



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: CY4568		Driver Details: CY2077	
DUT Lab ID	SRIS 2824-11	Seasoning	0 Hour	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	SLA-150-P-30	Manufacturer	Meanwell
Current Mode	AC	Manufacturer	EPISTAR	Catalog No.	IDLV-45-12
Test Report	S2011261-R1	Lamp Catalog No.	OMNICHIP (320404-xx-300-12-4.4)	Maximum Power	45 W
Test Date	26 November 2020	Drive Current	1800 mA	Input Voltage	120.00 V
Report Date	14 December 2020	Nominal Color	3000 K	Operating Frequency	60 Hz
Ambient	24.4 °C	Burning Position	Junction Horizontal	Input Power	20.70 W

Luminaire Data

General Information		Optics		Aperture (feet)	
Manufacturer	ANDlight	Reflector	None	X	0.0260
Name	SLAB	Housing	Black Body	Y	4.9063
Catalog No.	SLA-150-P-30	Lens	Polycarbonate	Z	0.1875

Stabilization Time: 1 hour 15 minutes

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	KIKUSUI	SPEC 77766A	1450001	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	2020/09/05	2021/09/05

Environment Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Temperature Humidity Sensor	Omega	HH311	120504176	2020/07/16	2021/07/16

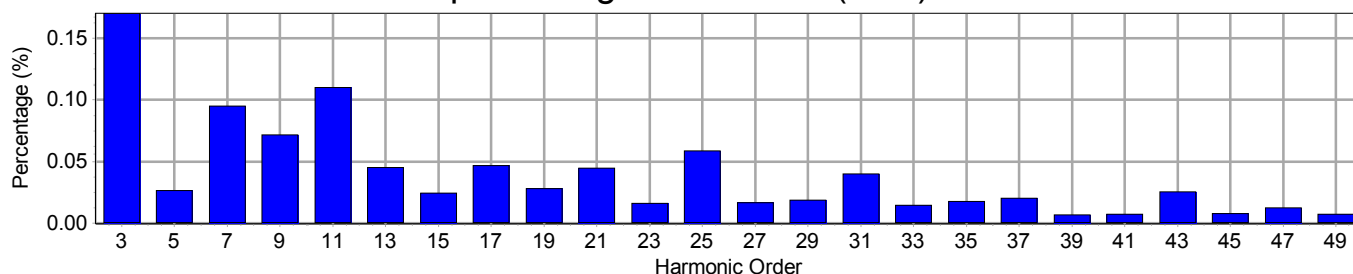


Electrical Measurements

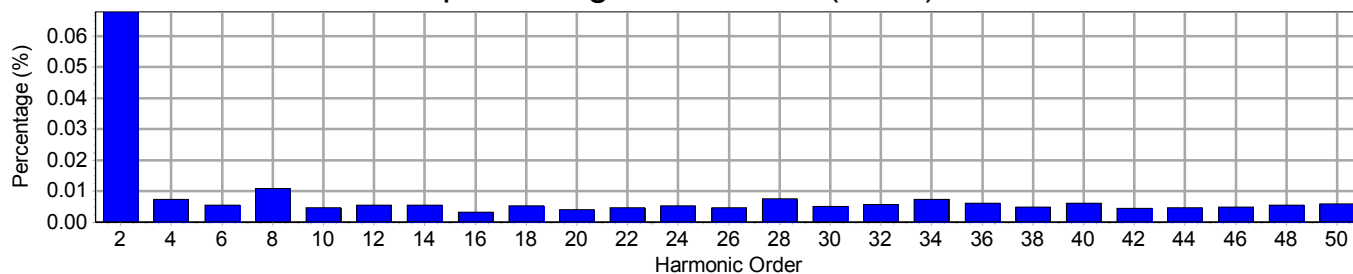
Input

Frequency	60 Hz	Active Power	20.70 W	THDV [ANSI]	0.28 %
Voltage	120.0 V(rms)	Apparent Power	21.00 VA	THDA [ANSI]	7.05 %
Current	0.1750 A(rms)	Power Factor	0.986	Max. Harmonic At	7th order

