

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: P242658

Luminaire Tested: **S124DR-S350D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242658
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-21)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DR-S350D940-X4F0-XX-UDD-A-W
Description: DEFINE 4 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: 1296.8 lumens
Efficiency: N/A
Efficacy: 111.8 lumens/watt
Spacing Criteria (0/90/45): 1.3 / 1.22 / 1.41
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

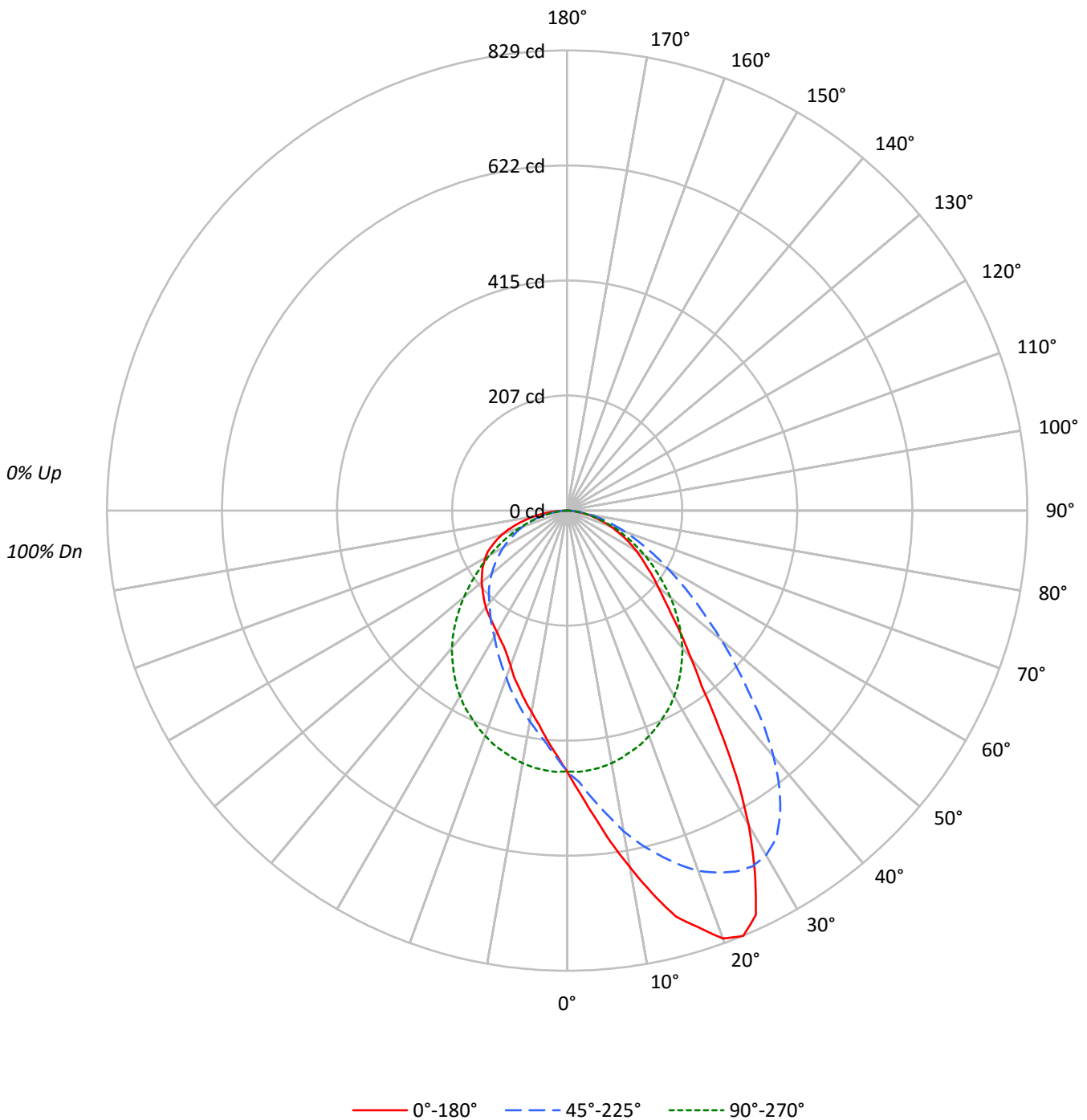
Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	109	105	101	97	107	103	99	96	98	95	93	95	92	90	91	89	87	85
2	100	92	86	80	98	90	84	79	87	82	78	84	79	76	81	77	74	72
3	92	82	74	68	89	80	73	67	77	71	66	74	69	65	72	67	64	62
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36
8	62	49	41	35	61	49	41	35	47	40	35	46	40	35	45	39	35	33
9	58	45	37	32	57	45	37	32	44	37	32	43	36	32	42	36	31	30
10	55	42	34	29	54	41	34	29	40	34	29	39	33	29	39	33	29	27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	4177	4177	4177
5°	4919	4188	3697
10°	5889	4170	3328
15°	6969	4127	3056
20°	7760	4085	2814
25°	7885	4021	2646
30°	6710	3960	2594
35°	5159	3862	2595
40°	4021	3746	2643
45°	3353	3570	2688
50°	2951	3358	2778
55°	2703	3101	2890
60°	2533	2873	3024
65°	2358	2616	3136
70°	2155	2362	3207
75°	1927	2078	3170
80°	1612	1705	3071
85°	1193	1234	2937



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.7	3.5
10°-20°	141.2	10.9
20°-30°	224.3	17.3
30°-40°	249.2	19.2
40°-50°	226.6	17.5
50°-60°	185.2	14.3
60°-70°	132.2	10.2
70°-80°	72.7	5.6
80°-90°	19.7	1.5
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°	411.2	31.7
0°-40°	660.4	50.9
0°-60°	1072.2	82.7
0°-90°	1296.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1296.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	470	470	470	470	470	
5°	551	521	469	422	414	56
15°	757	643	448	354	332	214
25°	804	718	410	291	270	357
35°	475	670	356	240	239	301
45°	267	462	284	199	214	210
55°	174	278	200	156	186	157
65°	112	155	124	108	149	111
75°	56	72	60	60	92	60
85°	12	15	12	17	29	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°	469.9	469.9	469.9	469.9	469.9	469.9	469.9	469.9	469.9	469.9	469.9
