



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: CY4602		Driver Details: CY2106	
DUT Lab ID	SRIS 3069-1	Seasoning	0 Hour	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	ORB-P	Manufacturer	Shenzen Mailing Technologies
Current Mode	AC	Manufacturer	Shenzen Mailing Technologies	Catalog No.	Integrated LED Driver
Test Report	S2012213-R1	Lamp Catalog No.	(1) G9-A-88 LED Bulb	Maximum Power	5 W
Test Date	21 December 2020	Drive Current	N.K.	Input Voltage	120.00 V
Report Date	30 December 2020	Nominal Color	3000 K	Operating Frequency	60 Hz
Ambient	24.1 °C	Burning Position	Junction Axial	Input Power	4.13 W

Luminaire Data

General Information		Optics		Aperture (feet)	
Manufacturer	ANDlight	Reflector	None	X	-0.6250
Name	Orbit	Housing	None	Y	-0.6250
Catalog No.	ORB-P	Lens	Opalin Spherical Globe	Z	-0.6250

Stabilization Time: 45 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).





Spectra Lux

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



Electrical Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Power Supply	iRDC	CIF-3000A	974997	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

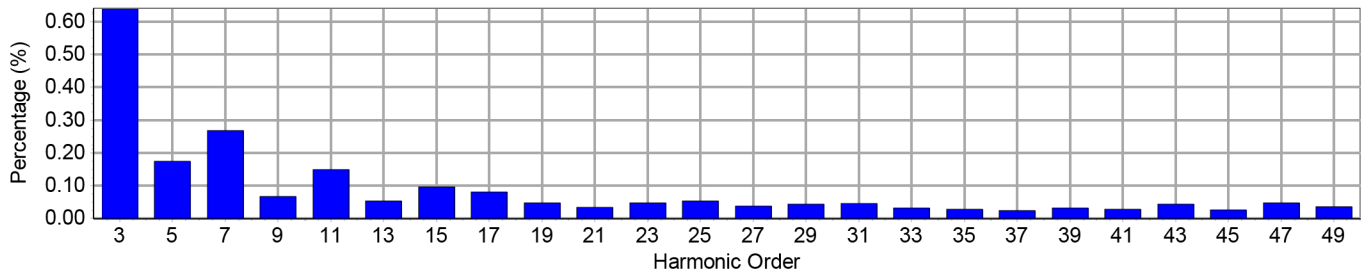


Electrical Measurements

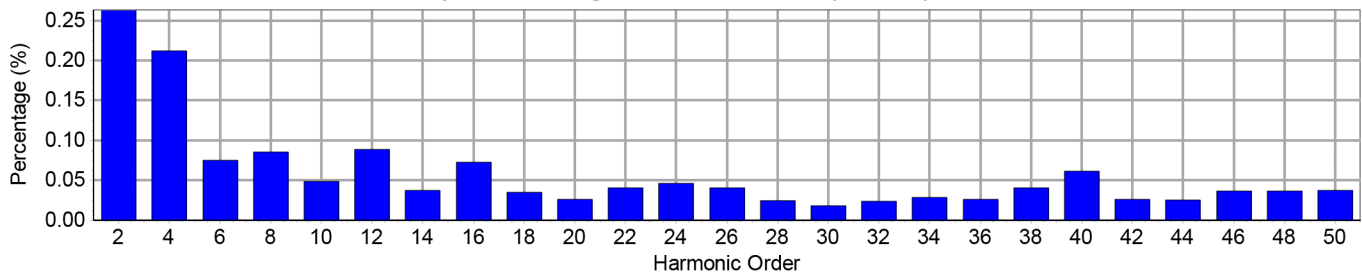
Input

Frequency	60 Hz	Active Power	4.13 W	THDV [ANSI]	0.86 %
Voltage	120.0 V(rms)	Apparent Power	4.56 VA	THDA [ANSI]	44.04 %
Current	0.0380 A(rms)	Power Factor	0.907	Max. Harmonic At	3rd order

