

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: P243159

Luminaire Tested: **S122DR-H290D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243159
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-H290D840-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1267.5 lumens
Efficiency: N/A
Efficacy: 113.2 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

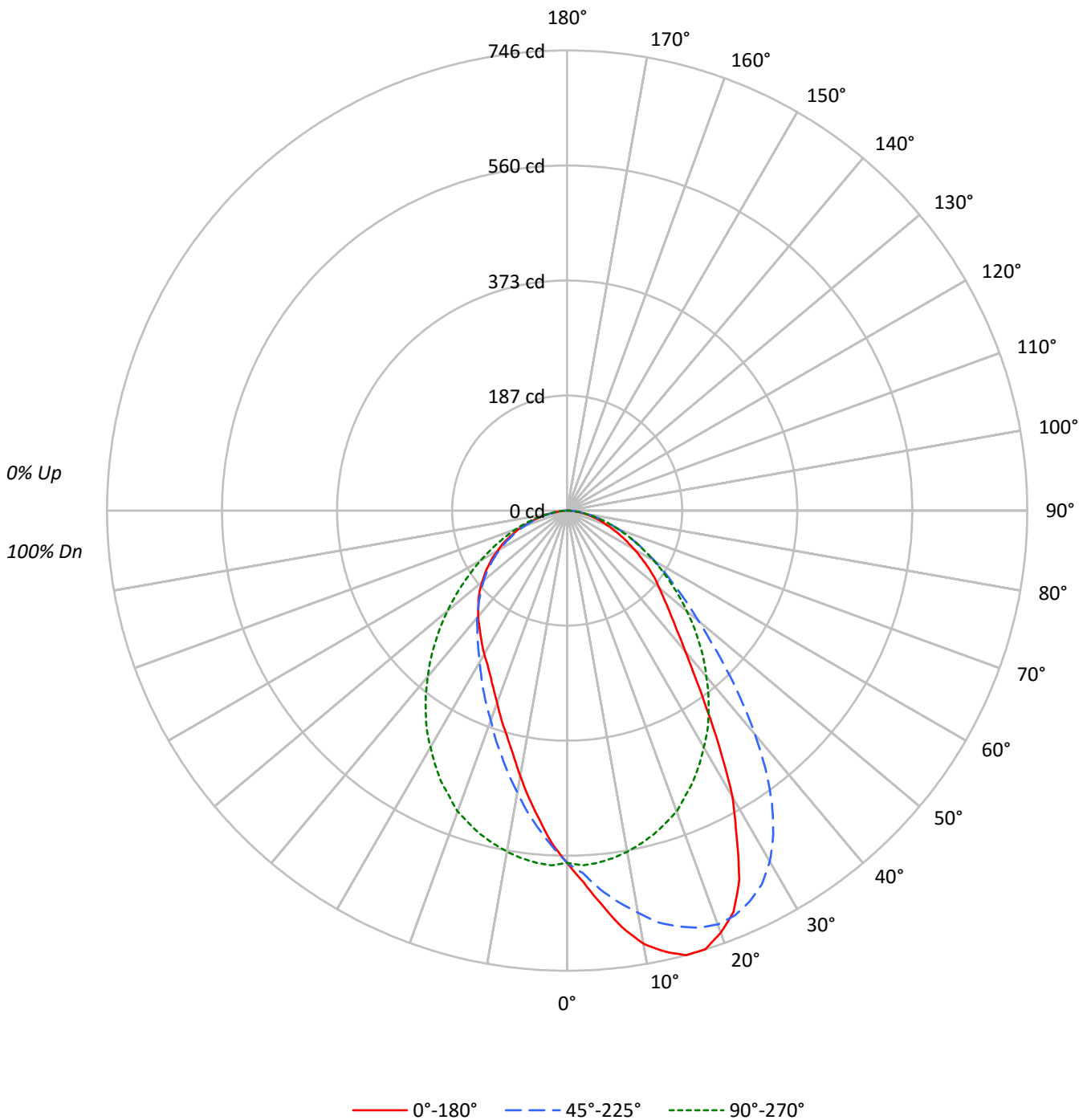
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	10880	10880	10880
5°	12256	10958	9652
10°	13796	10860	8448
15°	14717	10714	7446
20°	14759	10520	6720
25°	13880	10170	6194
30°	11782	9746	5914
35°	9213	9292	5692
40°	7402	8733	5582
45°	6368	8154	5479
50°	5775	7506	5325
55°	5320	6838	5181
60°	4785	6160	4945
65°	4309	5535	4705
70°	3837	4923	4405
75°	3452	4232	3856
80°	3017	3411	3017
85°	2579	2535	1661



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	54.4	4.3
10°-20°	156.4	12.3
20°-30°	227.5	17.9
30°-40°	244.0	19.3
40°-50°	218.7	17.3
50°-60°	174.3	13.8
60°-70°	117.9	9.3
70°-80°	60.1	4.7
80°-90°	14.1	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°	438.3	34.6
0°-40°	682.3	53.8
0°-60°	1075.4	84.8
0°-90°	1267.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1267.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	571	571	571	571	571	
5°	641	616	573	519	505	63
15°	746	698	543	411	378	209
25°	660	700	484	321	295	297
35°	396	579	400	253	245	251
45°	236	366	303	201	203	185
55°	160	213	206	151	156	143
65°	96	124	123	100	104	95
75°	47	59	58	50	52	50
85°	12	14	12	9	8	14
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°	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2
2.5°	602.9	604.8	603.1	602.5	601.2	600.8	597.4	594.7	593.0	588.4	588.8
5°	641.0	645.2	642.9	642.7	638.0	635.1	632.1	627.9	621.5	616.5	612.5
7.5°	681.2	679.0	678.4	676.1	672.7	668.5	661.9	655.8	647.8	640.4	634.9
10°	713.3	712.7	713.7	707.8	705.7	699.1	693.4	683.9	673.5	661.9	654.7
12.5°	732.3	734.2	735.7	733.4	728.3	726.4	716.9	703.6	700.0	684.1	675.5
15°	746.3	747.1	747.3	744.8	742.3	737.4	731.7	723.2	711.6	697.9	691.3
