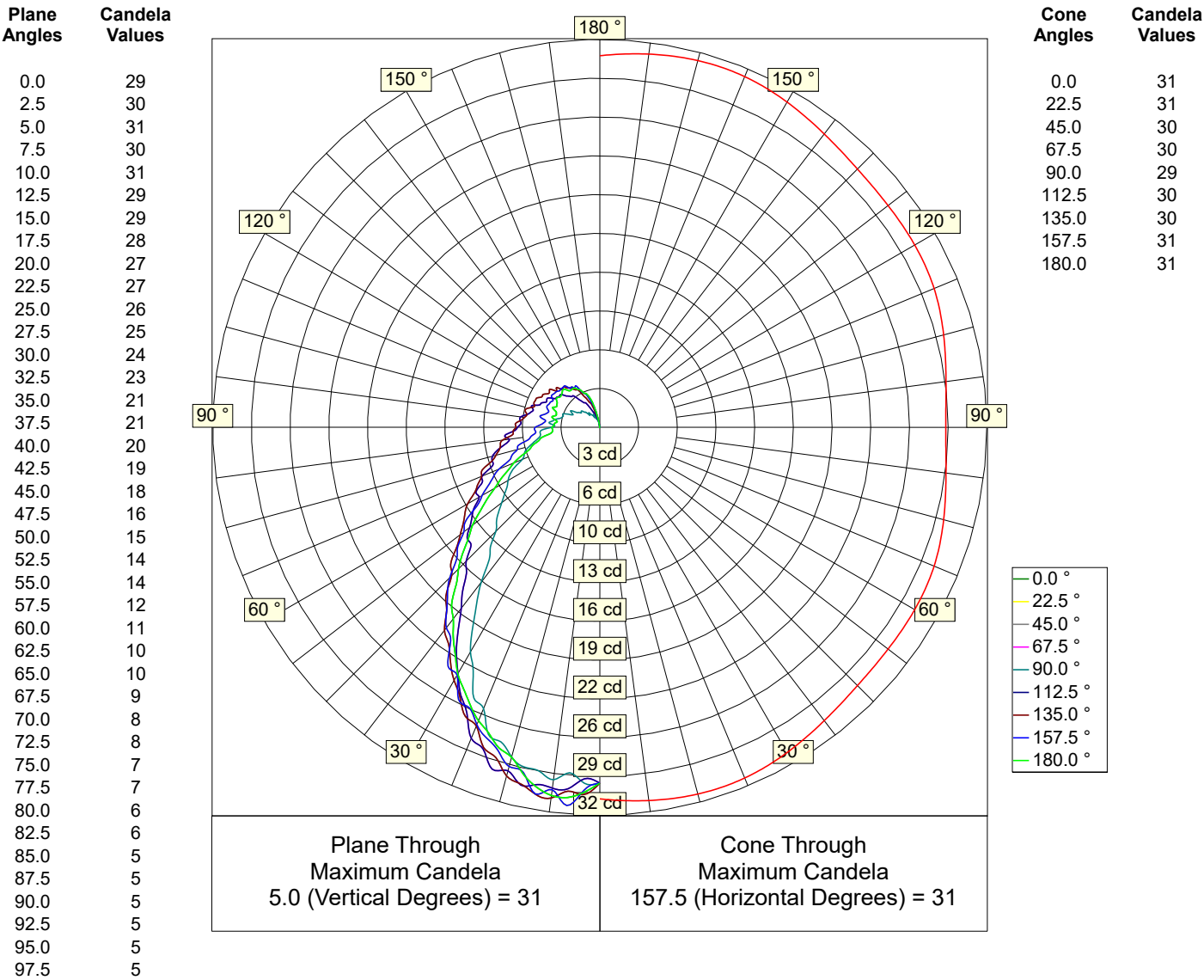


Photometric Report: S2008064-R1

Prepared for: ANDlight · Test Date: 06 August 2020

Luminaire: SLAB · Lumcat: SLA-20-P-27

Luminous Intensity - Polar Curve for each Plane(1)



