

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: P243164

Luminaire Tested: **S122DR-H290D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243164
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-58)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S122DR-H290D930-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1023.3 lumens
Efficiency: N/A
Efficacy: 91.4 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.24
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

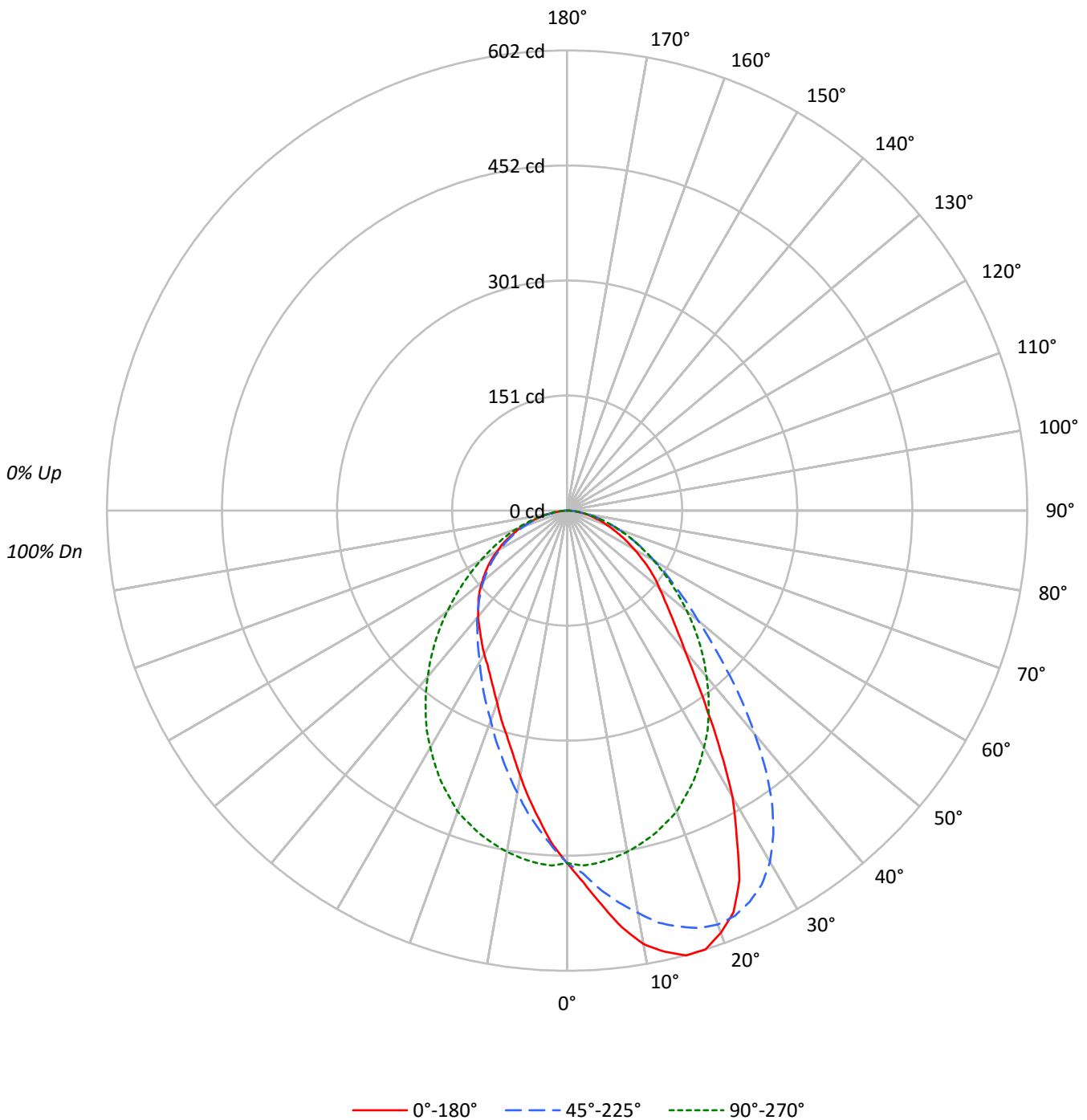
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20	
RC	80				70				50				30				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86
2	101	93	87	82	98	92	86	81	88	83	79	85	81	77	82	79	76	74
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	73	69	66	63
4	86	74	66	60	83	73	66	60	71	64	59	68	63	58	66	61	57	55
5	79	67	59	52	77	66	58	52	64	57	52	62	56	51	60	55	51	49
6	73	61	52	46	72	60	52	46	58	51	46	57	50	45	55	49	45	43
7	68	56	47	41	67	55	47	41	53	46	41	52	46	41	51	45	40	39
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37	35
9	60	47	39	34	58	46	39	34	45	38	34	44	38	34	43	38	33	32
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31	29

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	8785	8785	8785
5°	9895	8847	7794
10°	11139	8768	6820
15°	11881	8649	6011
20°	11915	8493	5424
25°	11206	8211	5000
30°	9513	7867	4775
35°	7439	7501	4595
40°	5975	7049	4508
45°	5140	6584	4423
50°	4664	6060	4300
55°	4297	5519	4184
60°	3863	4975	3992
65°	3475	4471	3799
70°	3096	3971	3553
75°	2789	3415	3113
80°	2435	2753	2435
85°	2098	2054	1333



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	43.9	4.3
10°-20°	126.3	12.3
20°-30°	183.6	17.9
30°-40°	197.0	19.3
40°-50°	176.6	17.3
50°-60°	140.8	13.8
60°-70°	95.2	9.3
70°-80°	48.6	4.7
80°-90°	11.4	1.1
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	353.9	34.6
0°-40°	550.9	53.8
0°-60°	868.2	84.8
0°-90°	1023.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1023.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	461	461	461	461	461	
5°	518	498	463	419	408	51
15°	602	563	439	332	305	169
25°	533	565	391	259	238	240