17.5°	745.4	745.2	746.5	745.0	743.5	742.0	737.6	731.1	722.0	709.1	698.1
20°	728.1	731.9	734.9	735.5	735.3	736.1	734.0	729.8	723.2	713.9	701.5
22.5°	704.4	702.9	709.3	708.9	711.6	717.9	720.7	719.0	716.5	710.5	700.6
25°	660.4	661.9	666.4	671.0	681.8	685.6	693.8	700.2	701.0	699.6	693.4
27.5°	594.5	605.1	607.4	613.5	628.5	641.0	657.7	667.6	681.8	683.1	680.3
30°	535.7	535.3	538.9	549.9	563.6	582.4	604.0	629.6	645.9	657.1	661.1
32.5°	463.4	465.1	474.4	487.9	501.9	520.7	545.6	576.9	598.7	622.0	635.1
35°	396.2	401.5	410.3	419.6	434.9	460.7	488.4	514.4	547.8	578.8	600.0
37.5°	340.8	348.0	354.7	363.6	378.4	398.3	423.2	457.7	490.9	528.3	559.4
40°	297.7	300.4	305.1	313.7	323.7	343.5	368.7	394.5	430.4	473.3	514.1
42.5°	263.8	263.2	268.3	273.8	282.9	297.7	319.7	345.4	381.2	419.2	460.4
45°	236.4	236.6	238.7	244.4	251.6	260.0	276.9	301.3	328.3	366.2	409.9
47.5°	213.9	214.6	217.8	221.8	226.0	233.8	245.0	260.9	286.2	318.0	359.0
50°	194.9	196.0	198.1	201.0	204.2	209.7	218.2	230.6	250.7	277.6	314.8
52.5°	178.0	178.4	179.1	181.8	184.3	189.4	195.8	205.5	221.3	243.8	272.7
55°	160.2	159.8	161.3	163.6	166.0	169.5	176.1	183.9	195.1	212.9	236.8
57.5°	142.1	142.7	143.8	145.0	149.3	153.1	157.9	165.1	174.0	187.9	207.8
60°	125.6	125.6	126.8	128.5	131.3	133.8	138.5	145.0	152.8	163.6	180.3
62.5°	109.5	110.4	111.6	112.5	115.0	118.2	121.8	126.8	134.0	142.7	155.2
65°	95.6	95.1	96.4	98.1	100.0	102.1	106.1	110.4	115.9	123.7	134.0
67.5°	81.2	82.4	82.9	83.7	85.2	87.9	89.8	94.3	98.7	105.7	114.4
70°	68.9	69.8	70.4	71.5	72.7	74.0	75.9	79.5	83.9	88.8	94.9
72.5°	57.9	58.6	57.9	59.0	59.6	60.9	63.4	65.1	68.5	72.7	78.2
75°	46.9	47.4	47.1	48.2	48.4	49.7	50.9	52.4	56.2	58.6	62.4
77.5°	36.8	37.2	37.4	37.8	38.3	38.9	39.5	41.0	43.1	45.2	48.2
80°	27.5	27.5	28.1	28.3	28.5	29.0	30.0	30.4	31.9	32.6	34.9
82.5°	19.0	19.2	19.4	19.4	19.7	20.1	20.3	21.1	21.6	22.6	23.7
85°	11.8	12.1	12.1	12.1	12.7	12.5	12.5	12.9	13.5	13.5	14.0
87.5°	5.9	6.1	6.1	6.1	6.3	6.3	6.3	6.3	6.3	6.8	6.6