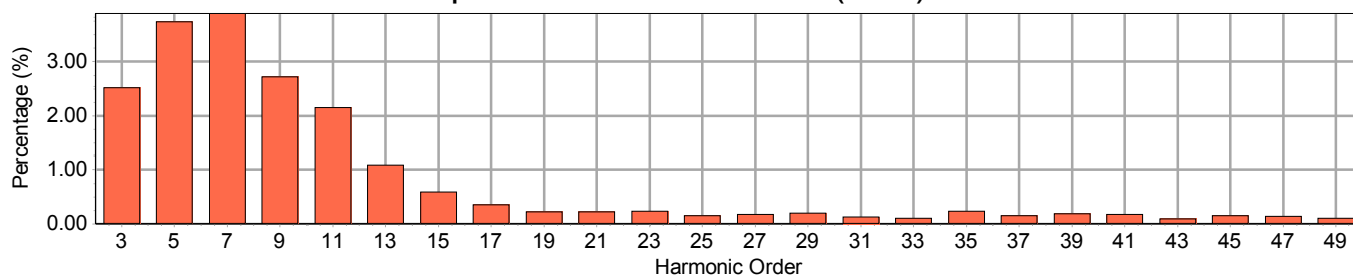
Input Voltage Harmonics (Odd)



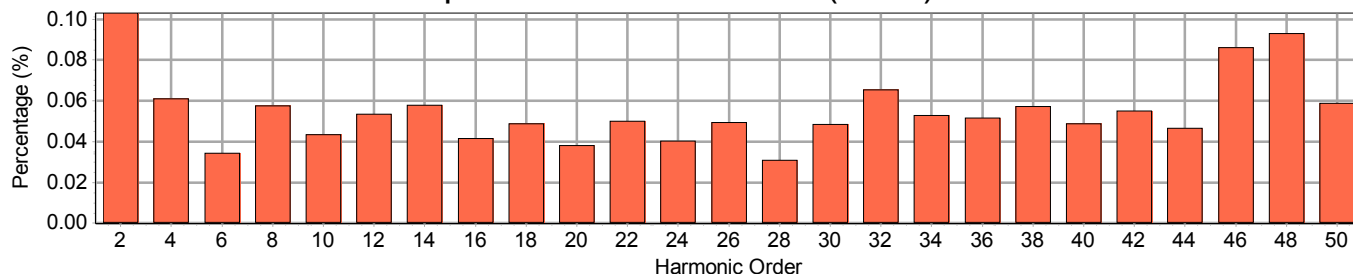
Input Voltage Harmonics (Even)



Input Current Harmonics (Odd)



Input Current Harmonics (Even)





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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	0.068	0.103
3	180	0.170	2.521	4	240	0.007	0.061
5	300	0.027	3.743	6	360	0.005	0.034
7	420	0.095	3.901	8	480	0.011	0.058
9	540	0.072	2.723	10	600	0.005	0.044
11	660	0.110	2.156	12	720	0.005	0.054
13	780	0.045	1.088	14	840	0.005	0.058
15	900	0.024	0.589	16	960	0.003	0.042
17	1020	0.047	0.349	18	1080	0.005	0.049
19	1140	0.028	0.214	20	1200	0.004	0.038
21	1260	0.045	0.215	22	1320	0.005	0.050
23	1380	0.016	0.234	24	1440	0.005	0.040
25	1500	0.059	0.146	26	1560	0.005	0.050
27	1620	0.017	0.175	28	1680	0.008	0.031
29	1740	0.019	0.199	30	1800	0.005	0.049
31	1860	0.040	0.128	32	1920	0.006	0.066
33	1980	0.015	0.095	34	2040	0.007	0.053
35	2100	0.018	0.227	36	2160	0.006	0.052
37	2220	0.021	0.154	38	2280	0.005	0.057
39	2340	0.007	0.183	40	2400	0.006	0.049
41	2460	0.007	0.175	42	2520	0.005	0.055
43	2580	0.025	0.090	44	2640	0.005	0.047
45	2700	0.008	0.151	46	2760	0.005	0.086
47	2820	0.013	0.141	48	2880	0.006	0.093
49	2940	0.007	0.106	50	3000	0.006	0.059