35°	320	467	323	204	198	203
45°	191	296	244	162	164	149
55°	129	172	166	122	126	116
65°	77	100	99	80	84	77
75°	38	47	46	40	42	40
85°	10	11	9	7	6	11
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2
2.5°	486.8	488.3	486.9	486.4	485.4	485.1	482.3	480.1	478.8	475.0	475.3
5°	517.5	520.9	519.0	518.9	515.1	512.7	510.3	506.9	501.8	497.7	494.5
7.5°	549.9	548.2	547.7	545.8	543.1	539.7	534.4	529.4	523.0	517.0	512.5
10°	575.9	575.4	576.2	571.4	569.7	564.4	559.8	552.1	543.8	534.4	528.6
12.5°	591.2	592.8	594.0	592.1	588.0	586.4	578.8	568.0	565.1	552.3	545.3
15°	602.5	603.2	603.3	601.3	599.2	595.3	590.7	583.9	574.5	563.4	558.1
17.5°	601.8	601.6	602.7	601.5	600.3	599.1	595.5	590.2	582.9	572.5	563.6
20°	587.8	590.9	593.3	593.8	593.6	594.3	592.6	589.2	583.9	576.4	566.3
22.5°	568.7	567.5	572.6	572.3	574.5	579.6	581.8	580.5	578.4	573.6	565.6
25°	533.2	534.4	538.0	541.7	550.4	553.5	560.2	565.3	566.0	564.8	559.8
27.5°	479.9	488.5	490.4	495.3	507.4	517.5	531.0	539.0	550.4	551.5	549.2
30°	432.5	432.2	435.1	443.9	455.0	470.2	487.6	508.3	521.4	530.5	533.7
32.5°	374.1	375.5	383.0	393.9	405.2	420.4	440.5	465.8	483.4	502.1	512.7
35°	319.9	324.1	331.3	338.8	351.1	371.9	394.3	415.3	442.2	467.3	484.4
37.5°	275.1	280.9	286.4	293.6	305.5	321.6	341.7	369.5	396.3	426.5	451.6
40°	240.3	242.5	246.3	253.3	261.3	277.4	297.7	318.5	347.5	382.1	415.1
42.5°	213.0	212.5	216.6	221.0	228.4	240.3	258.1	278.9	307.7	338.5	371.7
45°	190.8	191.0	192.7	197.3	203.1	209.9	223.6	243.2	265.1	295.6	330.9
47.5°	172.7	173.2	175.8	179.0	182.5	188.8	197.8	210.6	231.1	256.7	289.8
50°	157.4	158.2	159.9	162.3	164.9	169.3	176.1	186.2	202.4	224.1	254.1
52.5°	143.7	144.1	144.6	146.8	148.8	152.9	158.0	165.9	178.7	196.8	220.2
55°	129.4	129.0	130.2	132.1	134.0	136.9	142.2	148.5	157.5	171.9	191.2
57.5°	114.7	115.2	116.1	117.1	120.5	123.6	127.5	133.3	140.5	151.7	167.8
60°	101.4	101.4	102.4	103.8	106.0	108.0	111.8	117.1	123.4	132.1	145.6
62.5°	88.4	89.1	90.1	90.8	92.8	95.4	98.3	102.4	108.2	115.2	125.3
65°	77.1	76.8	77.8	79.2	80.7	82.4	85.7	89.1	93.5	99.8	108.2
67.5°	65.5	66.6	66.9	67.6	68.8	71.0	72.5	76.1	79.7	85.3	92.3
