



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: CY4569		Driver Details: CY2078	
DUT Lab ID	SRIS 2824-12	Seasoning	0 Hour	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	SLA-210-P-30	Manufacturer	Meanwell
Current Mode	AC	Manufacturer	EPISTAR	Catalog No.	IDLV-45-12
Test Report	S2011262-R1	Lamp Catalog No.	OMNICHIP (320404-xx-300-12-4.4)	Maximum Power	45 W
Test Date	26 November 2020	Drive Current	2490 mA	Input Voltage	120.00 V
Report Date	14 December 2020	Nominal Color	3000 K	Operating Frequency	60 Hz
Ambient	24.8 °C	Burning Position	Junction Horizontal	Input Power	25.19 W

Luminaire Data

General Information		Optics		Aperture (feet)	
Manufacturer	ANDlight	Reflector	None	X	0.0260
Name	SLAB	Housing	Black Body	Y	6.8750
Catalog No.	SLA-210-P-30	Lens	Polycarbonate	Z	0.1875

Stabilization Time: 1 hour 15 minutes

Approved Signatory: Chrisnel Blot

Signature:



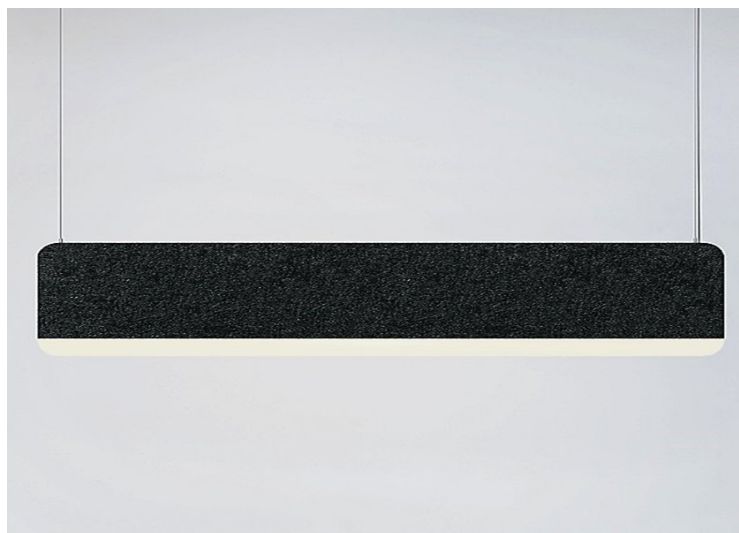
Luminaire Test Method

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

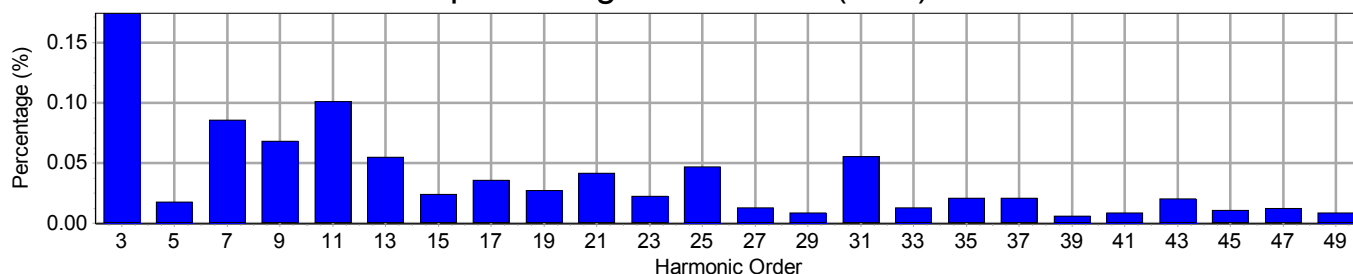


Electrical Measurements

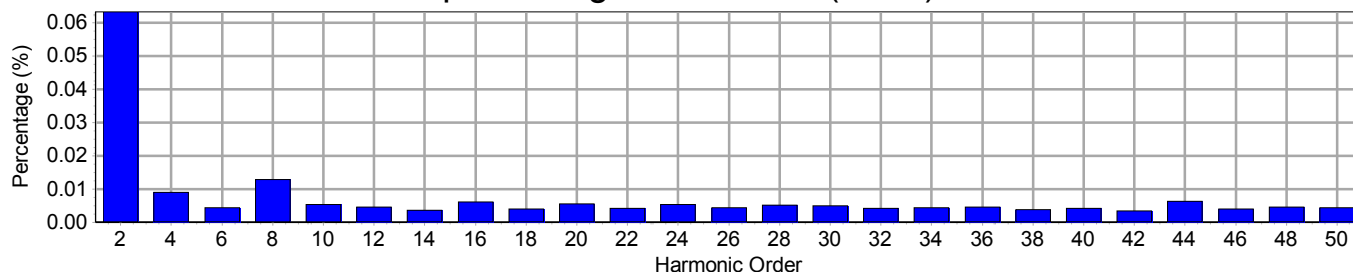
Input

Frequency	60 Hz	Active Power	25.19 W	THDV [ANSI]	0.27 %
Voltage	120.0 V(rms)	Apparent Power	25.46 VA	THDA [ANSI]	6.81 %
Current	0.2122 A(rms)	Power Factor	0.990	Max. Harmonic At	7th order

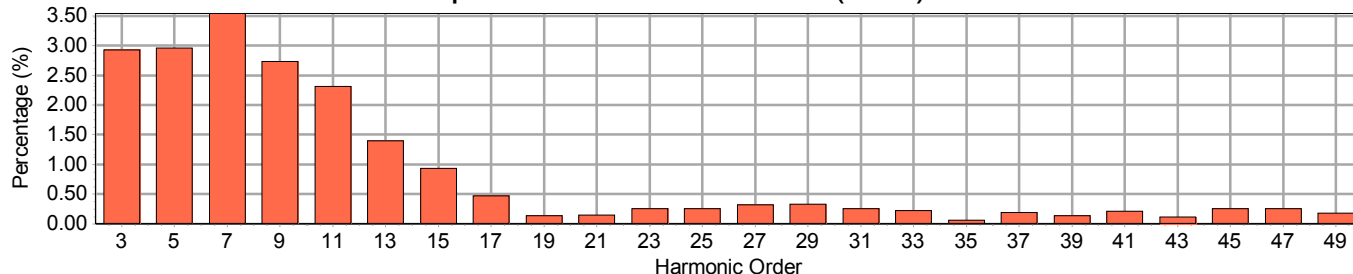
Input Voltage Harmonics (Odd)



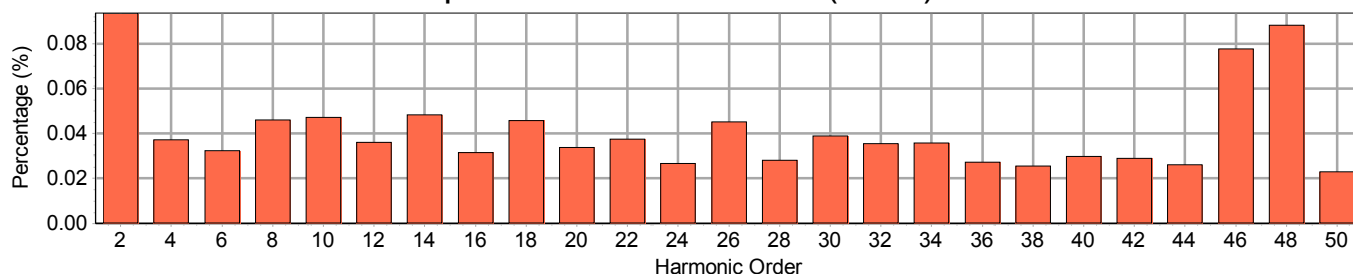
Input Voltage Harmonics (Even)



