



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-79:2019, ANSI C82.2:2002, ANSI C82.77-10:2021

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

General Information		Lamp Details: CY5453		Driver Details: CY2569	
DUT Lab ID	SRIS 3157-10	Seasoning	0 Hour	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	COL-175-4-P-V-30K	Manufacturer	Meanwell
Current Mode	AC	Manufacturer	Nichia	Catalog No.	PWM-90-24
Test Report	S2212053-R1	Lamp Catalog No.	N.K.	Maximum Power	90 W
Test Date	5 December 2022	Drive Current	N.K.	Input Voltage	120.00 V
Report Date	8 December 2022	Nominal Color	3000 K	Operating Frequency	60 Hz
Ambient	24.4 °C	Burning Position	Axial	Input Power	46.35 W

Luminaire Data

General Information		Optics		Aperture (feet)	
Manufacturer	ANDlight	Optics	None	X	-0.5833
Name	Column Series	Housing	(4) Facetted Vertical Cylinders	Y	-0.5833
Catalog No.	COL-175-4-P-V-30K	Lens	(4) Acrylic Diffusers	Z	3.5000

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	Inventfine	CHP-500	GZBXD010148	N.P.C.R.	N.P.C.R.
Input Power Meter	Yokogawa	WT210	27E116584	2022-09-22	2023-09-22
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	110803	2022-09-07	2023-09-07

Environment Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Temperature Humidity Sensor	Omega	HH311	120504176	2022-09-07	2023-09-07

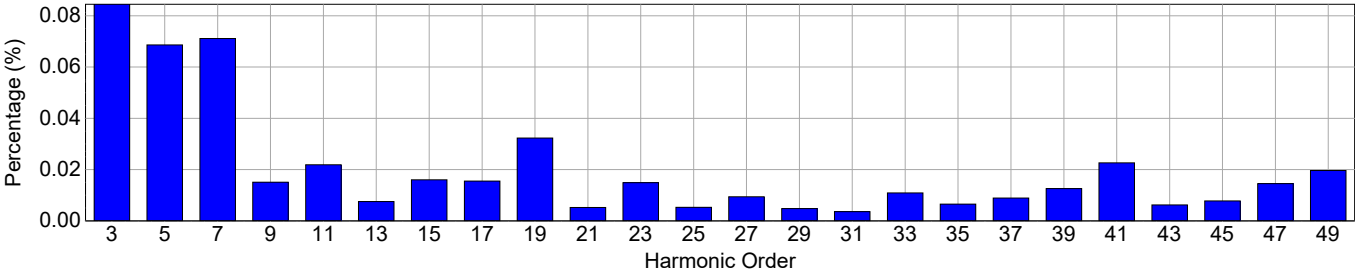


Electrical Measurements

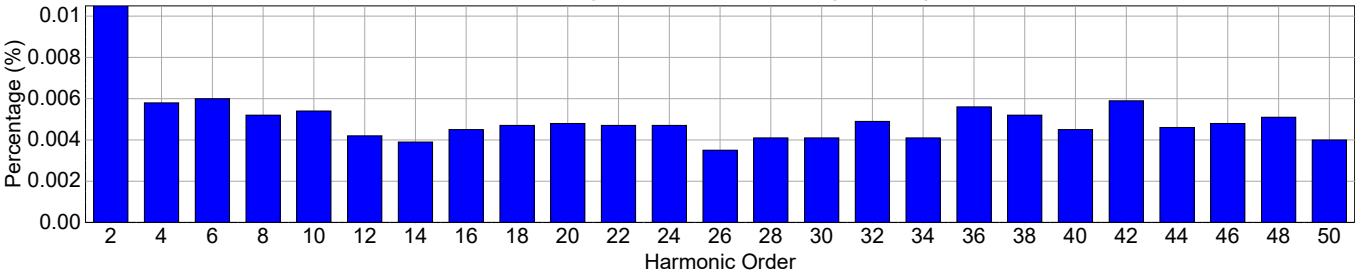
Input

Frequency	60 Hz	Active Power	46.35 W	THDV [ANSI]	0.14 %
Voltage	120.1 V(rms)	Apparent Power	46.86 VA	THDA [ANSI]	6.18 %
Current	0.3903 A(rms)	Power Factor	0.989	Max. Harmonic At	5th order