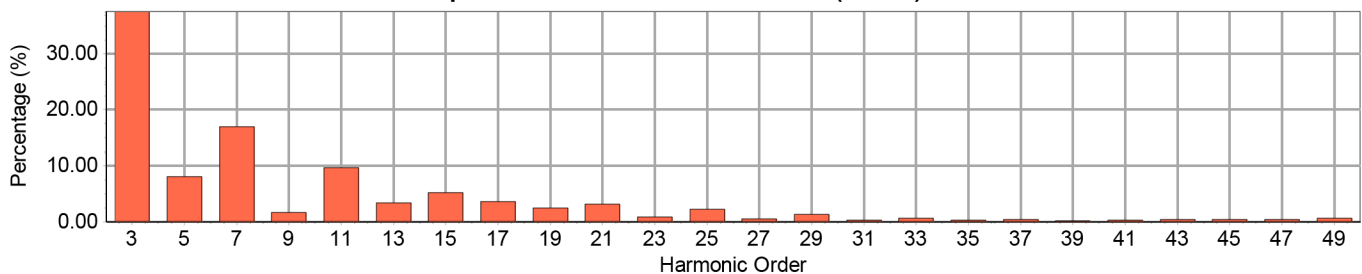
Input Voltage Harmonics (Odd)



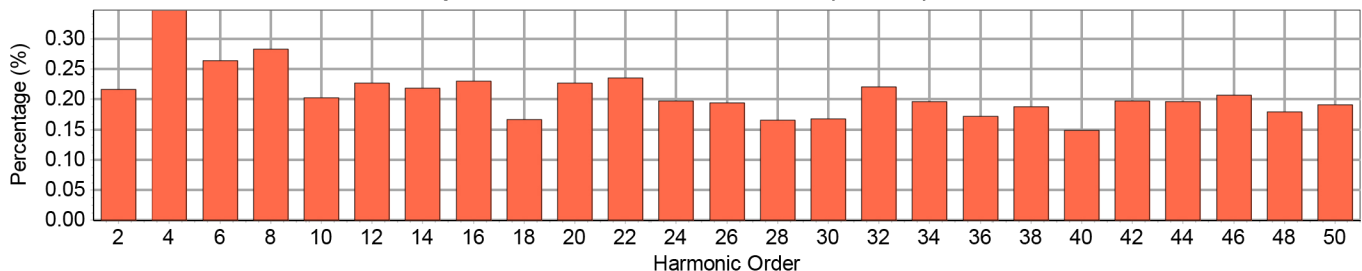
Input Voltage Harmonics (Even)



Input Current Harmonics (Odd)



Input Current Harmonics (Even)





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



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	0.264	0.216
3	180	0.642	37.593	4	240	0.212	0.348
5	300	0.175	8.049	6	360	0.075	0.264
7	420	0.267	16.970	8	480	0.085	0.283
9	540	0.067	1.620	10	600	0.049	0.202
11	660	0.150	9.708	12	720	0.089	0.227
13	780	0.053	3.426	14	840	0.037	0.218
15	900	0.097	5.224	16	960	0.073	0.230
17	1020	0.081	3.615	18	1080	0.035	0.166
19	1140	0.048	2.465	20	1200	0.026	0.227
21	1260	0.033	3.114	22	1320	0.041	0.236
23	1380	0.048	0.898	24	1440	0.046	0.198
25	1500	0.053	2.191	26	1560	0.041	0.194
27	1620	0.039	0.477	28	1680	0.024	0.165
29	1740	0.044	1.301	30	1800	0.018	0.168
31	1860	0.045	0.315	32	1920	0.024	0.221
33	1980	0.033	0.617	34	2040	0.028	0.196
35	2100	0.029	0.310	36	2160	0.026	0.172
37	2220	0.025	0.394	38	2280	0.041	0.187
39	2340	0.032	0.224	40	2400	0.061	0.149
41	2460	0.028	0.293	42	2520	0.026	0.197
43	2580	0.043	0.389	44	2640	0.025	0.196
45	2700	0.027	0.411	46	2760	0.036	0.207
47	2820	0.048	0.367	48	2880	0.037	0.179
49	2940	0.036	0.574	50	3000	0.037	0.190