2.5°	507.7	507.5	505.6	505.2	503.8	502.1	501.7	498.6	492.3	489.4	488.6
5°	551.3	555.2	550.1	549.2	548.6	542.2	538.9	535.0	526.0	520.7	516.7
7.5°	602.3	602.5	600.4	598.2	594.5	589.1	581.7	573.1	562.8	552.3	544.9
10°	652.5	654.1	651.6	651.2	641.3	635.0	622.6	612.0	600.0	586.5	574.3
12.5°	705.5	702.4	701.4	691.1	691.3	678.6	663.6	652.7	632.5	616.5	599.2
15°	757.3	753.0	750.3	738.8	733.1	717.4	702.0	690.1	665.8	642.6	625.1
17.5°	787.3	792.5	785.5	780.8	765.5	755.1	739.8	715.4	697.3	668.5	648.5
20°	820.3	820.7	817.2	812.4	800.9	786.9	769.7	742.5	719.7	691.1	660.7
22.5°	829.3	829.3	828.3	823.9	815.9	805.2	787.8	766.2	737.4	705.7	675.3
25°	804.0	803.2	805.0	810.0	806.7	803.2	793.3	776.4	750.7	717.8	685.1
27.5°	732.4	737.4	747.9	760.4	769.3	777.3	776.7	769.5	751.2	722.8	688.0
30°	653.7	660.3	667.7	680.2	704.3	718.1	733.3	744.8	738.4	716.8	684.9
32.5°	567.3	567.7	579.5	594.1	615.7	645.5	671.8	698.1	709.4	700.6	675.3
35°	475.4	478.1	490.0	504.0	531.1	563.6	599.8	632.1	658.8	669.5	655.9
37.5°	398.3	406.9	415.8	431.8	456.5	485.9	524.8	565.1	604.3	628.0	630.5
40°	346.5	351.4	357.4	368.9	389.1	418.0	450.3	498.2	540.4	578.6	591.0
42.5°	305.6	308.0	311.1	321.2	335.4	364.0	392.8	433.5	476.0	523.5	546.4
45°	266.7	269.6	275.9	281.9	293.6	313.4	340.9	375.5	418.2	462.2	500.7
47.5°	237.5	239.4	243.3	250.0	260.5	273.9	297.3	326.7	368.3	411.0	452.2
50°	213.4	214.9	217.8	223.7	231.3	243.0	261.3	288.3	319.3	362.3	402.6
52.5°	194.3	194.7	196.6	200.1	205.8	215.1	229.3	250.5	278.8	316.0	356.1
55°	174.4	175.2	177.2	180.1	185.3	191.6	203.0	219.8	244.9	278.2	313.0
57.5°	158.1	158.9	160.4	161.6	166.3	171.5	180.9	192.9	212.6	242.2	273.9
60°	142.5	142.1	144.1	145.0	148.0	152.2	159.0	170.5	187.1	209.9	238.5
62.5°	127.3	126.7	128.3	129.7	131.0	134.5	139.8	148.1	160.8	180.9	204.6
65°	112.1	111.4	112.3	113.9	115.4	117.4	121.5	129.5	140.2	155.0	173.8
67.5°	96.6	97.5	97.5	98.5	99.5	102.2	105.1	111.4	118.9	131.0	147.8
70°	82.9	83.1	83.9	83.9	84.5	86.8	89.2	92.5	99.9	110.8	123.8
72.5°	69.3	70.3	69.7	70.5	70.9	72.2	73.8	76.9	82.9	90.3	100.8
75°	56.1	56.6	56.6	56.8	57.4	58.0	59.4	61.7	66.2	72.2	79.8
