

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: P242314

Luminaire Tested: **S122DR-S290D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242314
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-19)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S122DR-S290D940-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1117.6 lumens
Efficiency: N/A
Efficacy: 96.3 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.23
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

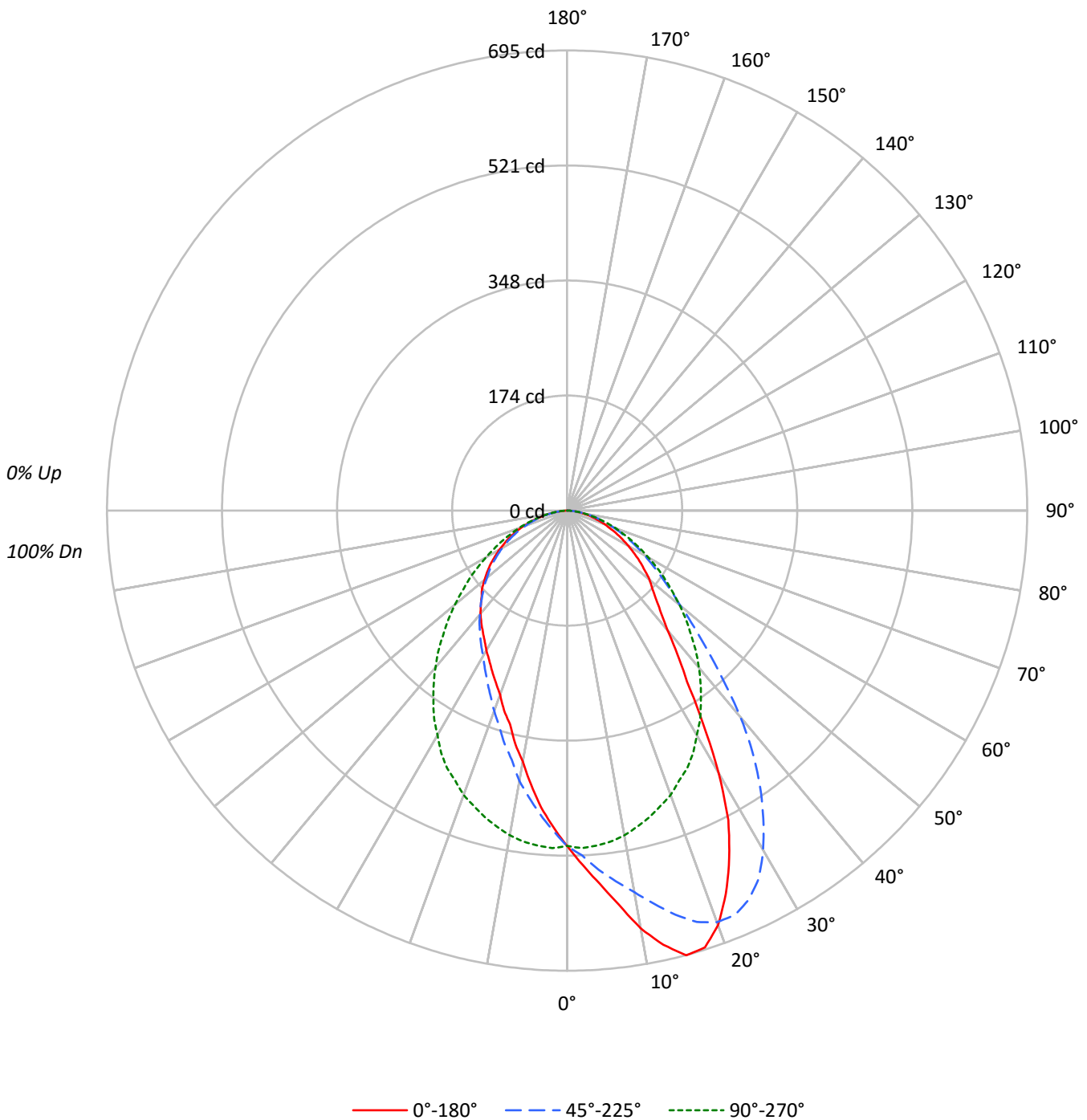
Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	94	87	82	98	92	86	81	88	83	79	85	81	78	82	79	76	74
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	74	69	66	64
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	58	55
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49
6	74	61	53	47	72	60	52	46	58	51	46	57	51	46	55	50	45	43
7	69	56	48	42	67	55	47	42	54	46	41	52	46	41	51	45	41	39
8	64	51	43	38	63	51	43	38	49	42	37	48	42	37	47	41	37	35
9	60	47	39	34	59	47	39	34	46	39	34	45	38	34	44	38	34	32
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	41	35	31	29

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	9650	9650	9650
5°	10818	9713	8606
10°	12396	9632	7448
15°	13713	9456	6580
20°	13504	9265	5998
25°	12177	9014	5630
30°	10062	8611	5362
35°	7334	8190	5169
40°	5858	7693	5063
45°	5118	7117	4919
50°	4812	6561	4824
55°	4437	5994	4692
60°	4065	5391	4495
65°	3705	4854	4300
70°	3364	4327	4010
75°	2981	3739	3555
80°	2567	3093	2863
85°	2295	2295	1705



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	48.3	4.3
10°-20°	140.4	12.6
20°-30°	203.8	18.2
30°-40°	214.9	19.2
40°-50°	190.1	17.0
50°-60°	151.8	13.6
60°-70°	103.1	9.2
70°-80°	52.8	4.7
80°-90°	12.5	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°	392.5	35.1
0°-40°	607.4	54.3
0°-60°	949.3	84.9
0°-90°	1117.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1117.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	507	507	507	507	507	
5°	566	545	508	461	450	56
15°	695	632	480	365	334	193
25°	579	649	429	285	268	263
35°	315	508	352	229	222	204
45°	190	301	264	181	183	149
55°	134	173	180	136	141	120