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°	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2
2.5°	588.6	588.4	587.5	583.7	580.7	576.9	576.3	575.7	570.4	564.7	563.0
5°	609.3	605.5	600.2	593.8	587.5	580.5	576.5	573.1	565.1	556.2	551.1
7.5°	629.6	622.2	613.9	604.0	593.4	582.2	575.0	568.3	557.3	545.6	538.7
10°	646.9	637.0	625.6	612.5	597.9	582.6	572.1	561.5	547.5	533.4	524.1
12.5°	661.3	648.6	633.6	615.8	602.5	581.6	566.8	552.8	537.4	519.0	508.9
15°	672.3	659.8	639.5	621.5	604.0	576.1	558.1	543.3	522.6	504.6	488.6
17.5°	685.6	667.8	647.8	622.0	602.5	570.6	550.3	531.1	508.6	487.5	469.8
20°	691.5	672.9	651.4	622.6	597.9	564.7	537.6	519.0	491.9	467.6	447.6
22.5°	692.4	674.6	651.1	620.7	589.8	556.0	524.9	500.6	473.6	447.8	425.1
25°	688.8	671.9	647.5	617.3	581.0	546.7	512.0	483.9	452.6	426.0	402.9
27.5°	679.0	665.3	642.3	609.9	571.9	532.3	494.5	463.8	433.0	402.7	380.7
30°	663.4	654.3	634.4	600.2	560.2	516.7	478.8	443.1	409.7	381.4	357.7
32.5°	643.3	638.9	622.4	588.6	548.4	499.6	460.0	423.2	386.9	360.0	335.7
35°	617.7	620.1	606.1	575.5	533.4	482.2	438.0	399.6	364.0	335.5	313.1
37.5°	584.5	596.0	587.1	558.3	514.1	464.7	415.0	376.3	339.1	311.6	292.0
40°	547.3	567.4	563.2	539.1	493.4	444.2	392.8	351.2	314.8	288.8	270.0
42.5°	503.6	532.8	537.4	515.6	472.9	418.6	367.9	327.7	292.6	267.0	249.0
45°	454.5	490.7	506.3	489.2	449.0	393.9	342.3	302.7	268.1	246.3	231.3
47.5°	405.3	448.8	470.0	461.7	421.1	367.4	316.9	278.2	245.4	226.4	212.3
50°	356.6	403.4	434.2	428.7	393.6	342.3	291.3	253.3	223.2	205.7	193.7
52.5°	313.9	358.1	391.7	394.5	363.0	313.5	264.3	229.0	203.4	187.5	177.4
55°	271.9	312.9	349.7	356.4	330.9	283.3	239.3	205.9	182.7	169.5	161.3
57.5°	234.2	271.4	308.0	319.9	299.1	256.2	212.5	183.1	163.0	152.8	145.7
60°	202.3	235.9	267.4	279.5	265.3	226.2	187.9	161.7	145.0	135.9	130.2
62.5°	174.4	200.4	228.3	241.6	232.1	198.1	164.7	141.4	127.9	120.1	115.6
65°	149.3	169.3	191.3	206.8	196.2	170.8	142.9	122.8	111.4	104.2	101.1
67.5°	126.0	142.7	160.2	172.5	167.2	144.2	120.7	105.1	95.6	90.1	87.1
70°	104.9	117.3	131.5	141.0	137.2	119.4	100.8	88.4	80.3	76.5	74.0