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	0.063	0.094
3	180	0.175	2.922	4	240	0.009	0.037
5	300	0.018	2.960	6	360	0.004	0.032
7	420	0.086	3.547	8	480	0.013	0.046
9	540	0.068	2.736	10	600	0.005	0.047
11	660	0.101	2.314	12	720	0.005	0.036
13	780	0.055	1.398	14	840	0.004	0.048
15	900	0.024	0.930	16	960	0.006	0.032
17	1020	0.036	0.466	18	1080	0.004	0.046
19	1140	0.027	0.133	20	1200	0.006	0.034
21	1260	0.042	0.140	22	1320	0.004	0.038
23	1380	0.023	0.250	24	1440	0.005	0.027
25	1500	0.047	0.252	26	1560	0.004	0.045
27	1620	0.013	0.319	28	1680	0.005	0.028
29	1740	0.009	0.332	30	1800	0.005	0.039
31	1860	0.056	0.257	32	1920	0.004	0.036
33	1980	0.013	0.225	34	2040	0.004	0.036
35	2100	0.021	0.061	36	2160	0.005	0.027
37	2220	0.021	0.187	38	2280	0.004	0.026
39	2340	0.006	0.139	40	2400	0.004	0.030
41	2460	0.009	0.209	42	2520	0.003	0.029
43	2580	0.021	0.111	44	2640	0.006	0.026
45	2700	0.011	0.253	46	2760	0.004	0.078
47	2820	0.013	0.251	48	2880	0.005	0.088
49	2940	0.009	0.178	50	3000	0.004	0.023



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Photometric Report: S2011262-R1

Prepared for: ANDlight · Test Date: 26 November 2020

Luminaire: SLAB · Lumcat: SLA-210-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	110	110	110	110	102	102	102	87	87	87	87	87	87	83
1		109	104	99	94	105	100	95	91	100	96	92	88	88	85	82	76	74	72	76	74	72	69
2		99	90	83	77	95	87	80	74	91	84	77	72	77	72	68	66	63	60	66	63	60	57
3		91	79	70	63	87	76	68	62	83	73	66	60	68	62	57	59	55	51	59	55	51	48
4		83	70	61	54	79	68	59	52	76	65	57	51	61	54	49	52	48	44	52	48	44	41
5		76	63	53	46	73	60	52	45	70	58	50	44	54	47	42	47	42	38	47	42	38	36
6		71	56	47	40	67	54	46	39	64	53	44	39	49	42	37	43	38	34	43	38	34	31
7		65	51	42	35	63	49	41	35	60	48	40	34	45	38	33	39	34	30	39	34	30	28
8		61	46	38	32	58	45	37	31	56	44	36	30	41	34	29	36	31	27	36	31	27	25
9		57	43	34	28	54	41	33	28	52	40	33	27	38	31	26	33	28	24	33	28	24	22
10		53	39	31	26	51	38	30	25	49	37	30	25	35	28	24	31	26	22	31	26	22	20

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	39	2.98	2.98
10 - 20	108	8.36	8.36
20 - 30	156	12.08	12.08
30 - 40	184	14.20	14.20
40 - 50	186	14.39	14.39
50 - 60	163	12.63	12.63
60 - 70	124	9.61	9.61
70 - 80	79	6.09	6.09
80 - 90	40	3.09	3.09
90 - 120	115	8.89	8.89
90 - 130	152	11.73	11.73
90 - 150	200	15.49	15.49
90 - 180	214	16.57	16.57
0 - 180	1292	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	3531	2789	2347
55.0	3470	2596	2059
65.0	3184	2418	1812
75.0	2731	2370	1755
85.0	2237	3481	2904

Luminaire Luminous Flux: 1292

Measured Input Power: 25.19 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 51.3 lm/W