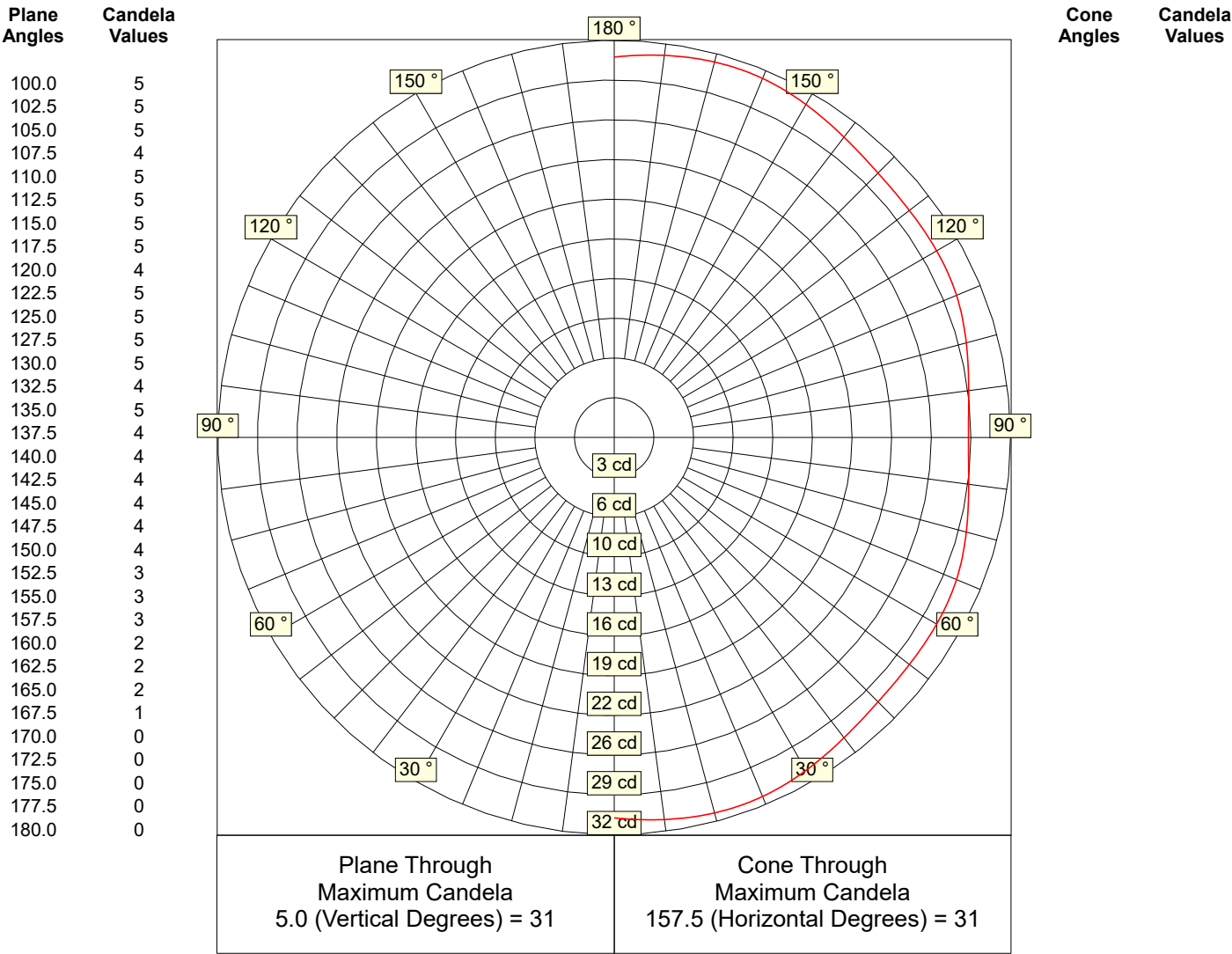


Photometric Report: S2008064-R1

Prepared for: ANDlight · Test Date: 06 August 2020

Luminaire: SLAB · Lumcat: SLA-20-P-27

Luminous Intensity - Polar Curve for each Plane(2)





