

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: P243514

Luminaire Tested: **S124DR-H575D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243514
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-60)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DR-H575D935-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2016.3 lumens
Efficiency: N/A
Efficacy: 117.2 lumens/watt
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

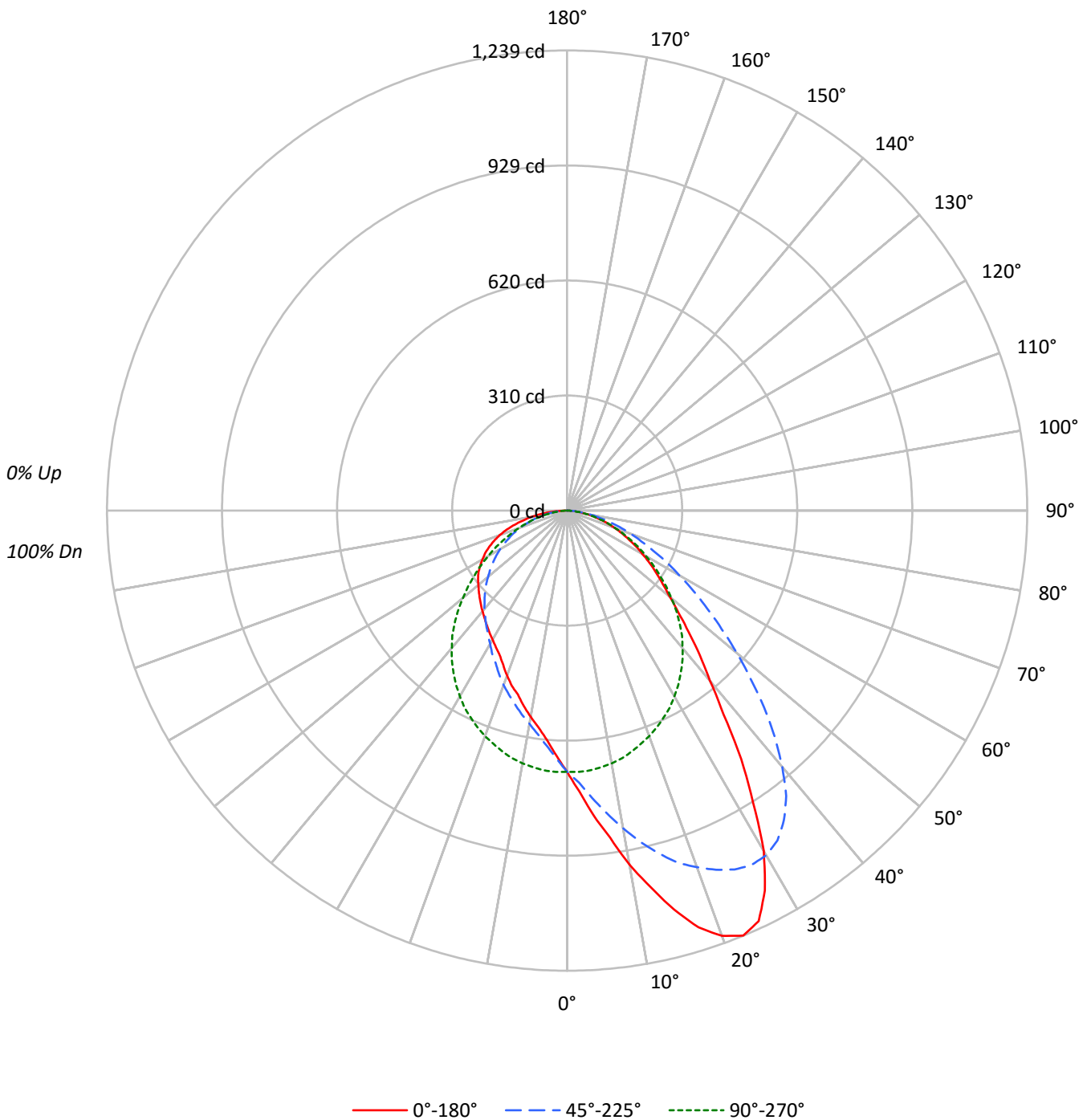
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	109	105	101	97	107	103	99	96	98	95	93	94	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63	61
4	84	73	64	58	82	71	63	57	69	62	56	66	60	56	64	59	55	53
5	78	65	56	50	75	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41
7	67	53	45	39	65	53	45	39	51	44	38	50	43	38	48	42	38	36
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	44	39	34	32
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	54	41	34	29	53	41	34	28	40	33	28	39	33	28	38	32	28	26

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	6251	6251	6251
5°	7355	6267	5531
10°	8741	6238	5093
15°	10237	6183	4717
20°	11527	6112	4474
25°	11964	6030	4211
30°	10864	5927	4118
35°	8863	5787	4092
40°	6940	5605	4110
45°	5809	5379	4185
50°	4985	5064	4310
55°	4555	4724	4519
60°	4174	4373	4684
65°	3828	4003	4865
70°	3522	3610	5013
75°	3136	3173	5007
80°	2616	2600	4996
85°	1989	1958	4681



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	68.4	3.4
10°-20°	212.0	10.5
20°-30°	340.5	16.9
30°-40°	389.3	19.3
40°-50°	358.3	17.8
50°-60°	293.1	14.5
60°-70°	208.9	10.4
70°-80°	114.8	5.7
80°-90°	30.8	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°	621.0	30.8
0°-40°	1010.3	50.1
0°-60°	1661.7	82.4
0°-90°	2016.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2016.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	703	703	703	703	703	
5°	824	777	702	635	620	83
15°	1112	956	672	541	513	317
25°	1220	1066	615	455	429	547
35°	817	1018	533	379	377	508
45°	462	750	428	313	333	361
55°	294	461	305	244	292	264
65°	182	255	190	171	231	182
75°	91	118	92	94	146	98
85°	20	24	19	26	46	23
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°	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2