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Photometric Report: S2011261-R1

Prepared for: ANDlight · Test Date: 26 November 2020

Luminaire: SLAB · Lumcat: SLA-150-P-30

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	115	115	115	115	111	111	111	111	103	103	103	88	88	88	88	88	88	85
1		109	104	99	95	105	100	96	92	101	96	93	89	89	86	83	77	75	73	77	75	73	70
2		100	91	83	77	96	87	81	75	92	84	78	73	78	73	69	68	64	62	68	64	62	59
3		91	80	71	64	87	77	69	63	84	74	67	61	69	63	58	60	56	53	60	56	53	50
4		84	71	62	55	80	68	60	53	77	66	58	52	62	55	50	54	49	45	54	49	45	43
5		77	63	54	47	74	61	53	46	71	59	51	45	55	49	43	49	44	40	49	44	40	37
6		71	57	48	41	68	55	47	40	65	54	46	40	50	43	38	44	39	35	44	39	35	33
7		66	52	43	36	63	50	42	36	61	49	41	35	46	39	34	40	35	31	40	35	31	29
8		61	47	38	33	59	46	38	32	57	45	37	31	42	35	30	37	32	28	37	32	28	26
9		57	43	35	29	55	42	34	29	53	41	33	28	39	32	27	34	29	26	34	29	26	24
10		54	40	32	27	52	39	31	26	50	38	31	26	36	29	25	32	27	23	32	27	23	22

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	34	3.21	3.21
10 - 20	93	8.89	8.89
20 - 30	135	12.84	12.84
30 - 40	155	14.78	14.78
40 - 50	152	14.51	14.51
50 - 60	130	12.37	12.37
60 - 70	96	9.12	9.12
70 - 80	61	5.78	5.78
80 - 90	32	3.07	3.07
90 - 120	85	8.14	8.14
90 - 130	113	10.80	10.80
90 - 150	151	14.41	14.41
90 - 180	162	15.44	15.44
0 - 180	1048	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
0			
45.0	3719	3248	2958
55.0	3286	3001	2588
65.0	2733	2776	2252
75.0	2250	2757	2180
85.0	1922	4229	3719

Luminaire Luminous Flux: 1048

Measured Input Power: 20.70 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 50.6 lm/W