Luminaire Spacing Criterion (0 Degree): 1.3335

Luminaire Spacing Criterion (90 Degree): 1.0608

Category: Up and Down

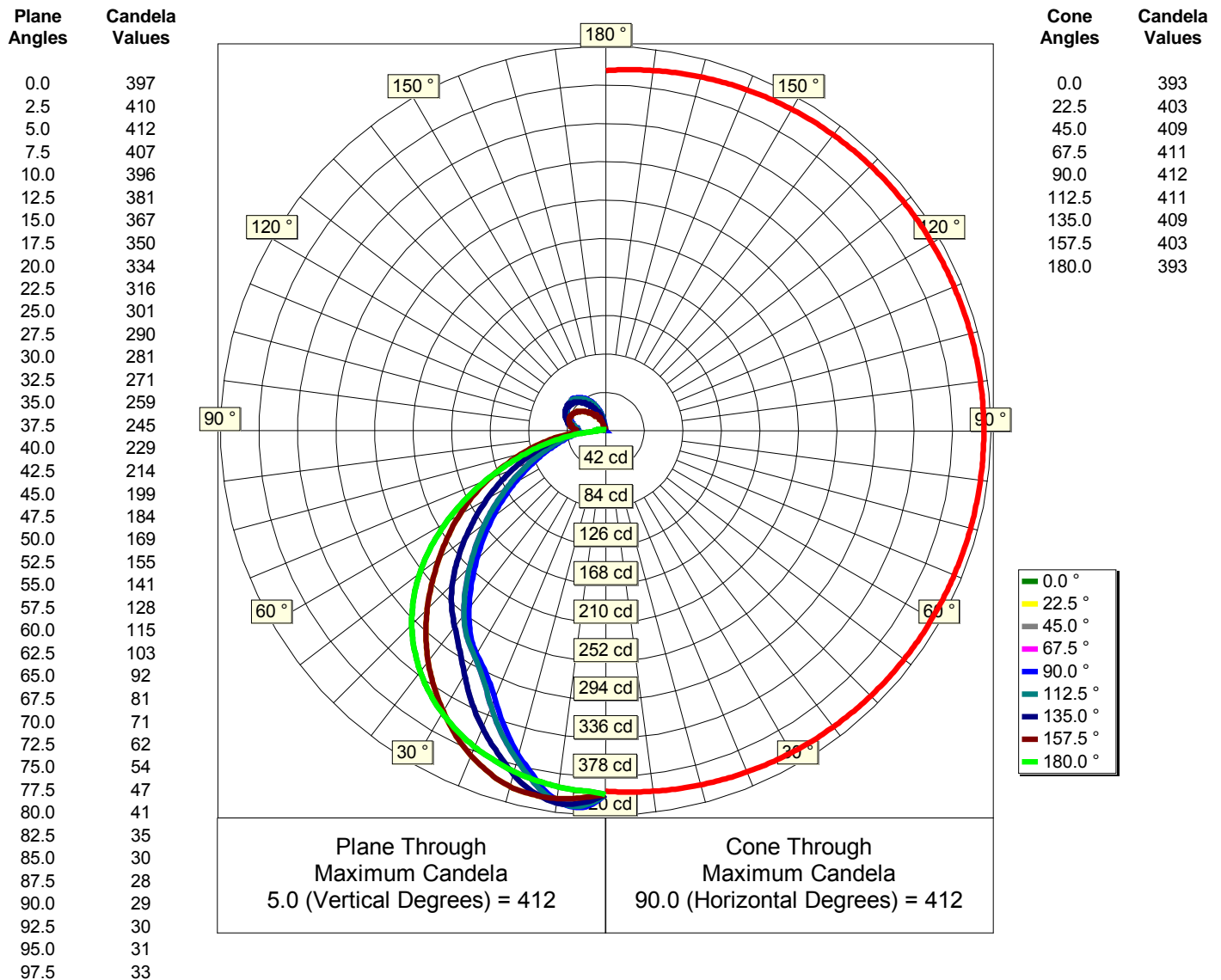


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Luminaire: SLAB · Lumcat: SLA-210-P-30

Luminous Intensity - Polar Curve for each Plane(1)