65°	82	103	108	90	95	82
75°	40	50	51	46	48	43
85°	10	12	10	9	8	12
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°	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6
2.5°	535.8	536.0	536.4	533.3	532.9	532.9	530.1	527.8	525.1	521.4	521.8
5°	565.8	567.9	568.7	566.4	562.9	562.5	559.2	553.7	548.6	544.6	541.6
7.5°	600.4	601.2	599.7	596.9	594.6	590.1	584.7	579.4	571.6	564.6	559.5
10°	640.9	642.1	638.8	634.3	630.6	625.2	616.2	607.1	596.0	585.2	576.7
12.5°	671.7	675.0	670.5	670.9	663.9	655.9	644.8	641.3	624.6	608.6	599.3
15°	695.4	695.2	695.6	691.9	687.3	686.1	674.8	662.5	640.5	631.8	616.6
17.5°	691.9	694.7	696.2	695.1	694.3	692.5	687.7	678.5	666.4	651.6	633.5
20°	666.2	670.1	670.7	675.2	677.7	681.0	682.4	680.3	673.4	661.6	646.4
22.5°	626.5	626.9	629.1	636.6	642.9	652.4	657.5	667.0	665.5	661.2	649.1
25°	579.4	577.5	584.3	587.8	600.4	613.7	623.2	633.7	643.1	648.7	645.0
27.5°	527.2	523.1	533.5	542.6	551.6	564.4	578.8	596.0	609.0	626.7	631.0
30°	457.5	459.3	469.0	478.9	494.5	514.8	531.5	550.8	571.6	592.1	606.3
32.5°	382.4	390.4	395.6	412.2	425.4	448.6	475.1	500.4	527.6	551.6	575.5
35°	315.4	323.2	331.8	342.9	362.1	384.5	408.5	441.0	476.4	508.1	534.2
37.5°	273.0	271.6	276.9	285.0	301.6	320.9	349.3	382.4	424.8	460.1	495.1
40°	235.6	234.8	238.3	245.7	257.6	270.8	295.0	323.2	361.9	407.5	451.3
42.5°	209.9	210.7	212.2	216.9	224.1	234.4	251.0	273.9	308.6	350.8	398.7
45°	190.0	191.4	193.5	196.1	200.7	209.7	219.8	236.9	265.0	300.8	347.1
47.5°	174.4	174.8	177.2	179.5	182.2	187.7	196.6	207.5	229.0	259.5	301.0
50°	162.4	161.0	162.6	164.3	167.2	170.7	176.2	186.3	199.6	223.1	256.4
52.5°	147.6	148.0	149.3	149.7	152.2	155.8	160.6	166.9	178.5	195.7	221.6
55°	133.6	134.5	135.3	136.5	138.8	141.3	145.2	149.9	159.3	173.1	193.3
57.5°	120.3	120.7	121.3	123.8	125.2	127.5	131.4	135.7	141.9	152.6	168.6
60°	106.7	106.7	108.2	109.2	111.2	113.5	116.4	120.5	126.0	134.3	146.6
62.5°	94.2	94.0	94.4	96.2	97.5	99.7	102.6	105.9	111.0	118.2	127.7
65°	82.2	81.8	82.9	83.3	84.9	87.0	89.4	93.1	97.2	102.6	111.6
67.5°	70.1	70.7	71.5	72.2	73.0	75.5	77.1	79.8	83.3	88.0	94.2
70°	60.4	60.4	60.4	60.9	62.1	63.3	64.8	67.0	70.3	74.2	79.6