77.5°	43.2	43.2	43.6	44.4	44.4	45.4	46.5	48.3	50.8	55.3	60.2
80°	31.5	31.9	31.7	32.1	32.1	32.9	33.3	35.6	36.6	39.3	43.0
82.5°	21.0	21.4	21.4	22.0	22.4	22.4	23.0	23.6	24.5	26.9	27.8
85°	11.7	12.1	11.7	12.1	12.7	12.8	13.4	13.6	14.4	15.0	16.4
87.5°	4.3	4.9	4.9	5.1	5.5	5.6	5.8	5.6	6.4	6.6	7.4
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°	469.9	469.9	469.9	469.9	469.9	469.9	469.9	469.9	469.9	469.9	469.9
2.5°	488.8	486.1	484.1	482.6	478.3	475.8	473.8	471.1	468.0	464.7	460.6
5°	512.6	506.0	501.1	493.7	486.7	480.8	474.8	469.4	462.7	455.5	450.3
7.5°	536.9	527.8	515.5	506.0	494.5	484.5	475.8	466.6	456.9	447.6	438.8
10°	559.9	547.2	533.2	516.7	501.1	487.3	474.4	462.0	449.9	437.8	427.5
12.5°	584.6	568.1	545.7	525.6	507.7	488.0	471.9	455.9	440.7	427.9	415.4
15°	606.2	583.4	559.5	533.6	510.6	489.0	467.8	448.5	432.2	415.4	403.8
17.5°	619.8	591.6	565.9	538.9	512.4	485.3	463.3	441.7	421.5	405.1	390.5
20°	633.3	605.2	571.2	544.1	511.0	483.0	456.5	431.8	410.4	392.7	377.5
22.5°	644.9	611.5	577.4	539.6	506.7	476.6	447.0	422.0	400.1	381.2	366.8
25°	647.7	610.5	573.5	538.1	500.7	465.5	439.2	410.0	386.6	367.0	351.4
27.5°	648.6	609.3	568.2	529.7	491.2	459.0	424.8	399.3	375.1	354.3	339.5
30°	646.5	605.0	560.1	517.4	478.7	443.1	414.3	385.8	361.1	340.5	324.9
32.5°	639.7	596.1	549.6	503.8	463.3	428.7	398.7	372.0	348.1	327.8	311.3
35°	625.3	582.7	533.4	486.5	445.4	410.2	383.3	355.9	331.7	312.4	296.7
37.5°	606.0	566.3	516.3	467.4	427.9	392.1	365.0	339.7	317.9	298.0	281.7
40°	579.1	545.3	495.1	447.7	404.1	370.5	345.5	322.8	301.2	282.7	267.3
42.5°	548.2	519.8	474.4	423.6	381.9	348.1	323.9	304.1	284.0	267.3	251.9
45°	510.2	490.8	447.2	400.8	357.0	325.1	301.9	284.0	266.9	250.2	237.3
47.5°	468.0	457.1	419.1	374.7	332.7	300.8	280.7	263.6	248.0	233.4	221.9
50°	425.4	420.7	389.0	346.5	306.8	277.2	257.0	242.8	229.9	217.4	206.7
52.5°	383.3	384.3	356.4	318.5	282.5	254.2	234.2	221.1	210.4	200.9	191.6
55°	340.3	345.7	323.4	288.7	255.8	230.1	212.0	200.1	192.3	184.0	176.8
57.5°	300.8	309.9	290.5	258.7	230.9	206.4	190.4	181.2	172.7	167.2	161.6
60°	262.2	270.8	256.4	230.7	204.8	184.5	169.6	161.6	154.4	150.9	147.2
62.5°	228.0	235.4	225.6	202.3	180.7	161.4	149.3	141.7	137.4	133.5	131.4