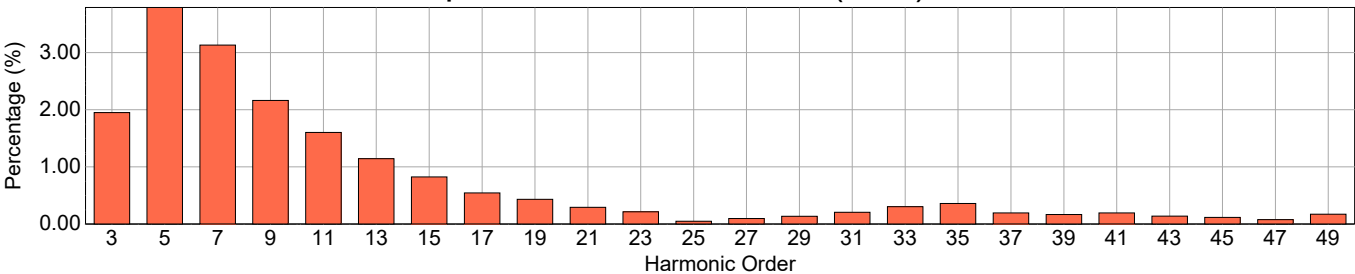
Input Voltage Harmonics (Odd)



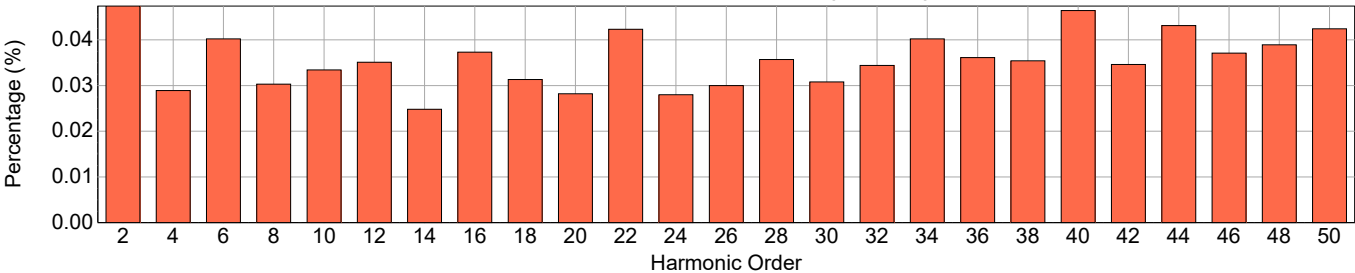
Input Voltage Harmonics (Even)



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	0.011	0.047
3	180	0.085	1.950	4	240	0.006	0.029
5	300	0.069	3.790	6	360	0.006	0.040
7	420	0.071	3.132	8	480	0.005	0.030
9	540	0.015	2.162	10	600	0.005	0.033
11	660	0.022	1.604	12	720	0.004	0.035
13	780	0.008	1.144	14	840	0.004	0.025
15	900	0.016	0.824	16	960	0.005	0.037
17	1020	0.016	0.544	18	1080	0.005	0.031
19	1140	0.032	0.433	20	1200	0.005	0.028
21	1260	0.005	0.294	22	1320	0.005	0.042
23	1380	0.015	0.215	24	1440	0.005	0.028
25	1500	0.005	0.048	26	1560	0.004	0.030
27	1620	0.009	0.097	28	1680	0.004	0.036
29	1740	0.005	0.136	30	1800	0.004	0.031
31	1860	0.004	0.207	32	1920	0.005	0.034
33	1980	0.011	0.303	34	2040	0.004	0.040
35	2100	0.007	0.360	36	2160	0.006	0.036
37	2220	0.009	0.194	38	2280	0.005	0.035
39	2340	0.013	0.167	40	2400	0.005	0.046
41	2460	0.023	0.194	42	2520	0.006	0.035
43	2580	0.006	0.140	44	2640	0.005	0.043
45	2700	0.008	0.116	46	2760	0.005	0.037
47	2820	0.015	0.076	48	2880	0.005	0.039
49	2940	0.020	0.173	50	3000	0.004	0.042