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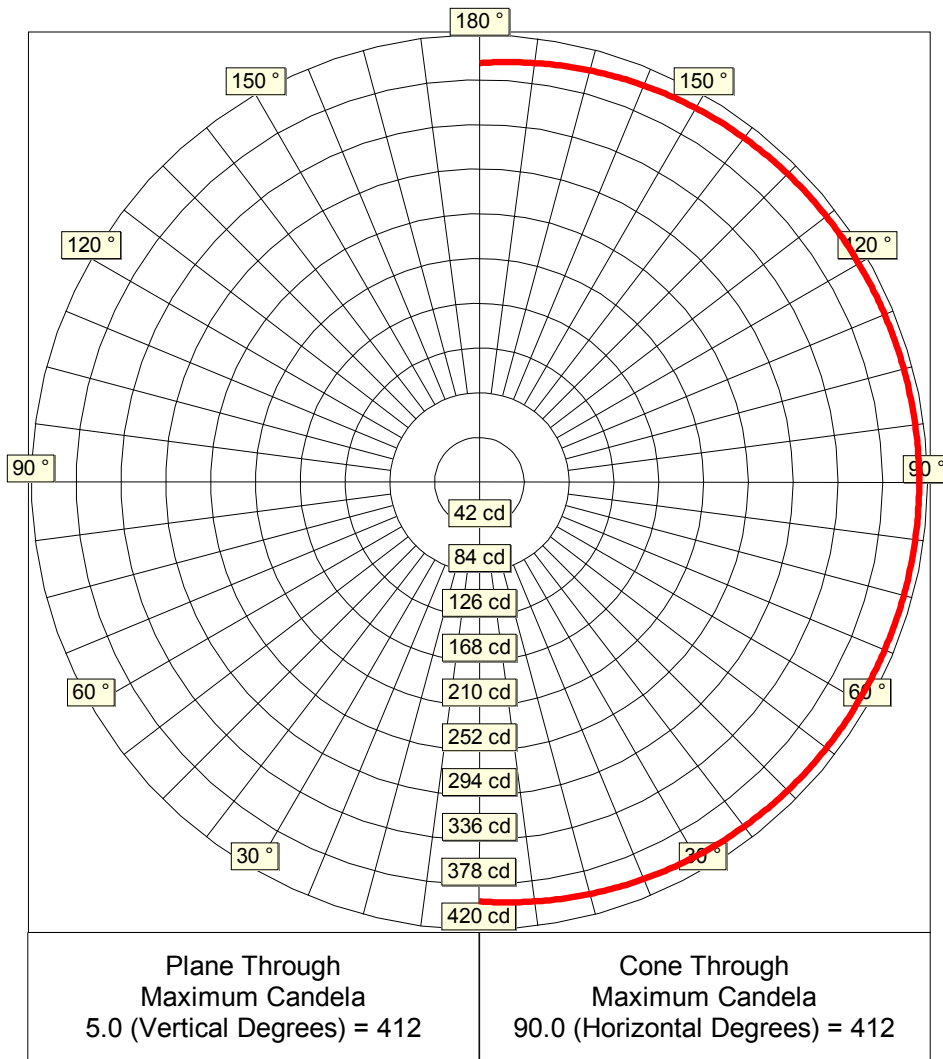
Luminous Intensity - Polar Curve for each Plane(2)

Plane
Angles

100.0
102.5
105.0
107.5
110.0
112.5
115.0
117.5
120.0
122.5
125.0
127.5
130.0
132.5
135.0
137.5
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

Candela
Values

35
37
39
41
43
44
46
47
48
49
50
50
50
50
49
48
47
46
44
42
40
37
34
31
28
24
21
17
12
1
1
1
1



Cone
Angles

Candela
Values



IES File Headers

IESNA:LM-63
 [ISSUEDATE] 26 November 2020
 [TESTLAB] Spectra Lux
 [TEST] S2011262-R1
 [MANUFAC] ANDlight
 [LUMCAT] SLA-210-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 (1,292 Luminaire Lumens)
 [_REFLECTOR] None
 [_LENS] Polycarbonate
 [_HOUSING] Black Body
 [_NOMINAL COLOR] 3000 K
 [_DRIVE CURRENT] 2490 mA