Luminaire Spacing Criterion (0 Degree): 1.2463

Luminaire Spacing Criterion (90 Degree): 1.0811

Category: Up and Down



Photometric Report: S2011261-R1

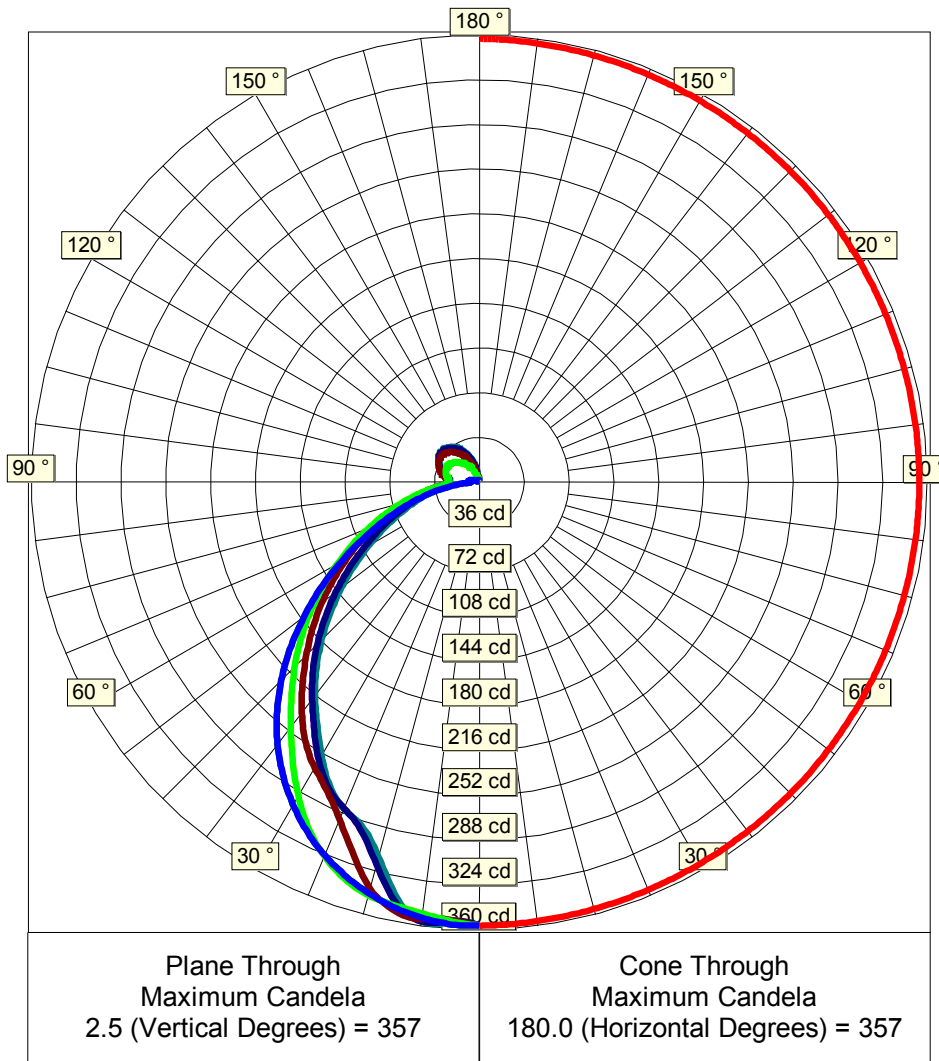
Prepared for: ANDlight · Test Date: 26 November 2020

Luminaire: SLAB · Lumcat: SLA-150-P-30

Luminous Intensity - Polar Curve for each Plane(1)

Plane
Angles

Plane Angles	Candela Values
0.0	357
2.5	357
5.0	356
7.5	353
10.0	351
12.5	347
15.0	343
17.5	337
20.0	331
22.5	325
25.0	317
27.5	309
30.0	299
32.5	289
35.0	278
37.5	266
40.0	253
42.5	239
45.0	225
47.5	210
50.0	194
52.5	177
55.0	161
57.5	145
60.0	129
62.5	114
65.0	99
67.5	85
70.0	73
72.5	60
75.0	50
77.5	40
80.0	30
82.5	22
85.0	14
87.5	9
90.0	8
92.5	8
95.0	8
97.5	7



Cone
Angles

Cone Angles	Candela Values
0.0	357
22.5	355
45.0	354
67.5	353
90.0	354
112.5	353
135.0	354
157.5	355
180.0	357