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Lab Code: 200899-0

Photometric Report: S2212053-R1

Prepared for: ANDlight · Test Date: 05 December 2022

Luminaire: Column Series · Lumcat: COL-175-4-P-V-30K

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
0		116	116	116	116	107	107	107	107	99	99	99	99	83	83	83	56	56	56	50
1		101	93	87	81	92	86	80	74	84	78	73	68	65	61	57	41	39	37	31
2		90	78	69	61	82	72	63	56	74	66	58	52	54	48	43	33	30	27	22
3		81	67	57	48	73	61	52	45	67	56	48	41	46	39	34	28	24	20	16
4		73	58	47	39	66	53	43	36	60	48	40	33	40	33	27	24	20	16	12
5		67	51	40	32	60	47	37	30	55	42	34	27	35	28	23	21	16	13	10
6		61	45	35	27	55	41	32	25	50	38	29	23	31	24	19	18	14	11	8
7		56	40	30	23	51	37	28	21	46	34	25	20	28	21	16	16	12	9	6
8		52	36	26	20	47	33	24	18	43	30	22	17	25	18	14	15	11	8	5
9		48	33	23	17	44	30	22	16	39	27	20	15	23	16	12	14	10	7	4
10		44	30	21	15	41	27	19	14	37	25	18	13	21	15	11	13	9	6	4

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	4	0.15	0.15
10 - 20	22	0.86	0.86
20 - 30	55	2.15	2.15
30 - 40	98	3.85	3.85
40 - 50	146	5.74	5.74
50 - 60	192	7.57	7.57
60 - 70	230	9.06	9.06
70 - 80	256	10.06	10.06
80 - 90	269	10.56	10.56
90 - 120	755	29.67	29.67
90 - 130	947	37.24	37.24
90 - 150	1191	46.83	46.83
90 - 180	1272	50.00	50.00
0 - 180	2543	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	461	460	445
55.0	657	644	622
65.0	957	950	918
75.0	1654	1623	1558
85.0	4924	4906	4698

Luminaire Luminous Flux: 2543

Measured Input Power: 46.35 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 54.9 lm/W