Spectra Lux

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



Photometric Report: S2012213-R1

Prepared for: ANDlight · Test Date: 21 December 2020

Luminaire: Orbit · Lumcat: ORB-P

Coefficients of Utilization - Zonal Cavity Method

RCR	RC RW	0.9				0.8				0.7				0.5			0.1			0
		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	94	88	82	93	87	81	76	85	79	74	70	66	62	59	42	40	38	32
2		91	80	71	63	83	73	65	58	75	67	60	54	55	50	45	34	31	29	24
3		82	69	58	50	75	63	54	47	68	58	49	43	47	41	36	29	26	23	18
4		74	60	49	41	68	55	45	38	61	50	42	35	41	35	29	25	22	18	14
5		68	53	42	34	62	48	39	32	56	44	36	30	36	30	25	22	18	15	12
6		62	47	36	29	57	43	34	27	51	39	31	25	32	26	21	20	16	13	10
7		57	42	32	25	52	38	30	23	47	35	27	22	29	23	18	18	14	11	8
8		53	38	28	22	48	35	26	20	44	32	24	19	26	20	16	17	13	10	7
9		49	34	25	19	45	32	23	18	41	29	22	17	24	18	14	15	11	9	6
10		46	31	23	17	42	29	21	16	38	27	19	15	22	16	12	14	10	8	6

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	2	0.64	0.64
10 - 20	7	1.90	1.90
20 - 30	11	3.18	3.18
30 - 40	16	4.47	4.47
40 - 50	20	5.78	5.78
50 - 60	25	7.05	7.05
60 - 70	29	8.18	8.18
70 - 80	32	9.11	9.11
80 - 90	34	9.70	9.70
90 - 120	95	27.00	27.00
90 - 130	120	34.05	34.05
90 - 150	155	44.29	44.29
90 - 180	175	49.99	49.99
0 - 180	351	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	325	325	325
55.0	422	422	422
65.0	603	603	603
75.0	1027	1027	1027
85.0	3152	3152	3152

Luminaire Luminous Flux: 351

Measured Input Power: 4.13 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 85.0 lm/W