0.0 °
22.5 °
45.0 °
67.5 °
90.0 °
112.5 °
135.0 °
157.5 °
180.0 °

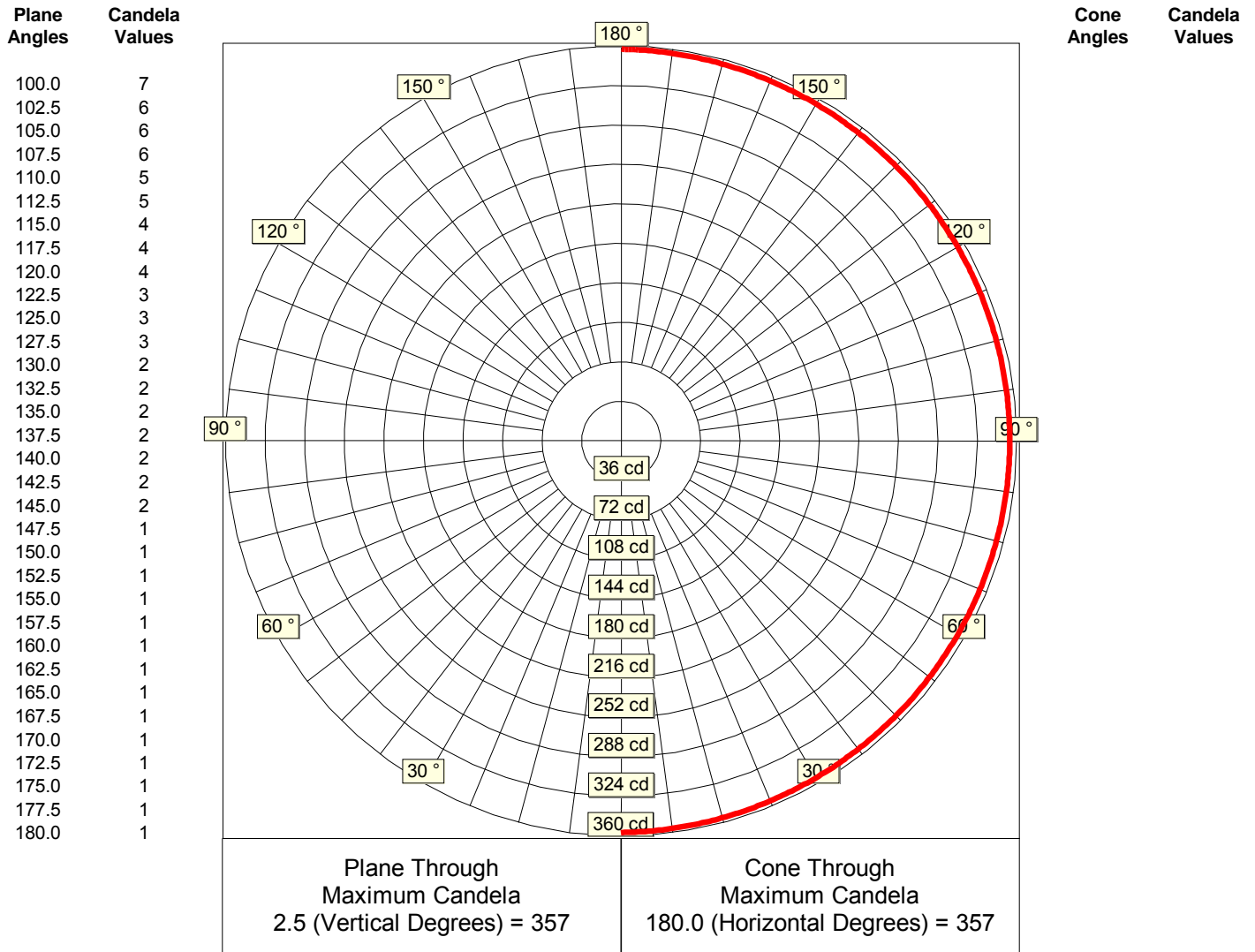


Photometric Report: S2011261-R1

Prepared for: ANDlight · Test Date: 26 November 2020

Luminaire: SLAB · Lumcat: SLA-150-P-30

Luminous Intensity - Polar Curve for each Plane(2)