Luminaire Spacing Criterion (0 Degree): 5.2452

Luminaire Spacing Criterion (90 Degree): 5.1536

Category: Up and Down

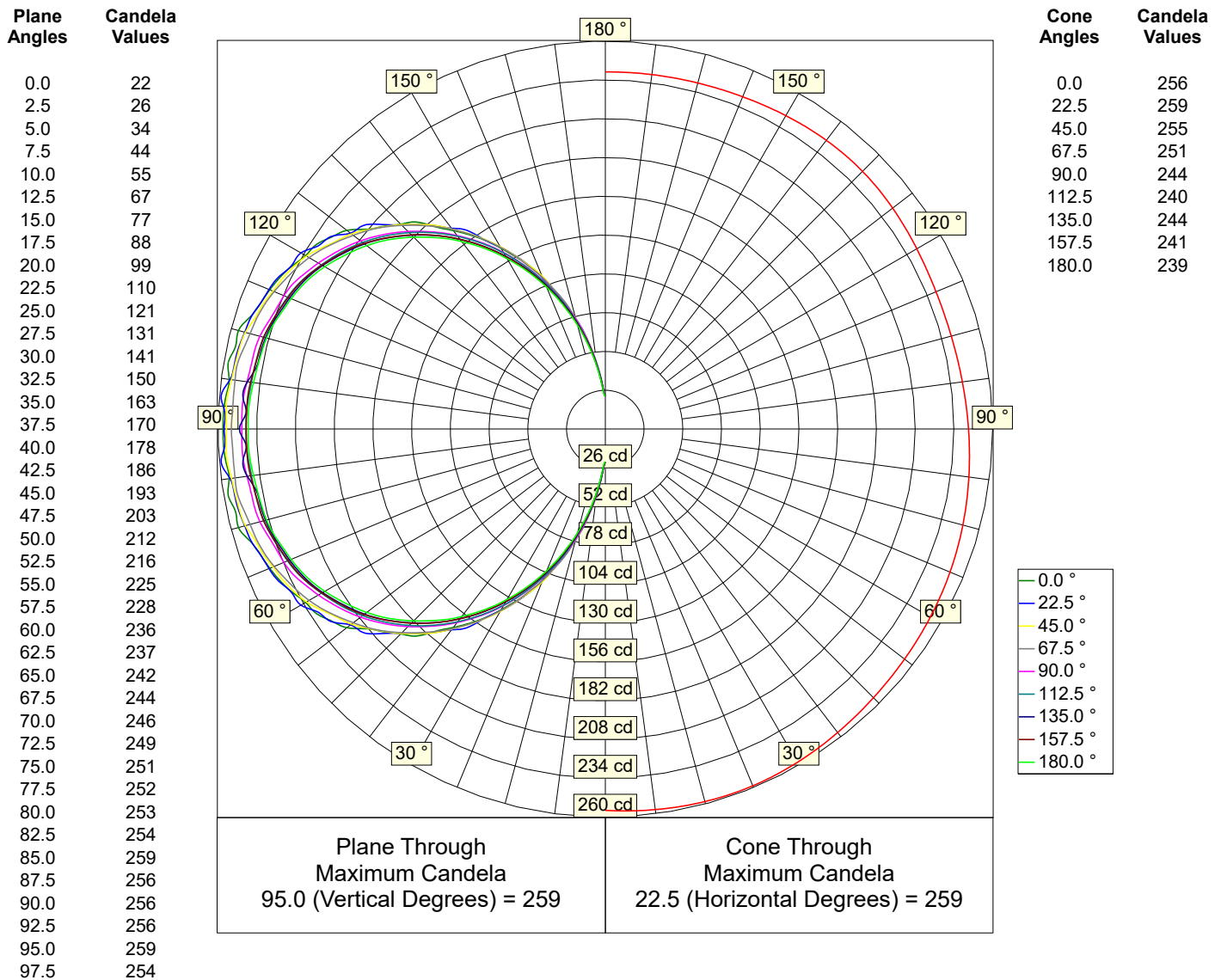


Photometric Report: S2212053-R1

Prepared for: ANDlight · Test Date: 05 December 2022

Luminaire: Column Series · Lumcat: COL-175-4-P-V-30K

Luminous Intensity - Polar Curve for each Plane(1)