2.5°	757.1	754.8	753.7	752.2	752.0	750.5	747.7	743.6	738.5	733.0	733.0
5°	824.3	823.7	819.4	819.7	814.2	808.2	803.6	797.9	786.7	777.2	770.6
7.5°	888.6	894.6	893.2	888.6	880.5	871.9	862.7	854.7	834.0	822.6	813.1
10°	968.4	970.7	966.6	960.0	952.9	936.2	924.2	910.7	888.3	868.8	851.5
12.5°	1038.4	1043.8	1036.7	1030.4	1013.4	1001.1	989.0	962.0	938.5	913.8	888.9
15°	1112.4	1106.7	1110.4	1094.9	1082.9	1071.1	1040.4	1012.8	986.2	955.7	929.6
17.5°	1176.7	1176.7	1169.8	1159.8	1147.2	1125.1	1094.4	1063.9	1034.4	994.5	957.5
20°	1218.6	1221.8	1213.8	1203.1	1187.9	1165.0	1140.6	1107.6	1068.2	1021.7	979.8
22.5°	1238.7	1239.3	1236.4	1227.5	1215.2	1195.7	1170.7	1138.6	1096.9	1047.0	1003.1
25°	1219.8	1222.9	1222.1	1221.5	1215.2	1204.0	1183.9	1154.1	1116.2	1066.2	1018.9
27.5°	1153.2	1160.9	1167.5	1170.4	1177.3	1177.9	1171.8	1153.8	1122.8	1075.7	1022.9
30°	1058.5	1054.5	1072.3	1081.2	1104.7	1118.8	1128.8	1127.6	1109.9	1071.7	1021.5
32.5°	932.2	943.1	955.7	976.7	1004.5	1037.2	1061.9	1080.3	1078.6	1053.6	1011.7
35°	816.8	816.8	832.9	858.7	888.3	927.6	968.9	1003.1	1024.0	1017.7	988.2
37.5°	691.7	699.4	717.8	737.9	774.1	811.9	866.5	911.8	955.7	968.9	953.7
40°	598.1	601.6	621.1	638.0	675.0	714.4	760.0	818.0	868.5	900.9	902.9
42.5°	528.7	528.4	536.4	551.6	581.5	616.5	665.9	722.7	781.8	827.7	849.3
45°	462.1	461.5	469.8	485.3	506.6	537.6	580.3	637.2	697.7	749.9	783.8
47.5°	405.8	411.0	414.7	426.8	444.3	470.7	507.4	552.8	611.0	669.6	715.2
50°	360.5	362.8	370.8	376.6	396.1	414.4	444.0	484.8	534.7	596.1	645.5
52.5°	324.3	325.8	330.6	338.1	349.3	365.4	388.9	426.5	471.6	524.9	576.0
55°	293.9	293.0	296.2	301.1	310.8	324.3	341.5	370.2	409.6	460.9	508.0
57.5°	264.0	264.0	266.9	270.4	275.8	287.0	303.9	326.6	358.2	403.8	445.4
60°	234.8	236.8	237.9	241.4	246.0	254.3	266.9	284.7	311.4	348.7	390.0
62.5°	208.9	208.9	210.9	212.1	218.1	224.2	233.3	248.5	269.5	302.8	334.9
65°	182.0	183.7	183.7	186.0	191.1	195.7	202.9	214.4	231.6	255.4	285.6
67.5°	159.0	159.0	160.4	161.6	164.5	167.6	173.9	182.8	197.5	216.4	243.7
70°	135.5	136.3	135.8	137.2	138.9	142.1	146.7	154.1	164.7	181.1	201.2
72.5°	114.2	113.1	113.7	115.1	116.0	118.0	120.8	126.6	135.2	148.4	163.0