65°	195.6	202.1	192.9	175.6	156.3	140.7	130.4	124.4	119.7	118.2	115.4
67.5°	163.7	169.6	164.7	149.5	133.2	120.9	112.7	106.3	103.6	102.0	100.3
70°	135.9	141.7	136.5	123.6	111.7	101.8	94.2	90.9	88.0	87.4	84.7
72.5°	112.3	115.8	110.6	101.2	91.5	83.5	78.1	74.6	73.4	72.2	71.1
75°	87.8	91.3	87.8	80.0	72.8	67.0	61.9	60.5	58.8	58.2	57.2
77.5°	65.8	69.1	66.4	61.1	55.5	50.6	47.7	45.7	45.6	44.4	44.8
80°	47.5	49.4	46.9	43.6	39.3	36.2	34.3	33.3	32.1	31.7	32.5
82.5°	30.8	31.3	30.4	28.4	25.5	23.8	22.6	21.4	21.4	21.6	21.4
85°	17.7	17.5	17.3	15.4	14.4	13.0	12.3	12.1	11.9	12.3	12.7
87.5°	7.4	7.6	7.4	6.6	6.0	5.5	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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	469.9	469.9	469.9	469.9	469.9	469.9	469.9	469.9	469.9	469.9	469.9
2.5°	458.6	456.9	454.4	450.9	447.9	444.8	444.0	442.9	445.2	443.3	442.7
5°	445.8	441.7	436.5	430.4	426.9	421.9	420.9	418.9	417.0	416.8	414.8
7.5°	432.4	426.7	420.1	413.9	408.4	403.0	399.5	399.1	396.0	394.4	392.5
10°	419.5	412.1	404.1	398.3	391.7	385.8	381.8	379.4	377.5	375.3	373.4
12.5°	404.3	396.4	390.1	383.7	375.5	371.4	364.0	359.6	359.6	360.1	354.3
15°	393.2	385.5	375.3	366.4	362.1	353.5	349.8	345.2	342.2	339.3	337.0
17.5°	379.6	370.1	362.3	352.2	344.2	337.8	332.7	330.2	325.5	321.2	318.3
20°	367.0	356.6	348.3	337.4	328.4	320.0	316.0	312.1	308.8	305.2	301.9
22.5°	354.1	343.2	332.5	322.0	313.8	304.9	301.0	295.3	292.2	290.6	287.3
25°	340.5	328.8	317.1	307.0	298.4	290.6	285.4	281.3	277.8	276.2	274.1
27.5°	325.7	314.2	303.1	291.4	281.5	275.9	271.6	268.3	266.1	263.8	262.8
30°	311.7	299.6	287.5	276.8	267.9	262.2	258.3	256.2	254.6	253.7	252.7
32.5°	297.5	285.6	272.7	263.2	255.4	250.5	247.8	245.7	245.1	244.9	244.7
35°	282.1	270.0	258.3	249.6	242.0	240.0	237.5	236.3	235.9	237.3	237.9
37.5°	267.3	256.0	245.1	236.3	231.3	228.2	227.2	227.0	228.4	229.5	230.9
40°	253.1	242.2	232.0	224.7	220.0	218.2	217.8	218.8	220.4	221.7	223.3
42.5°	239.3	228.5	219.6	212.8	209.9	208.3	208.7	209.7	212.0	213.8	216.3
45°	224.8	215.9	206.9	201.3	198.6	199.0	199.0	200.7	202.8	205.4	207.9
47.5°	211.4	202.3	194.7	189.8	188.4	187.9	188.8	191.2	194.1	197.0	200.5
50°	197.8	189.2	182.8	178.5	177.0	177.5	179.1	181.2	184.9	188.8	192.5