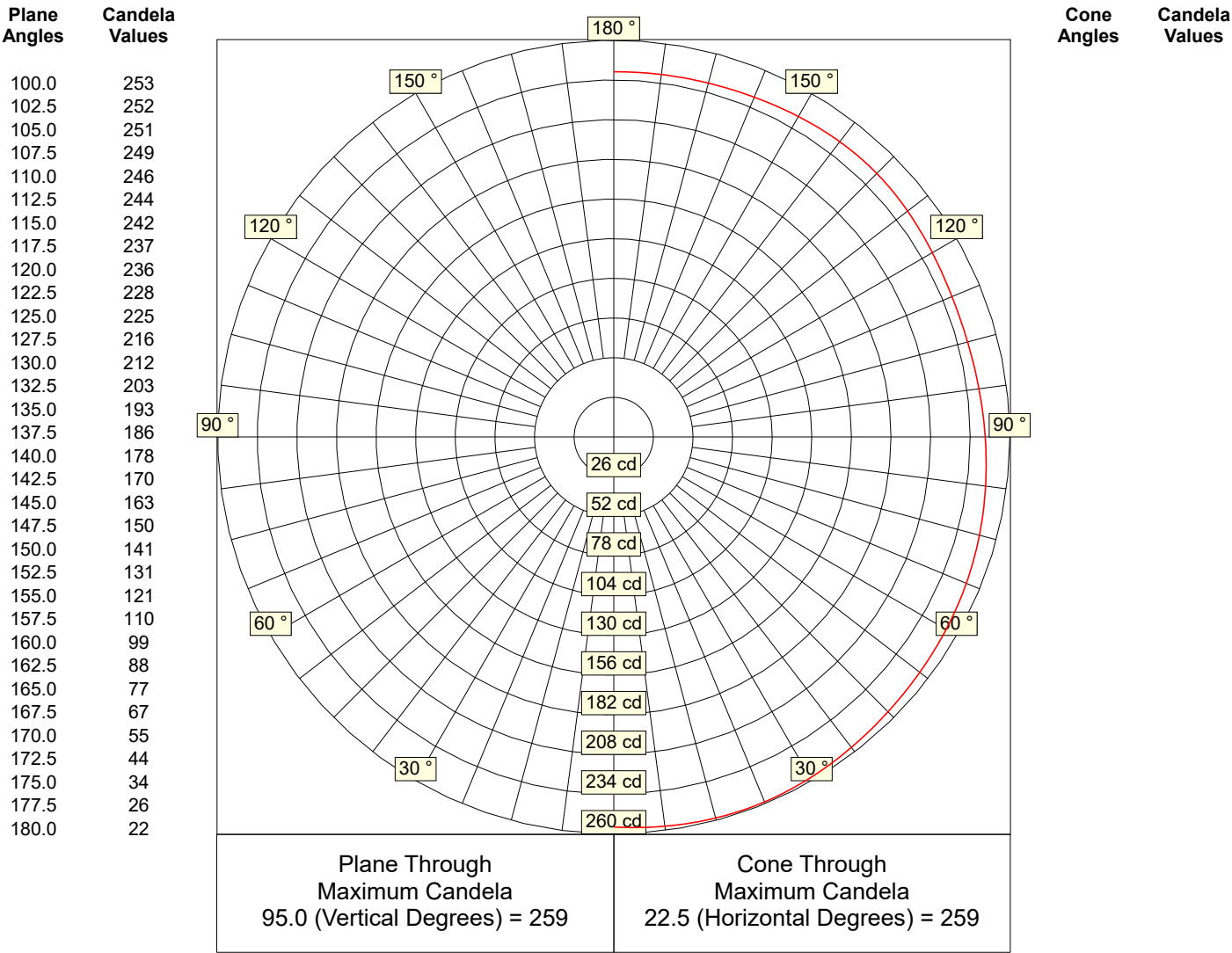


Photometric Report: S2212053-R1

Prepared for: ANDlight · Test Date: 05 December 2022

Luminaire: Column Series · Lumcat: COL-175-4-P-V-30K

Luminous Intensity - Polar Curve for each Plane(2)





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IES File Headers

IESNA:LM-63
[ISSUEDATE] 05 December 2022
[TESTLAB] Spectra Lux
[TEST] S2212053-R1
[MANUFAC] ANDlight
[LUMCAT] COL-175-4-P-V-30K
[LUMINAIRE] Column Series
[LAMP] Clusters of Nichia LEDs c/w Meanwell Driver PWM-90-24 @ 120.00V
[_BURNING] Axial (2,543 Luminaire Lumens)
[_OPTICS] None
[_LENS] (4) Acrylic Diffusers
[_HOUSING] (4) Facetted Vertical Cylinders
[_NOMINAL COLOR] 3000 K
[_DRIVE CURRENT] N.K.