70°	55.6	56.3	56.8	57.7	58.7	59.7	61.3	64.2	67.8	71.7	76.6
72.5°	46.8	47.3	46.8	47.6	48.1	49.2	51.2	52.6	55.3	58.7	63.2
75°	37.9	38.2	38.1	38.9	39.1	40.1	41.1	42.3	45.4	47.3	50.3
77.5°	29.7	30.0	30.2	30.6	30.9	31.4	31.9	33.1	34.8	36.5	38.9
80°	22.2	22.2	22.7	22.9	23.0	23.4	24.2	24.6	25.8	26.3	28.2
82.5°	15.4	15.5	15.7	15.7	15.9	16.2	16.4	17.1	17.4	18.3	19.1
85°	9.6	9.7	9.7	9.7	10.2	10.1	10.1	10.4	10.9	10.9	11.3
87.5°	4.8	4.9	4.9	4.9	5.1	5.1	5.1	5.1	5.1	5.5	5.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2
2.5°	475.2	475.0	474.3	471.2	468.9	465.8	465.3	464.8	460.5	455.9	454.5
5°	491.9	488.8	484.6	479.4	474.3	468.7	465.4	462.7	456.2	449.1	445.0
7.5°	508.3	502.3	495.6	487.6	479.1	470.0	464.2	458.8	449.9	440.5	434.9
10°	522.3	514.3	505.0	494.5	482.7	470.4	461.9	453.3	442.1	430.6	423.1
12.5°	533.9	523.6	511.5	497.2	486.4	469.5	457.6	446.3	433.9	419.0	410.8
15°	542.8	532.7	516.3	501.8	487.6	465.1	450.6	438.6	421.9	407.4	394.4
17.5°	553.5	539.2	523.0	502.1	486.4	460.7	444.3	428.7	410.7	393.6	379.2
20°	558.3	543.3	525.9	502.6	482.7	455.9	434.0	419.0	397.2	377.5	361.3
22.5°	559.0	544.6	525.7	501.1	476.2	448.9	423.8	404.2	382.3	361.5	343.2
25°	556.1	542.4	522.8	498.4	469.0	441.4	413.4	390.7	365.4	343.9	325.3
27.5°	548.2	537.1	518.5	492.4	461.7	429.8	399.2	374.5	349.5	325.1	307.4
30°	535.6	528.2	512.2	484.6	452.3	417.1	386.6	357.7	330.8	307.9	288.8
32.5°	519.4	515.8	502.5	475.2	442.7	403.3	371.4	341.7	312.3	290.7	271.0
35°	498.7	500.6	489.3	464.6	430.6	389.3	353.6	322.6	293.9	270.9	252.8
37.5°	471.9	481.1	474.0	450.8	415.1	375.1	335.0	303.8	273.8	251.6	235.7
40°	441.9	458.1	454.7	435.2	398.4	358.6	317.1	283.5	254.1	233.1	218.0
42.5°	406.6	430.1	433.9	416.3	381.8	337.9	297.0	264.6	236.2	215.6	201.1
45°	367.0	396.1	408.8	394.9	362.5	318.0	276.3	244.4	216.4	198.8	186.7
47.5°	327.2	362.3	379.4	372.8	340.0	296.6	255.8	224.6	198.2	182.8	171.4
50°	287.9	325.7	350.6	346.1	317.8	276.3	235.2	204.5	180.2	166.1	156.3
52.5°	253.5	289.1	316.3	318.5	293.1	253.1	213.3	184.8	164.2	151.4	143.2
55°	219.5	252.6	282.3	287.8	267.1	228.7	193.2	166.2	147.5	136.9	130.2
57.5°	189.1	219.2	248.7	258.2	241.5	206.9	171.5	147.8	131.6	123.4	117.6