52.5°	184.0	176.4	170.5	166.6	165.7	166.8	168.4	172.1	175.2	179.5	184.2
55°	169.6	162.9	158.3	155.3	155.0	155.5	157.3	161.0	165.7	170.9	175.2
57.5°	155.3	149.7	145.2	143.1	143.3	143.7	146.4	150.9	155.5	161.2	166.6
60°	140.9	135.9	132.4	130.8	131.0	132.2	135.7	139.8	146.0	151.5	157.3
62.5°	127.3	123.0	119.7	118.4	118.0	120.9	124.2	128.5	134.7	140.9	147.4
65°	112.5	109.0	106.3	105.5	106.1	108.0	112.3	118.0	123.2	129.7	136.3
67.5°	98.1	95.2	93.2	93.6	94.2	96.9	100.6	105.5	111.4	118.0	124.8
70°	84.5	81.8	80.2	80.4	81.6	85.1	88.2	93.1	99.5	106.3	111.7
72.5°	70.5	68.9	67.6	68.5	69.7	71.8	75.9	80.8	86.2	92.5	98.3
75°	56.3	56.3	55.5	56.1	57.8	60.2	63.1	68.1	73.8	78.8	83.5
77.5°	44.2	43.6	44.0	44.6	45.7	48.7	52.0	55.7	60.2	65.4	69.3
80°	31.9	32.1	33.1	34.3	34.7	36.8	40.3	43.6	46.9	51.2	54.9
82.5°	22.0	22.2	22.6	24.1	24.5	26.9	28.8	32.1	35.0	37.6	40.5
85°	13.0	13.0	14.0	14.6	15.6	17.1	18.5	20.4	23.2	25.1	28.0
87.5°	6.2	6.2	7.0	7.4	8.0	9.0	9.3	11.5	12.3	13.2	15.0
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):

	165°	170°	175°	180°
0°	469.9	469.9	469.9	469.9
2.5°	442.3	441.9	440.5	440.3
5°	413.7	412.7	412.1	414.3
7.5°	392.1	391.3	389.5	389.0
10°	371.4	370.7	369.1	368.7
12.5°	351.6	349.8	349.8	350.4
15°	334.4	333.7	331.5	332.1
17.5°	316.9	316.1	313.2	316.1
20°	300.6	299.0	297.7	297.5
22.5°	285.0	283.6	283.8	282.3
25°	272.5	271.2	270.8	269.8
27.5°	262.4	261.6	260.9	261.3
30°	253.3	253.1	252.7	252.7
32.5°	245.7	245.7	246.1	246.1
35°	238.7	239.3	239.6	239.1
37.5°	232.4	232.8	233.4	234.0
40°	225.0	226.4	226.8	227.8
42.5°	218.0	219.6	220.8	220.8
45°	210.8	212.4	213.8	213.8
47.5°	203.4	205.6	206.9	207.1
50°	195.8	198.6	199.9	200.9
52.5°	188.4	191.2	193.1	193.5
55°	179.7	183.6	185.7	186.5
57.5°	171.9	175.4	177.7	178.3
60°	162.6	166.4	169.6	170.1
62.5°	153.0	157.1	159.8	161.6
65°	141.7	145.8	148.5	149.1
67.5°	129.8	134.1	135.9	137.0
70°	117.2	120.5	122.4	123.4
72.5°	102.8	106.3	108.6	108.6
75°	88.0	91.1	92.3	92.3
77.5°	72.6	74.4	75.9	76.3
80°	57.8	58.8	60.0	60.0
82.5°	42.6	43.4	44.6	44.4
85°	27.6	29.4	29.2	28.8
87.5°	15.6	15.8	16.4	16.7
90°	0.0	0.0	0.0	0.0

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