Luminaire Spacing Criterion (0 Degree): 1.6565

Luminaire Spacing Criterion (90 Degree): 1.6565

Category: Up and Down

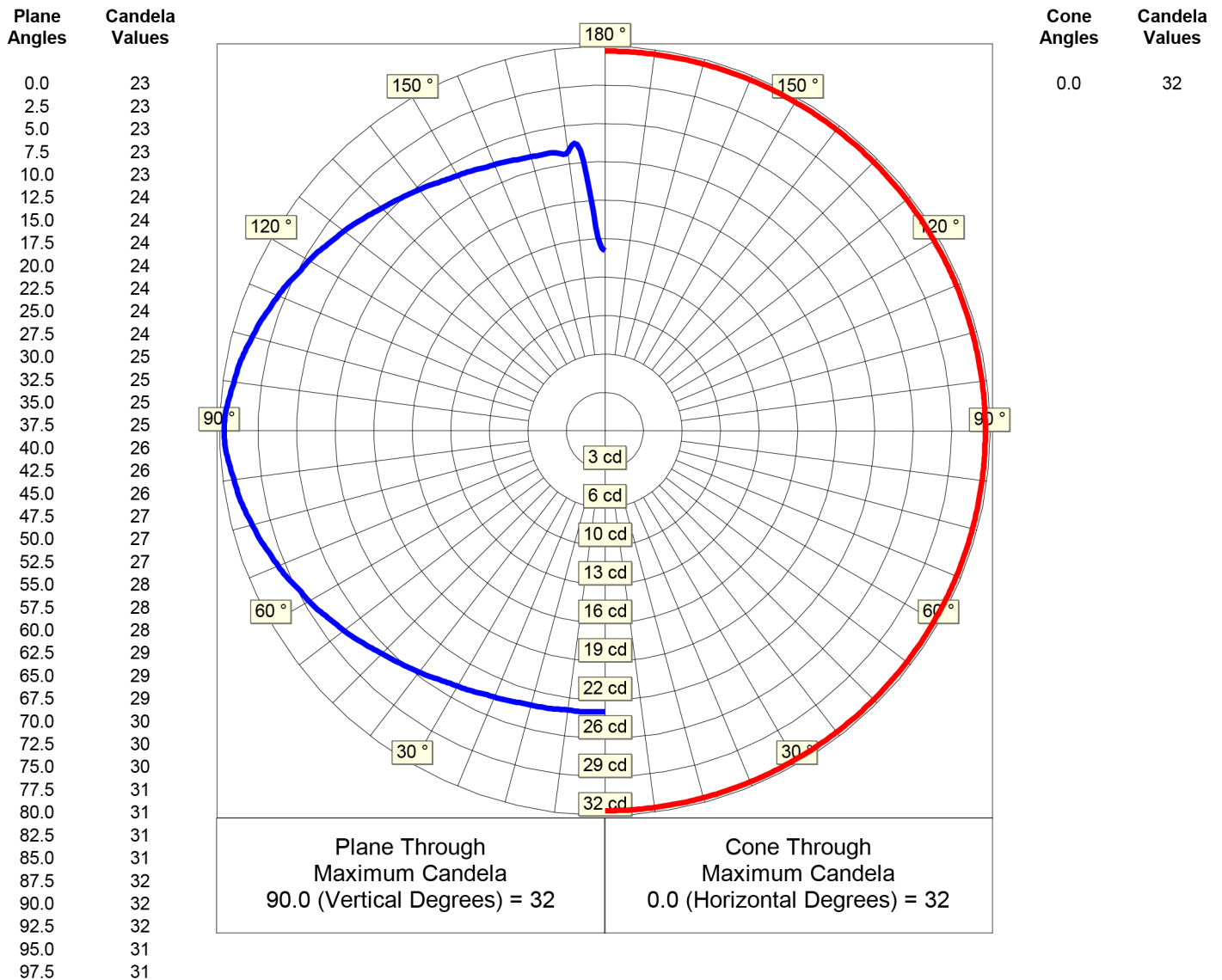


Photometric Report: S2012213-R1

Prepared for: ANDlight · Test Date: 21 December 2020

Luminaire: Orbit · Lumcat: ORB-P

Luminous Intensity - Polar Curve for each Plane(1)