IES File Headers

IESNA:LM-63
 [ISSUEDATE] 06 August 2020
 [TESTLAB] Spectra Lux
 [TEST] S2008064-R1
 [MANUFAC] ANDlight
 [LUMCAT] SLA-20-P-27
 [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 (111 Luminaire Lumens)
 [_REFLECTOR] None
 [_LENS] Polycarbonate
 [_HOUSING] Black Body
 [_NOMINAL COLOR] 2700 K
 [_DRIVE CURRENT] 180 mA

Candela Table

Lateral Angles

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
0.0	29	29	29	29	29	29	29	29	29
2.5	30	30	30	29	29	29	30	30	30
5.0	31	31	30	30	29	30	30	31	31
7.5	31	30	31	30	29	30	31	30	31
10.0	30	31	31	30	29	30	31	31	30
12.5	29	29	30	30	29	30	30	29	29
15.0	28	29	30	29	28	29	30	29	28
17.5	28	28	29	30	27	30	29	28	28
20.0	27	27	28	28	27	28	28	27	27
22.5	26	27	27	28	25	28	27	27	26
25.0	25	26	26	26	25	26	26	26	25
27.5	24	25	25	25	23	25	25	25	24
30.0	23	24	24	23	21	23	24	24	23
32.5	22	23	23	22	20	22	23	23	22
35.0	21	21	22	20	18	20	22	21	21
37.5	20	21	21	19	16	19	21	21	20
40.0	19	20	20	18	14	18	20	20	19
42.5	18	19	19	16	13	16	19	19	18
45.0	17	18	17	16	12	16	17	18	17
47.5	15	16	17	14	12	14	17	16	15
50.0	14	15	15	14	11	14	15	15	14
52.5	13	14	15	14	10	14	15	14	13
55.0	12	14	14	13	10	13	14	14	12
57.5	11	12	13	12	9	12	13	12	11
60.0	10	11	13	12	9	12	13	11	10
62.5	9	10	12	12	8	12	12	10	9
65.0	8	10	11	11	8	11	11	10	8
67.5	8	9	11	11	7	11	11	9	8
70.0	7	8	10	10	7	10	10	8	7
72.5	6	8	9	9	6	9	9	8	6
75.0	6	7	9	9	6	9	9	7	6
77.5	5	7	9	9	6	9	9	7	5
80.0	5	6	8	8	5	8	8	6	5
82.5	4	6	8	8	5	8	8	6	4
85.0	4	5	7	8	5	8	7	5	4
87.5	4	5	7	7	5	7	7	5	4
90.0	4	5	7	7	4	7	7	5	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	4	7	7	5	4
	95.0	4	5	7	7	4	7	7	5	4
	97.5	4	5	6	7	4	7	6	5	4
	100.0	4	5	6	6	4	6	6	5	4
	102.5	4	5	6	6	3	6	6	5	4
	105.0	4	5	6	6	3	6	6	5	4
	107.5	4	4	6	6	3	6	6	4	4
	110.0	4	5	6	5	3	5	6	5	4
	112.5	4	5	6	5	3	5	6	5	4
	115.0	4	5	6	5	2	5	6	5	4
	117.5	4	5	5	5	3	5	5	5	4
	120.0	4	4	5	5	3	5	5	4	4
	122.5	4	5	5	4	2	4	5	5	4
	125.0	4	5	5	4	2	4	5	5	4
	127.5	4	5	5	4	2	4	5	5	4
	130.0	4	5	5	4	2	4	5	5	4
	132.5	4	4	5	4	2	4	5	4	4
	135.0	4	5	4	4	2	4	4	5	4
	137.5	4	4	4	3	2	3	4	4	4
	140.0	4	4	4	3	1	3	4	4	4
A n g l e s	142.5	4	4	4	3	1	3	4	4	4
	145.0	4	4	4	3	1	3	4	4	4
	147.5	4	4	4	2	1	2	4	4	4
	150.0	4	4	4	2	1	2	4	4	4
	152.5	3	3	3	2	1	2	3	3	3
	155.0	3	3	3	2	1	2	3	3	3
	157.5	3	3	2	1	1	1	2	3	3
	160.0	3	2	2	1	1	1	2	2	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	0	0	0	0	0	0	0	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