72.5°	49.5	50.2	51.0	50.4	52.0	52.6	54.5	55.5	58.6	60.7	65.4
75°	40.5	40.5	40.5	41.5	42.1	42.6	43.8	45.0	46.5	49.6	52.2
77.5°	31.9	31.7	31.9	32.1	32.9	33.7	34.1	35.0	36.6	38.2	40.5
80°	23.4	23.8	23.9	24.3	24.3	24.7	24.9	26.3	27.3	28.2	29.6
82.5°	16.7	16.7	16.7	16.7	16.9	17.1	17.7	17.9	18.1	18.9	19.9
85°	10.5	10.3	10.3	10.7	10.5	10.5	10.9	11.3	11.3	11.5	12.1
87.5°	5.1	5.1	5.3	5.1	5.1	5.3	5.3	5.1	5.3	5.5	5.6
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°	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6
2.5°	523.1	521.6	520.6	517.1	514.0	510.9	509.9	510.3	506.0	501.9	500.2
5°	540.1	536.2	532.5	527.2	521.0	514.2	510.7	508.0	501.1	493.7	489.5
7.5°	555.5	550.4	543.8	534.4	525.9	515.7	509.5	504.3	494.7	484.8	478.7
10°	569.3	561.7	552.5	540.5	529.4	516.3	507.2	498.0	486.3	473.9	466.1
12.5°	581.2	570.3	561.3	544.9	531.3	514.2	502.9	489.1	476.6	461.2	453.6
15°	601.4	582.5	565.4	547.9	531.7	508.9	496.9	479.5	463.4	445.1	436.3
17.5°	616.4	596.0	569.5	548.3	530.3	506.0	488.7	468.0	449.7	429.5	417.8
20°	628.9	604.5	575.5	549.0	526.4	497.6	478.4	457.1	434.7	411.2	398.3
22.5°	636.3	610.4	581.7	546.1	518.7	490.8	465.3	441.6	418.8	392.9	379.3
25°	636.6	613.3	582.9	544.8	512.4	480.7	451.5	428.9	401.5	377.7	358.0
27.5°	630.2	611.7	582.3	542.0	505.2	468.8	437.1	412.4	383.4	357.7	338.0
30°	616.0	606.3	577.8	537.4	496.3	456.4	420.5	391.5	362.7	336.6	316.4
32.5°	594.0	593.8	569.7	530.7	486.7	440.6	403.2	373.8	341.1	315.6	296.5
35°	563.8	573.2	557.4	520.2	474.3	425.8	385.7	352.2	319.1	294.6	276.5
37.5°	525.5	547.1	540.9	506.2	458.3	410.0	366.4	331.4	299.6	274.3	256.6
40°	485.6	515.2	519.4	489.7	441.2	391.1	344.2	309.4	278.6	256.0	238.1
42.5°	442.7	478.6	492.2	469.8	422.5	371.3	324.4	288.0	257.6	235.8	220.4
45°	393.9	439.6	460.8	447.2	401.3	349.1	300.8	264.2	236.6	215.9	203.6
47.5°	349.7	399.3	426.4	420.0	378.5	326.7	279.0	243.4	215.9	199.2	187.7
50°	302.2	353.6	388.0	389.6	353.6	302.4	254.5	221.4	196.6	181.3	172.3
52.5°	260.9	309.4	347.7	357.7	325.7	277.0	232.5	199.6	178.5	164.7	156.9
55°	226.0	267.5	309.2	324.4	298.1	251.3	209.5	180.5	160.0	150.3	143.3
57.5°	192.9	229.3	268.9	284.8	268.1	227.0	186.5	161.0	143.7	134.9	129.5