Candela Table

Lateral Angles

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
Vertical Angles	0.0	397	397	397	397	397	397	397	397
	2.5	394	400	405	408	410	408	405	394
	5.0	393	403	409	411	412	411	409	393
	7.5	392	405	410	408	407	408	410	392
	10.0	390	405	406	400	396	400	406	390
	12.5	388	404	399	386	381	386	399	388
	15.0	385	402	388	372	367	372	388	385
	17.5	382	398	376	358	350	358	376	382
	20.0	378	391	364	343	334	343	364	378
	22.5	373	384	351	326	316	326	351	373
	25.0	368	375	337	309	301	309	375	368
	27.5	362	365	323	296	290	296	365	362
	30.0	356	354	307	285	281	285	354	356
	32.5	349	342	293	276	271	276	342	349
	35.0	341	330	281	266	259	266	330	341
	37.5	332	318	270	254	245	254	318	332
	40.0	322	304	260	239	229	239	304	322
	42.5	311	290	249	225	214	225	290	311
Angles	45.0	299	275	236	209	199	209	275	299
	47.5	286	260	222	194	184	194	260	286
	50.0	271	244	208	180	169	180	244	271
	52.5	255	229	193	165	155	165	229	255
	55.0	238	214	178	151	141	151	214	238
	57.5	220	199	164	138	128	138	199	220
	60.0	201	184	150	124	115	124	184	201
	62.5	181	169	136	112	103	112	169	181
	65.0	161	154	122	100	92	100	154	161
	67.5	141	138	109	88	81	88	138	141
	70.0	122	123	97	78	71	78	123	122
	72.5	102	108	85	68	62	68	108	102
	75.0	85	93	73	59	54	59	93	85
	77.5	68	79	63	51	47	51	79	68
	80.0	52	66	53	44	41	44	66	52
	82.5	37	53	44	38	35	38	53	37
	85.0	23	42	36	32	30	32	42	23
	87.5	13	33	31	28	28	31	33	13
	90.0	11	33	32	30	29	30	33	11



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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	10	34	33	31	30	31	33	34	10
	95.0	9	36	35	32	31	32	35	36	9
	97.5	8	37	37	34	33	34	37	37	8
	100.0	7	39	40	37	35	37	40	39	7
	102.5	6	40	42	39	37	39	42	40	6
	105.0	6	41	44	41	39	41	44	41	6
	107.5	5	42	45	42	41	42	45	42	5
	110.0	4	42	47	44	43	44	47	42	4
	112.5	4	42	48	46	44	46	48	42	4
	115.0	3	41	49	47	46	47	49	41	3
	117.5	3	40	49	48	47	48	49	40	3
	120.0	2	39	49	49	48	49	49	39	2
	122.5	2	38	49	50	49	50	49	38	2
	125.0	2	37	49	50	50	50	49	37	2
	127.5	2	35	48	50	50	50	48	35	2
	130.0	2	33	47	50	50	50	47	33	2
	132.5	1	31	46	49	50	49	46	31	1
	135.0	1	29	44	49	49	49	44	29	1
A n g l e s	137.5	1	28	43	48	48	48	43	28	1
	140.0	1	26	41	46	47	46	41	26	1
	142.5	1	24	38	44	46	44	38	24	1
	145.0	1	22	36	42	44	42	36	22	1
	147.5	1	20	34	40	42	40	34	20	1
	150.0	1	18	31	38	40	38	31	18	1
	152.5	1	16	29	35	37	35	29	16	1
	155.0	1	14	26	32	34	32	26	14	1
	157.5	1	12	23	29	31	29	23	12	1
	160.0	1	6	20	26	28	26	20	6	1
	162.5	1	2	17	23	24	23	17	2	1
	165.0	1	1	14	19	21	19	14	1	1
	167.5	1	1	8	15	17	15	8	1	1
	170.0	1	1	1	9	12	9	1	1	1
	172.5	1	1	1	1	1	1	1	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