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	22	22	22	22	22	22	22	22
	2.5	25	26	26	26	25	25	25	24
	5.0	33	34	34	35	34	34	33	32
	7.5	43	44	44	45	44	43	42	42
	10.0	55	55	56	56	55	53	52	52
	12.5	65	67	66	66	65	64	63	62
	15.0	76	77	77	77	76	74	73	72
	17.5	87	88	88	88	86	84	83	82
	20.0	98	99	98	99	97	96	94	93
	22.5	110	110	111	110	107	106	104	103
A n g l e s	25.0	121	121	121	120	117	117	115	113
	27.5	130	131	131	130	127	126	124	122
	30.0	140	141	141	141	137	136	133	132
	32.5	150	150	151	150	146	145	143	141
	35.0	159	163	160	160	155	154	152	150
	37.5	168	170	169	169	163	163	160	158
	40.0	177	178	178	177	172	171	169	167
	42.5	188	186	186	185	180	179	176	174
	45.0	194	193	194	193	187	186	184	182
	47.5	201	203	201	201	194	193	191	189
	50.0	208	212	208	207	201	199	198	196
	52.5	219	216	215	213	207	205	204	202
	55.0	224	225	220	219	213	211	209	207
	57.5	230	228	226	225	218	216	215	212
	60.0	232	236	232	230	222	220	219	217
	62.5	237	237	236	234	227	224	224	222
	65.0	241	242	239	237	231	228	228	225
	67.5	244	244	242	241	233	231	229	228
	70.0	246	246	245	243	235	233	232	231
	72.5	250	249	247	246	237	235	234	234
	75.0	255	251	250	247	240	237	236	235
	77.5	254	252	251	249	241	238	237	236
	80.0	257	253	252	251	242	239	238	237
	82.5	255	254	253	251	243	240	242	238
	85.0	256	259	255	251	244	240	244	239
	87.5	256	256	255	251	244	241	241	240
	90.0	257	256	254	251	244	241	241	240



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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	256	256	255	251	244	241	241	240
	95.0	256	259	255	251	244	240	244	239
	97.5	255	254	253	251	243	240	242	238
	100.0	257	253	252	251	242	239	238	237
	102.5	254	252	251	249	241	238	237	236
	105.0	255	251	250	247	240	237	236	235
	107.5	250	249	247	246	237	235	234	234
	110.0	246	246	245	243	235	233	232	231
	112.5	244	244	242	241	233	231	229	228
	115.0	241	242	239	237	231	228	227	228
	117.5	237	237	236	234	227	224	223	224
	120.0	232	236	232	230	222	220	219	220
	122.5	230	228	226	225	218	216	214	215
	125.0	224	225	220	219	213	211	209	210
	127.5	219	216	215	213	207	205	204	204
	130.0	208	212	208	207	201	199	198	198
	132.5	201	203	201	201	194	193	191	191
	135.0	194	193	194	193	187	186	184	184
A n g l e s	137.5	188	186	186	185	180	179	176	176
	140.0	177	178	178	177	172	171	169	169
	142.5	168	170	169	169	163	163	160	160
	145.0	159	163	160	160	155	154	152	152
	147.5	150	150	151	150	146	145	143	143
	150.0	140	141	141	141	137	136	134	133
	152.5	130	131	131	130	127	126	124	124
	155.0	121	121	121	120	117	117	115	114
	157.5	110	110	111	110	107	106	105	104
	160.0	98	99	98	99	97	96	95	94
	162.5	87	88	88	88	86	86	84	83
	165.0	76	77	77	77	76	74	74	73
	167.5	65	67	66	66	65	64	64	63
	170.0	55	55	56	56	55	53	53	52
	172.5	43	44	44	45	44	43	43	42
	175.0	33	34	34	35	34	34	34	33
	177.5	25	26	26	26	26	25	25	25
	180.0	22	22	22	22	22	22	22	22