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IES File Headers

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IESNA:LM-63
[ISSUEDATE]      26 November 2020
[TESTLAB]        Spectra Lux
[TEST]           S2011261-R1
[MANUFAC]        ANDlight
[LUMCAT]          SLA-150-P-30
[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 (1,048 Luminaire Lumens)
[_REFLECTOR]      None
[_LENS]           Polycarbonate
[_HOUSING]        Black Body
[_NOMINAL COLOR] 3000 K
[_DRIVE CURRENT] 1800 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	357	357	357	357	357	357	357	357
	2.5	357	355	354	353	354	353	354	355
	5.0	356	353	353	356	357	356	353	356
	7.5	353	350	354	357	356	357	354	350
	10.0	351	348	354	350	348	350	354	348
	12.5	347	346	348	337	331	337	348	346
	15.0	343	344	339	319	312	319	339	344
	17.5	337	340	324	302	298	302	324	340
	20.0	331	334	308	291	289	291	308	334
	22.5	325	325	294	284	284	284	294	325
	25.0	317	316	282	278	277	278	282	316
	27.5	309	304	273	269	266	269	273	304
	30.0	299	291	265	258	254	258	265	291
	32.5	289	277	256	245	241	245	256	277
	35.0	278	263	246	233	229	233	246	263
	37.5	266	249	234	221	217	221	234	249
	40.0	253	235	222	209	205	209	222	235
	42.5	239	222	209	197	192	197	209	222
A n g l e s	45.0	225	210	196	184	179	184	196	210
	47.5	210	197	184	171	166	171	184	197
	50.0	194	184	172	158	152	158	172	184
	52.5	177	171	160	145	140	145	160	171
	55.0	161	158	147	133	127	133	147	158
	57.5	145	145	135	120	115	120	135	145
	60.0	129	132	123	109	103	109	123	132
	62.5	114	120	112	97	92	97	112	120
	65.0	99	108	100	87	81	87	100	108
	67.5	85	96	90	77	72	77	90	96
	70.0	73	85	80	68	63	68	80	85
	72.5	60	75	70	59	55	59	70	75
	75.0	50	65	61	52	48	52	61	65
	77.5	40	56	53	45	42	45	53	56
	80.0	30	47	45	39	37	39	45	47
	82.5	22	38	38	34	32	34	38	38
	85.0	14	31	32	28	28	28	31	32
	87.5	9	26	27	25	24	25	26	27
	90.0	8	24	25	24	23	24	24	25



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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	8	24	25	24	24	24	25	24	8
	95.0	8	25	27	25	24	25	27	25	8
	97.5	7	26	28	26	26	26	28	26	7
	100.0	7	27	29	28	27	28	29	27	7
	102.5	6	27	31	29	29	29	31	27	6
	105.0	6	28	32	31	30	31	32	28	6
	107.5	6	28	33	32	32	32	33	28	6
	110.0	5	29	34	34	33	34	34	29	5
	112.5	5	29	35	35	34	35	35	29	5
	115.0	4	29	36	36	36	36	36	29	4
	117.5	4	28	37	37	36	37	37	28	4
	120.0	4	28	37	38	37	38	37	28	4
	122.5	3	27	37	38	38	38	37	27	3
	125.0	3	27	37	39	39	39	37	27	3
	127.5	3	26	37	39	39	39	37	26	3
	130.0	2	25	36	39	39	39	36	25	2
	132.5	2	24	35	38	39	38	35	24	2
	A n g l e s	135.0	2	23	34	38	38	38	34	23
137.5		2	21	33	37	38	37	33	21	2
140.0		2	20	32	36	37	36	32	20	2
142.5		2	18	30	35	36	35	30	18	2
145.0		2	17	28	33	34	33	28	17	2
147.5		1	16	26	31	33	31	26	16	1
150.0		1	14	24	29	31	29	24	14	1
152.5		1	12	22	27	29	27	22	12	1
155.0		1	10	20	25	27	25	20	10	1
157.5		1	7	18	23	24	23	18	7	1
160.0		1	5	15	20	21	20	15	5	1
162.5		1	3	12	17	19	17	12	3	1
165.0		1	3	9	14	16	14	9	3	1
167.5		1	2	5	10	12	10	5	2	1
170.0		1	2	3	5	8	5	3	2	1
172.5		1	1	2	3	2	3	2	1	1
175.0		1	1	1	1	1	1	1	1	1
177.5		1	1	1	1	1	1	1	1	1
180.0	1	1	1	1	1	1	1	1	1	