75°	91.3	90.7	92.7	92.1	93.6	95.3	97.9	102.2	108.8	118.0	129.2
77.5°	71.2	70.3	71.2	71.8	72.3	73.8	75.8	78.4	82.9	89.0	99.0
80°	51.1	50.8	51.4	51.9	52.2	54.5	55.1	57.7	59.7	64.3	69.2
82.5°	33.9	34.4	34.7	35.3	35.0	36.2	36.7	38.5	40.2	42.5	46.2
85°	19.5	18.7	19.5	19.5	19.5	21.0	20.7	21.8	23.0	24.1	26.7
87.5°	6.9	6.9	7.2	7.5	7.5	8.3	8.0	8.6	9.8	9.8	10.6
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°	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2
2.5°	731.3	728.1	725.8	719.2	715.2	711.5	708.0	704.3	700.3	695.1	692.0
5°	763.7	756.8	746.8	737.6	727.3	718.1	710.6	702.3	693.1	683.6	675.3
7.5°	799.6	786.7	771.2	754.3	738.2	724.7	710.6	697.4	684.5	671.9	660.1
10°	835.5	813.1	792.7	769.5	748.2	727.8	709.5	691.1	675.0	658.4	643.5
12.5°	868.8	841.8	811.9	783.0	754.5	728.1	705.5	683.1	662.4	642.6	625.1
15°	894.3	860.4	825.1	790.7	758.0	730.4	700.9	671.9	650.4	626.2	607.0
17.5°	923.6	883.4	848.4	807.1	766.3	721.8	690.5	659.0	633.1	609.9	590.7
20°	943.1	898.9	848.4	801.6	759.7	719.8	682.2	646.1	618.8	591.8	568.6
22.5°	958.6	913.0	857.3	808.5	756.0	707.8	667.0	631.4	599.3	573.7	551.6
25°	966.6	911.0	857.9	798.7	746.2	700.0	654.1	614.8	582.3	553.9	535.0
27.5°	966.9	909.8	847.0	788.4	732.2	682.2	636.9	598.1	561.7	534.4	511.7
30°	965.5	902.3	836.1	772.0	716.1	665.0	617.6	577.5	544.2	515.2	493.7
32.5°	956.3	892.0	819.7	752.5	691.7	640.3	596.7	556.8	521.2	494.8	472.1
35°	935.6	869.3	796.7	727.6	669.9	616.5	573.4	533.3	501.4	472.7	449.5
37.5°	909.2	847.2	773.5	701.2	638.9	588.4	547.9	510.0	476.7	450.3	427.1
40°	875.9	817.7	745.1	669.9	607.6	556.5	518.3	483.0	454.6	427.6	405.0
42.5°	830.3	785.5	710.9	637.7	572.6	524.4	487.3	458.1	428.8	404.4	381.7
45°	781.5	740.8	674.5	601.9	539.3	489.6	454.9	427.9	403.0	378.3	359.9
47.5°	727.6	694.3	632.8	562.0	500.3	456.3	422.2	398.1	375.1	356.2	337.8
50°	663.3	645.8	588.4	524.1	464.1	419.0	390.9	366.2	349.3	330.9	313.7
52.5°	603.6	589.5	542.7	479.6	425.1	385.4	355.3	335.8	319.2	305.7	291.9
55°	538.7	531.5	491.9	437.4	388.0	348.4	322.6	304.8	291.6	279.0	268.9
57.5°	479.0	478.4	443.4	396.6	348.4	314.8	290.2	275.5	264.0	255.1	246.5
60°	417.9	422.8	394.1	351.3	313.1	281.6	259.2	246.0	238.2	229.9	222.7