60°	163.3	190.5	215.9	225.6	214.2	182.6	151.7	130.6	117.1	109.7	105.1
62.5°	140.8	161.8	184.3	195.1	187.4	159.9	133.0	114.2	103.3	96.9	93.4
65°	120.5	136.7	154.5	166.9	158.4	137.9	115.4	99.2	89.9	84.1	81.6
67.5°	101.7	115.2	129.4	139.3	135.0	116.4	97.5	84.8	77.1	72.7	70.3
70°	84.7	94.7	106.2	113.8	110.8	96.4	81.4	71.3	64.9	61.8	59.7
72.5°	69.5	76.0	84.7	91.0	87.7	77.7	66.9	58.9	54.1	50.5	49.0
75°	55.1	60.8	66.9	71.2	68.6	61.1	52.6	46.4	43.2	41.0	39.9
77.5°	41.8	46.3	50.5	52.6	51.4	45.9	40.1	35.3	32.6	31.2	30.0
80°	30.0	32.6	35.5	37.4	36.7	32.9	28.8	25.1	23.9	22.2	21.8
82.5°	20.1	22.2	22.9	23.7	23.2	21.5	18.6	16.4	15.4	14.5	14.3
85°	11.9	12.5	13.3	13.3	12.8	11.6	10.1	9.4	8.4	8.2	7.7
87.5°	5.3	5.3	5.3	5.3	5.3	4.9	4.3	3.9	3.6	3.4	3.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2
2.5°	453.3	451.6	449.2	446.5	444.1	440.3	439.2	439.2	440.0	439.0	438.1
5°	441.5	438.1	434.7	429.4	425.0	419.0	417.3	415.6	415.4	413.7	411.5
7.5°	428.9	423.8	416.8	409.3	404.5	398.0	394.4	393.4	390.2	387.1	383.5
10°	414.2	406.4	398.0	390.9	383.3	375.0	370.7	367.8	364.6	360.8	358.3
12.5°	396.5	387.6	379.9	371.6	365.3	353.5	352.1	348.4	341.9	336.2	334.2
15°	385.6	370.0	361.3	353.6	344.1	332.0	327.5	323.4	317.3	313.7	310.8
17.5°	366.3	352.3	341.4	331.1	321.9	312.5	305.9	302.4	297.5	294.4	291.5
20°	348.7	333.5	322.1	310.1	300.6	292.0	286.4	282.1	279.6	276.5	273.6
22.5°	330.9	315.1	304.1	292.0	280.8	275.6	269.0	265.4	262.0	259.6	256.5
25°	310.3	297.7	284.0	274.6	264.7	259.4	253.1	249.7	247.0	244.2	242.7
27.5°	291.9	279.1	266.4	257.0	248.7	243.6	239.6	236.4	233.0	230.9	229.7
30°	272.7	261.0	249.9	240.8	234.3	228.7	226.3	223.2	220.7	219.8	218.0
32.5°	255.7	242.5	233.7	225.5	220.0	216.1	214.4	211.1	210.6	209.8	208.7
35°	238.6	227.3	218.8	211.8	207.2	204.3	202.1	201.2	200.4	199.5	198.7
37.5°	221.7	212.8	204.8	199.2	195.4	193.2	192.7	191.0	190.8	189.6	189.6
40°	206.5	197.5	191.8	187.4	184.3	183.3	181.9	181.6	181.1	180.7	181.4
42.5°	191.3	185.2	180.4	175.8	173.4	172.6	172.2	171.7	171.4	172.4	172.7
45°	177.2	171.9	167.8	164.5	163.2	162.1	162.1	162.7	162.5	163.0	163.0
47.5°	164.0	159.2	155.8	154.6	152.9	152.6	152.8	152.6	153.4	154.1	154.8