60°	167.8	195.1	229.3	249.4	235.4	199.8	165.5	141.5	127.9	120.3	115.3
62.5°	144.5	167.8	195.5	213.4	207.3	174.3	144.5	124.0	112.7	105.7	102.4
65°	123.0	142.1	164.5	181.5	176.4	150.9	125.8	107.7	98.3	92.7	89.8
67.5°	104.7	119.3	135.3	150.9	146.6	127.7	106.5	91.9	84.7	79.6	77.9
70°	87.6	98.1	111.9	123.8	120.5	105.7	89.8	77.7	71.6	67.6	65.8
72.5°	71.3	79.4	89.2	98.3	96.4	84.7	72.0	63.7	59.4	55.7	54.3
75°	56.3	62.9	69.3	75.7	75.2	65.6	57.8	50.8	47.1	44.2	43.6
77.5°	44.0	48.1	52.8	56.9	55.9	49.6	43.2	38.9	36.0	34.1	33.9
80°	31.7	33.9	37.0	39.7	38.4	36.0	31.2	28.2	26.3	24.3	23.6
82.5°	20.8	23.0	24.5	25.7	24.7	22.6	20.1	18.3	17.3	16.2	16.0
85°	12.1	13.2	14.0	14.4	14.0	12.7	11.3	10.5	9.5	9.0	8.8
87.5°	5.8	5.8	5.8	6.2	5.6	5.6	4.9	4.3	4.1	3.9	3.5
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6
2.5°	498.2	497.1	493.0	490.8	487.3	484.0	481.9	482.8	483.6	483.2	482.6
5°	485.6	481.9	476.2	471.4	467.8	461.4	458.7	457.3	456.2	454.8	453.4
7.5°	471.5	466.3	458.3	452.1	445.8	437.7	433.6	431.2	428.7	425.8	423.1
10°	456.4	448.2	439.6	429.9	422.1	414.9	408.5	404.2	400.3	396.6	393.9
12.5°	440.4	430.7	419.6	405.4	396.6	385.5	385.9	377.5	370.9	368.9	365.6
15°	423.3	410.0	396.6	380.8	374.0	364.7	358.8	353.0	347.7	344.0	343.0
17.5°	404.6	386.9	373.8	362.1	351.0	341.5	336.4	331.8	327.3	321.8	321.6
20°	382.6	367.8	353.2	343.2	331.8	322.0	315.4	310.7	307.0	304.1	301.6
22.5°	361.7	345.2	332.1	321.0	309.8	302.4	297.5	293.0	290.1	286.8	284.4
25°	339.2	326.5	311.9	299.6	290.3	285.2	280.9	277.0	275.1	273.0	270.2
27.5°	319.9	305.9	291.5	281.9	273.3	268.9	265.6	262.6	260.9	259.5	257.8
30°	299.2	285.0	274.3	265.0	258.2	253.7	251.7	250.2	248.0	247.3	246.5
32.5°	279.4	266.9	258.2	250.4	244.0	241.4	239.7	238.3	236.7	236.0	234.2
35°	260.9	250.2	241.2	236.7	231.5	229.0	227.6	225.6	224.1	223.3	223.1
37.5°	243.2	233.4	227.4	221.4	218.8	217.5	215.5	214.2	213.6	213.4	213.2
40°	226.0	218.4	213.2	208.5	207.5	205.2	203.6	202.5	202.5	202.7	202.5
42.5°	210.5	203.8	199.4	195.5	194.3	193.1	191.6	191.8	192.2	192.9	192.2
45°	194.7	189.8	186.5	184.6	182.4	181.1	180.9	181.5	181.6	181.8	182.4
47.5°	179.9	176.8	173.7	171.3	170.4	170.2	169.8	170.7	171.7	171.9	172.9