62.5°	362.5	370.0	343.8	310.3	272.7	246.8	229.6	219.6	210.9	204.9	199.5
65°	309.4	318.9	297.6	267.5	238.8	214.4	199.8	190.3	183.7	180.2	176.5
67.5°	262.6	267.8	253.4	229.9	206.1	184.8	172.8	164.5	158.7	157.3	153.0
70°	215.8	221.9	211.8	190.3	171.9	156.4	145.5	138.9	135.5	133.5	130.6
72.5°	178.2	180.8	170.8	155.8	141.2	128.3	120.3	115.4	111.4	110.5	109.1
75°	139.5	143.2	135.2	123.7	111.6	102.5	96.4	92.4	90.4	89.0	89.0
77.5°	105.3	108.5	103.9	93.9	86.7	78.6	74.6	70.9	70.0	68.6	69.2
80°	74.9	76.3	73.8	66.9	60.6	56.3	52.8	50.8	50.5	49.4	50.5
82.5°	49.7	49.9	47.1	43.9	39.0	36.7	34.4	33.6	33.3	33.3	32.7
85°	27.6	28.1	26.1	24.1	22.4	20.4	19.8	19.2	18.7	19.5	20.1
87.5°	10.6	10.9	10.6	9.8	9.2	8.6	8.3	8.9	8.0	8.6	8.9
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2
2.5°	687.1	684.8	681.4	675.6	671.6	667.3	665.6	666.1	664.4	662.1	662.7
5°	669.0	662.4	656.7	648.6	641.2	634.9	632.8	630.3	628.0	626.5	625.1
7.5°	649.8	640.6	632.0	624.0	615.3	607.3	604.1	601.9	600.7	596.7	595.0
10°	631.4	620.8	610.5	601.0	592.1	583.2	580.0	577.2	573.2	571.4	569.4
12.5°	611.9	601.3	590.1	578.6	569.7	562.5	557.1	555.1	551.1	549.3	548.2
15°	593.0	580.0	571.1	562.2	548.8	540.7	538.4	531.2	529.0	525.5	523.2
17.5°	574.0	562.0	548.8	538.4	530.1	520.1	514.6	511.4	507.1	504.0	499.7
20°	555.4	541.3	531.0	518.0	508.9	499.7	492.8	489.9	486.2	481.9	475.9
22.5°	537.3	521.8	511.7	499.7	488.2	477.6	471.8	467.8	460.4	459.5	454.0
25°	516.0	502.3	489.1	476.4	465.2	454.6	450.9	444.6	442.0	436.8	436.0
27.5°	495.9	481.3	467.0	453.2	443.4	436.0	429.4	425.3	422.8	418.7	419.0
30°	475.0	458.9	445.4	432.8	422.2	415.0	410.7	408.7	405.0	404.4	402.4
32.5°	452.6	438.0	423.9	412.7	401.8	395.5	393.5	391.5	389.2	389.5	388.9
35°	430.2	417.3	402.4	392.1	383.2	379.4	376.3	375.7	374.8	375.4	375.4
37.5°	408.4	394.3	382.0	372.5	367.4	362.2	360.8	360.5	360.8	361.3	362.8
40°	387.2	374.3	362.2	354.5	348.7	346.4	344.4	345.3	346.4	348.4	350.1
42.5°	365.9	353.6	343.5	335.8	330.3	329.2	329.5	331.2	331.5	334.4	337.5
45°	343.5	332.9	323.5	317.4	314.0	312.6	313.1	314.8	316.9	320.9	324.9
47.5°	322.9	313.4	305.1	299.1	296.5	295.9	297.1	299.3	303.9	308.0	312.6
50°	301.9	293.3	285.6	280.1	279.8	277.8	280.4	283.3	288.7	294.2	301.1