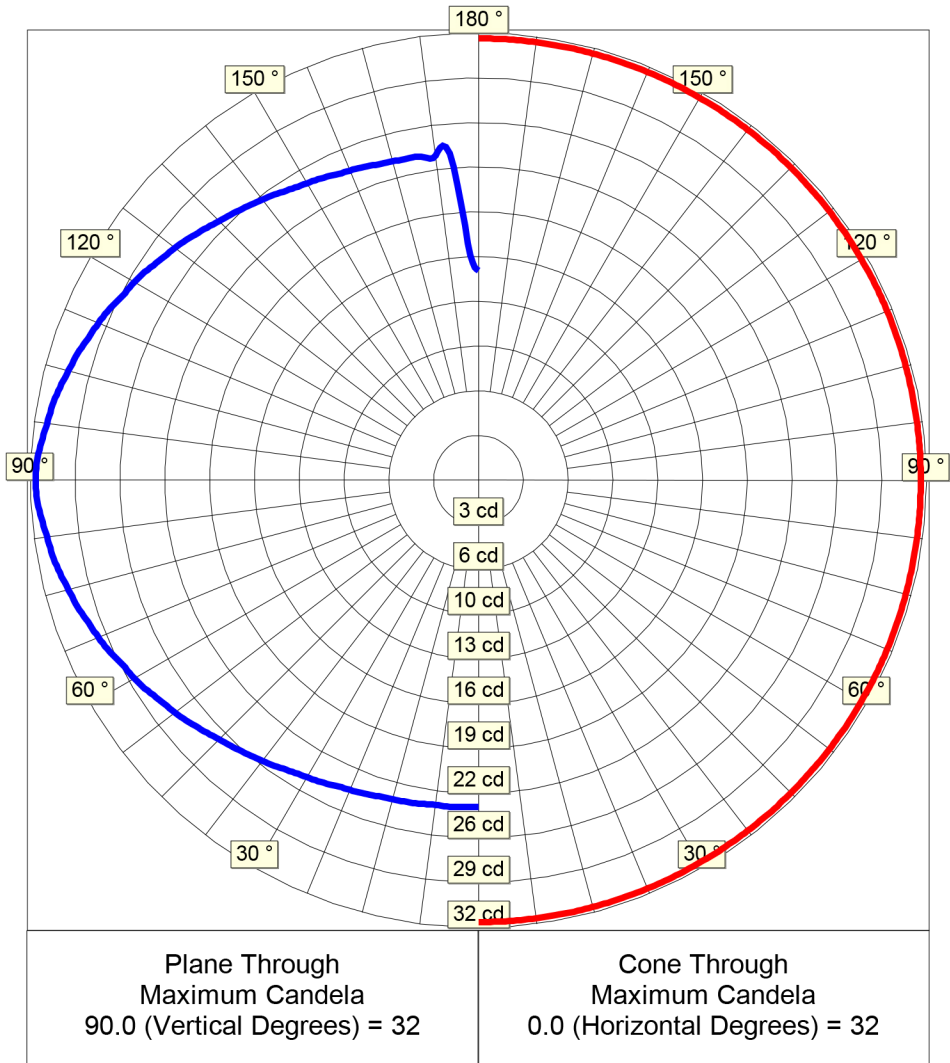
Photometric Report: S2012213-R1

Prepared for: ANDlight · Test Date: 21 December 2020

Luminaire: Orbit · Lumcat: ORB-P

Luminous Intensity - Polar Curve for each Plane(2)

Plane Angles	Candela Values
100.0	31
102.5	31
105.0	30
107.5	30
110.0	30
112.5	29
115.0	29
117.5	29
120.0	28
122.5	28
125.0	28
127.5	27
130.0	27
132.5	27
135.0	26
137.5	26
140.0	26
142.5	25
145.0	25
147.5	25
150.0	25
152.5	24
155.0	24
157.5	24
160.0	24
162.5	24
165.0	24
167.5	24
170.0	23
172.5	23
175.0	23
177.5	17
180.0	15



Cone Angles	Candela Values
0.0	32



Spectra Lux

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



IES File Headers

IESNA:LM-63
[ISSUEDATE] 21 December 2020
[TESTLAB] Spectra Lux
[TEST] S2012213-R1
[MANUFAC] ANDlight
[LUMCAT] ORB-P
[LUMINAIRE] Orbit
[LAMP] (1)Shenzen Mailing Technologies G9-A-88 LED Bulb c/w Integrated LED Driver @ 120.00V
[_BURNING] Axial (351 Luminaire Lumens)
[_REFLECTOR] None
[_LENS] Opalin Spherical Globe
[_HOUSING] None
[_NOMINAL COLOR] 3000 K
[_DRIVE CURRENT] N.K.

Candela Table

Lateral Angles

	0.0
V e r t i c a l	0.0 23
	2.5 23
	5.0 23
	7.5 23
	10.0 23
	12.5 24
	15.0 24
	17.5 24
	20.0 24
	22.5 24
	25.0 24
	27.5 24
	30.0 25
	32.5 25
	35.0 25
	37.5 25
	40.0 26
A n g l e s	42.5 26
	45.0 26
	47.5 27
	50.0 27
	52.5 27
	55.0 28
	57.5 28
	60.0 28
	62.5 29
	65.0 29
	67.5 29
	70.0 30
	72.5 30
	75.0 30
	77.5 31
	80.0 31
	82.5 31
	85.0 31
	87.5 32
	90.0 32



Spectra Lux

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



Lateral Angles

	0.0
	92.5
	95.0
	97.5
	100.0
	102.5
	105.0
	107.5
	110.0
	112.5
V e r t i c a l	115.0
	117.5
	120.0
	122.5
	125.0
	127.5
	130.0
	132.5
	135.0
	137.5
A n g l e s	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