50°	167.0	163.3	160.8	159.5	158.7	158.3	158.7	159.8	160.6	161.6	162.2
52.5°	152.6	150.3	148.7	147.8	147.6	148.0	148.0	149.3	150.7	150.9	151.1
55°	139.6	137.6	137.3	135.5	136.3	136.1	137.1	137.8	139.0	140.2	140.4
57.5°	126.4	124.6	123.4	123.6	123.8	124.6	125.4	126.7	128.1	129.5	129.5
60°	113.1	112.3	111.8	111.8	112.1	113.3	114.3	115.6	116.4	117.2	117.8
62.5°	101.0	100.3	99.7	100.1	101.2	101.8	103.0	103.6	104.4	105.1	105.3
65°	88.2	87.8	88.4	88.8	89.0	89.9	91.3	91.9	92.7	93.1	94.4
67.5°	76.5	76.5	76.3	76.9	78.1	78.3	79.6	81.2	81.2	82.0	82.9
70°	64.6	65.0	65.4	65.8	66.8	67.2	68.1	68.7	69.5	70.1	70.7
72.5°	53.7	53.7	54.1	53.9	54.7	55.7	56.5	57.0	57.8	58.6	59.2
75°	43.0	43.0	43.4	43.6	44.6	45.6	45.4	45.8	46.5	47.3	47.7
77.5°	33.3	32.9	33.3	33.5	33.9	34.7	34.9	35.4	36.4	36.2	36.6
80°	23.9	23.4	23.9	24.1	24.1	25.1	25.1	25.5	26.1	25.5	26.1
82.5°	15.4	15.2	15.6	15.6	16.0	15.8	16.2	16.2	16.7	16.5	16.7
85°	8.6	8.4	8.6	8.4	8.6	8.8	8.8	8.6	8.6	9.0	8.4
87.5°	3.3	3.1	2.9	2.9	2.7	2.5	2.3	2.3	2.3	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°	506.6	506.6	506.6	506.6
2.5°	480.7	480.3	480.3	478.6
5°	450.7	450.1	449.2	450.1
7.5°	422.3	419.8	419.4	417.4
10°	390.6	389.0	388.8	385.1
12.5°	366.4	362.1	363.1	361.3
15°	337.8	337.8	337.0	333.7
17.5°	317.3	317.2	315.4	316.6
20°	299.4	298.3	295.9	295.9
22.5°	282.5	282.7	280.2	281.1
25°	270.0	268.5	267.3	267.9
27.5°	257.2	256.6	256.4	254.7
30°	246.3	244.3	244.7	243.8
32.5°	233.8	233.4	232.9	232.1
35°	222.7	222.9	221.9	222.3
37.5°	212.8	213.6	213.0	213.0
40°	203.1	203.1	203.1	203.6
42.5°	193.7	193.3	192.9	192.7
45°	182.8	183.4	183.6	182.6
47.5°	173.3	173.5	173.3	174.4
50°	163.2	162.8	163.2	162.8
52.5°	152.4	152.6	152.2	152.2
55°	141.2	141.5	141.3	141.3
57.5°	129.7	129.9	130.2	129.3
60°	117.6	118.6	118.4	118.0
62.5°	106.5	106.7	106.7	106.7
65°	95.0	95.4	94.8	95.4
67.5°	82.5	82.7	83.1	83.3
70°	71.1	70.9	71.5	72.0
72.5°	59.0	59.6	59.2	59.6
75°	47.3	47.9	47.7	48.3
77.5°	36.2	36.4	36.4	36.6
80°	26.1	25.7	25.3	26.1
82.5°	16.2	16.5	16.2	16.0
85°	8.4	8.2	7.8	7.8
87.5°	1.9	1.8	1.8	1.6
90°	0.0	0.0	0.0	0.0

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