52.5°	281.3	272.9	266.3	262.0	260.9	260.9	264.0	269.2	274.1	281.3	287.6
55°	259.7	252.3	246.0	244.5	242.8	243.7	247.1	252.3	259.2	267.2	274.1
57.5°	237.6	231.3	226.7	224.7	223.9	226.7	230.8	236.2	245.1	253.1	260.6
60°	216.7	211.2	206.4	205.8	205.2	208.9	213.8	219.6	228.5	236.5	245.7
62.5°	194.3	190.0	186.8	186.0	186.0	189.7	195.2	202.6	210.9	219.6	229.3
65°	171.6	167.9	167.0	165.9	168.5	170.8	176.2	183.4	192.3	201.8	212.1
67.5°	150.7	148.4	146.7	146.7	148.7	153.0	157.9	165.0	174.2	184.3	193.4
70°	129.7	127.4	126.0	127.4	128.6	133.7	138.9	145.8	154.4	164.2	173.9
72.5°	107.9	108.2	108.5	108.2	109.3	114.2	119.4	126.0	134.3	143.8	152.7
75°	88.7	87.2	87.5	88.1	91.8	94.4	99.6	105.9	114.8	123.4	130.9
77.5°	68.9	68.3	69.7	69.7	73.2	76.3	80.6	87.0	94.7	102.5	108.5
80°	50.5	50.8	51.9	52.2	55.1	58.5	63.1	67.4	74.3	79.8	85.5
82.5°	34.2	34.7	36.2	38.2	39.3	41.3	45.3	49.9	54.8	60.6	64.0
85°	19.8	20.7	21.8	23.2	24.4	26.4	29.3	33.0	36.4	39.6	42.5
87.5°	9.8	9.8	10.6	11.2	12.1	13.2	15.2	16.6	18.9	21.2	22.4
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):

	165°	170°	175°	180°
0°	703.2	703.2	703.2	703.2
2.5°	661.6	661.3	660.1	660.7
5°	624.2	621.4	621.1	619.9
7.5°	592.1	591.2	591.2	588.9
10°	567.4	564.8	565.4	564.3
12.5°	543.9	542.4	540.7	539.0
15°	517.5	517.5	517.5	512.6
17.5°	496.8	496.5	495.1	494.8
20°	475.3	474.1	470.4	473.0
22.5°	453.5	452.6	449.5	450.0
25°	433.1	432.2	431.7	429.4
27.5°	415.6	415.9	416.4	415.0
30°	402.4	401.5	402.7	401.2
32.5°	390.0	390.0	388.9	389.2
35°	376.0	377.1	377.4	377.1
37.5°	363.6	365.1	366.2	365.1
40°	352.2	353.3	354.5	354.2
42.5°	340.1	342.1	343.0	343.8
45°	328.6	331.2	332.6	332.9
47.5°	316.9	320.0	322.9	322.6
50°	305.4	309.4	312.0	311.7
52.5°	293.9	297.9	301.1	302.5
55°	281.0	286.1	289.0	291.6
57.5°	268.1	273.8	276.7	277.8
60°	253.7	258.9	262.6	263.5
62.5°	237.6	243.1	248.0	249.1
65°	221.0	227.0	230.8	231.3
67.5°	201.8	207.5	211.2	213.0
70°	182.0	186.3	190.3	192.9
72.5°	159.9	165.0	168.8	170.5
75°	136.9	142.6	144.7	145.8
77.5°	113.1	116.5	119.7	120.0
80°	89.3	93.6	94.7	97.6
82.5°	65.7	69.7	68.9	70.0
85°	43.3	44.8	45.6	45.9
87.5°	23.0	23.8	24.4	24.7
90°	0.0	0.0	0.0	0.0

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