72.5°	86.0	94.1	104.9	112.7	108.7	96.2	82.9	72.9	67.0	62.6	60.7
75°	68.3	75.3	82.9	88.2	85.0	75.7	65.1	57.5	53.5	50.7	49.5
77.5°	51.8	57.3	62.6	65.1	63.6	56.9	49.7	43.8	40.4	38.7	37.2
80°	37.2	40.4	44.0	46.3	45.5	40.8	35.7	31.1	29.6	27.5	27.1
82.5°	24.9	27.5	28.3	29.4	28.8	26.6	23.0	20.3	19.0	18.0	17.8
85°	14.8	15.4	16.5	16.5	15.9	14.4	12.5	11.6	10.4	10.1	9.5
87.5°	6.6	6.6	6.6	6.6	6.6	6.1	5.3	4.9	4.4	4.2	4.0
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°	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2
2.5°	561.5	559.4	556.4	553.0	550.1	545.4	544.0	544.0	545.0	543.7	542.7
5°	546.9	542.7	538.5	531.9	526.4	519.0	516.9	514.8	514.6	512.5	509.7
7.5°	531.3	524.9	516.3	507.0	501.0	493.0	488.6	487.3	483.3	479.5	475.0
10°	513.1	503.4	493.0	484.1	474.8	464.5	459.2	455.6	451.6	446.9	443.7
12.5°	491.1	480.1	470.6	460.2	452.4	437.8	436.1	431.5	423.5	416.5	413.9
15°	477.6	458.3	447.6	438.0	426.2	411.2	405.7	400.6	393.0	388.6	385.0
17.5°	453.7	436.3	422.8	410.1	398.7	387.1	378.8	374.6	368.5	364.7	361.1
20°	431.9	413.1	398.9	384.1	372.3	361.7	354.7	349.5	346.3	342.5	338.9
22.5°	409.9	390.3	376.7	361.7	347.8	341.4	333.2	328.7	324.5	321.6	317.7
25°	384.3	368.7	351.8	340.2	327.9	321.3	313.5	309.3	305.9	302.5	300.6
27.5°	361.5	345.7	330.0	318.4	308.0	301.7	296.8	292.8	288.6	286.0	284.6
30°	337.8	323.2	309.5	298.3	290.3	283.3	280.3	276.5	273.4	272.3	270.0
32.5°	316.7	300.4	289.4	279.3	272.5	267.6	265.5	261.5	260.9	259.8	258.6
35°	295.5	281.6	271.0	262.4	256.7	253.1	250.3	249.3	248.2	247.1	246.1
37.5°	274.6	263.6	253.7	246.7	242.1	239.3	238.7	236.6	236.4	234.9	234.9
40°	255.8	244.6	237.6	232.1	228.3	227.1	225.4	224.9	224.3	223.9	224.7
42.5°	237.0	229.4	223.5	217.8	214.8	213.7	213.3	212.7	212.3	213.5	213.9
45°	219.4	212.9	207.8	203.8	202.1	200.8	200.8	201.5	201.3	201.9	201.9
47.5°	203.2	197.2	193.0	191.5	189.4	189.0	189.2	189.0	190.1	190.9	191.7
50°	187.7	182.4	179.1	177.6	177.2	176.5	177.4	177.8	178.4	179.3	179.7
52.5°	170.6	168.1	166.0	164.5	164.3	164.5	164.3	165.7	166.4	167.6	167.4