50°	151.6	147.3	144.6	143.4	143.0	142.5	143.2	143.5	144.1	144.7	145.1
52.5°	137.7	135.7	134.0	132.8	132.6	132.8	132.6	133.8	134.3	135.3	135.2
55°	126.0	124.4	123.2	121.9	121.7	122.2	122.5	123.6	124.3	125.1	124.9
57.5°	114.9	113.7	112.3	112.0	111.8	112.0	113.5	113.3	114.4	115.0	115.4
60°	102.7	101.9	100.7	100.7	101.2	101.6	102.1	102.9	103.9	103.8	105.0
62.5°	91.7	90.6	90.3	90.8	90.6	91.5	92.0	92.0	93.4	93.9	94.2
65°	80.6	80.2	79.7	79.7	80.2	80.4	81.2	81.8	82.3	83.3	84.1
67.5°	70.1	69.3	69.3	69.0	69.6	70.1	70.7	71.3	71.7	72.9	73.4
70°	59.2	58.9	58.7	59.1	59.1	59.6	60.4	61.3	62.0	62.1	63.2
72.5°	48.6	48.6	48.6	49.2	49.5	50.0	50.2	50.9	51.9	52.1	52.6
75°	39.1	39.3	39.1	39.3	39.4	39.9	40.3	41.0	41.6	41.8	42.2
77.5°	30.2	29.9	29.5	30.0	30.4	31.4	31.2	31.6	32.3	31.9	32.3
80°	21.2	21.7	21.0	22.0	22.0	21.8	22.2	22.7	22.5	22.9	22.5
82.5°	14.3	13.8	13.8	14.3	14.5	14.0	14.3	14.5	14.7	14.3	14.2
85°	7.9	7.7	8.0	7.5	7.7	7.3	7.3	7.0	7.3	7.0	6.7
87.5°	2.9	2.7	2.9	2.4	2.2	2.0	1.9	1.9	1.5	1.5	1.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	461.2	461.2	461.2	461.2
2.5°	439.3	437.4	436.6	437.3
5°	409.1	409.6	406.6	407.6
7.5°	383.0	380.8	381.5	380.3
10°	355.4	354.2	352.3	352.6
12.5°	336.7	328.7	328.2	326.7
15°	310.6	306.2	305.2	304.8
17.5°	289.8	286.1	287.4	286.4
20°	271.0	271.2	269.0	267.6
22.5°	254.5	254.1	253.3	251.9
25°	240.5	240.5	238.4	237.9
27.5°	227.7	228.0	226.3	226.3
30°	218.1	216.9	216.8	217.1
32.5°	208.6	207.2	207.4	207.2
35°	198.3	198.7	198.2	197.6
37.5°	189.6	189.6	189.6	189.1
40°	181.1	181.4	180.9	181.3
42.5°	172.6	172.7	172.7	172.0
45°	164.0	163.9	163.5	164.2
47.5°	155.1	155.1	155.0	155.3
50°	145.4	145.8	145.2	145.1
52.5°	135.5	135.7	135.5	135.9
55°	125.4	125.4	125.6	126.0
57.5°	115.0	116.2	115.4	116.1
60°	104.8	105.0	105.1	104.8
62.5°	95.1	94.9	95.1	95.6
65°	84.5	84.8	84.7	84.3
67.5°	74.1	73.7	74.2	73.7
70°	63.0	63.7	63.2	63.8
72.5°	52.9	52.7	53.1	52.2
75°	42.3	42.3	42.5	42.3
77.5°	32.4	32.1	31.9	31.4
80°	22.4	22.4	21.7	22.2
82.5°	13.7	13.8	14.0	13.0
85°	6.5	6.5	6.3	6.1
87.5°	1.4	1.4	1.5	1.7
90°	0.0	0.0	0.0	0.0

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