55°	156.0	154.1	152.6	150.9	150.7	151.4	151.8	153.1	153.9	155.0	154.8
57.5°	142.3	140.8	139.1	138.7	138.5	138.7	140.6	140.4	141.6	142.5	142.9
60°	127.3	126.2	124.7	124.7	125.4	125.8	126.4	127.5	128.7	128.5	130.0
62.5°	113.5	112.3	111.8	112.5	112.3	113.3	113.9	113.9	115.6	116.3	116.7
65°	99.8	99.4	98.7	98.7	99.4	99.6	100.6	101.3	101.9	103.2	104.2
67.5°	86.9	85.8	85.8	85.4	86.3	86.9	87.5	88.4	88.8	90.3	90.9
70°	73.4	72.9	72.7	73.1	73.1	73.8	74.8	75.9	76.7	77.0	78.2
72.5°	60.3	60.3	60.3	60.9	61.3	61.9	62.2	63.0	64.3	64.5	65.1
75°	48.4	48.6	48.4	48.6	48.8	49.5	49.9	50.7	51.6	51.8	52.2
77.5°	37.4	37.0	36.6	37.2	37.6	38.9	38.7	39.1	40.0	39.5	40.0
80°	26.2	26.8	26.0	27.3	27.3	27.1	27.5	28.1	27.9	28.3	27.9
82.5°	17.8	17.1	17.1	17.8	18.0	17.3	17.8	18.0	18.2	17.8	17.5
85°	9.7	9.5	9.9	9.3	9.5	9.1	9.1	8.7	9.1	8.7	8.2
87.5°	3.6	3.4	3.6	3.0	2.7	2.5	2.3	2.3	1.9	1.9	1.9
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°	571.2	571.2	571.2	571.2
2.5°	544.2	541.8	540.8	541.6
5°	506.7	507.4	503.6	504.8
7.5°	474.4	471.7	472.5	471.0
10°	440.2	438.7	436.3	436.8
12.5°	417.1	407.2	406.5	404.6
15°	384.8	379.3	378.0	377.6
17.5°	359.0	354.3	356.0	354.7
20°	335.7	335.9	333.2	331.5
22.5°	315.2	314.8	313.7	312.0
25°	297.9	297.9	295.3	294.7
27.5°	282.0	282.4	280.3	280.3
30°	270.2	268.7	268.5	268.9
32.5°	258.3	256.7	256.9	256.7
35°	245.7	246.1	245.4	244.8
37.5°	234.9	234.9	234.9	234.2
40°	224.3	224.7	224.1	224.5
42.5°	213.7	213.9	213.9	213.1
45°	203.2	203.0	202.5	203.4
47.5°	192.2	192.2	192.0	192.4
50°	180.1	180.5	179.9	179.7
52.5°	167.9	168.1	167.9	168.3
55°	155.4	155.4	155.6	156.0
57.5°	142.5	144.0	142.9	143.8
60°	129.8	130.0	130.2	129.8
62.5°	117.8	117.5	117.8	118.4
65°	104.6	105.1	104.9	104.4
67.5°	91.8	91.3	92.0	91.3
70°	78.0	78.9	78.2	79.1
72.5°	65.5	65.3	65.7	64.7
75°	52.4	52.4	52.6	52.4
77.5°	40.2	39.7	39.5	38.9
80°	27.7	27.7	26.8	27.5
82.5°	16.9	17.1	17.3	16.1
85°	8.0	8.0	7.8	7.6
87.5°	1.7	1.7	1.9	2.1
90°	0.0	0.0	0.0	0.0

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