

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: P243489

Luminaire Tested: **S124DR-H575D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243489
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-H575D927-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1855.1 lumens
Efficiency: N/A
Efficacy: 107.9 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

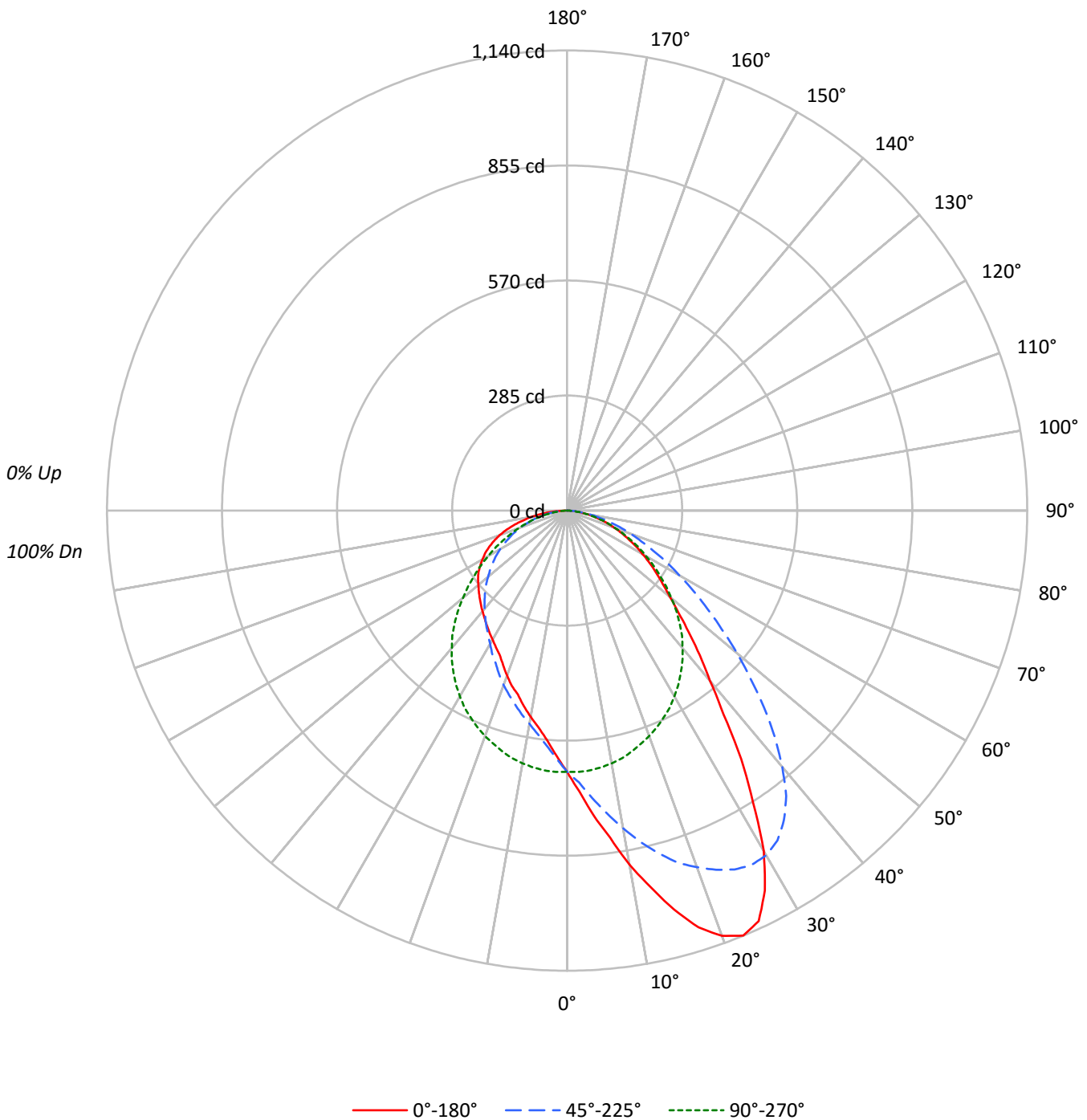
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	5751	5751	5751
5°	6767	5766	5090
10°	8042	5740	4686
15°	9419	5689	4340
20°	10606	5623	4117
25°	11007	5547	3874
30°	9996	5453	3789
35°	8155	5324	3765
40°	6385	5157	3782
45°	5344	4949	3850
50°	4587	4659	3966
55°	4190	4345	4158
60°	3840	4023	4309
65°	3521	3683	4476
70°	3238	3321	4613
75°	2885	2919	4606
80°	2406	2391	4597
85°	1836	1805	4314



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.0	3.4
10°-20°	195.0	10.5
20°-30°	313.3	16.9
30°-40°	358.2	19.3
40°-50°	329.7	17.8
50°-60°	269.7	14.5
60°-70°	192.2	10.4
70°-80°	105.6	5.7
80°-90°	28.4	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°	571.3	30.8
0°-40°	929.5	50.1
0°-60°	1528.9	82.4
0°-90°	1855.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1855.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	647	647	647	647	647	
5°	758	715	646	584	570	76
15°	1024	879	618	498	472	292
25°	1122	981	566	418	395	504
35°	752	936	491	349	347	467
45°	425	690	394	288	306	332
55°	270	424	280	224	268	243
65°	167	235	175	157	213	167
75°	84	108	85	87	134	90
85°	18	22	18	24	42	21
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°	647.0	647.0	647.0	647.0	647.0	647.0	647.0	647.0	647.0	647.0	647.0
2.5°	696.6	694.5	693.4	692.1	691.9	690.5	687.9	684.2	679.4	674.4	674.4
5°	758.4	757.9	753.9	754.2	749.2	743.6	739.4	734.1	723.8	715.1	709.0
7.5°	817.6	823.1	821.8	817.6	810.2	802.2	793.8	786.4	767.4	756.8	748.1
10°	891.0	893.1	889.4	883.3	876.7	861.4	850.3	837.9	817.3	799.3	783.5
12.5°	955.4	960.4	953.8	948.0	932.4	921.1	910.0	885.2	863.5	840.8	817.8
15°	1023.5	1018.2	1021.7	1007.4	996.3	985.5	957.2	931.9	907.3	879.3	855.3
17.5°	1082.7	1082.7	1076.3	1067.1	1055.5	1035.1	1006.9	978.9	951.7	915.0	880.9
20°	1121.2	1124.1	1116.7	1107.0	1093.0	1071.8	1049.4	1019.0	982.9	940.1	901.5
22.5°	1139.7	1140.2	1137.6	1129.4	1118.1	1100.1	1077.1	1047.6	1009.3	963.3	922.9
25°	1122.3	1125.2	1124.4	1123.9	1118.1	1107.8	1089.3	1061.8	1027.0	981.0	937.4
27.5°	1061.0	1068.2	1074.2	1076.9	1083.2	1083.7	1078.2	1061.5	1033.0	989.7	941.1
30°	973.9	970.2	986.6	994.7	1016.4	1029.3	1038.6	1037.5	1021.1	986.0	939.8
32.5°	857.7	867.7	879.3	898.6	924.2	954.3	977.0	993.9	992.4	969.4	930.8
35°	751.5	751.5	766.3	790.1	817.3	853.5	891.5	922.9	942.2	936.4	909.2
37.5°	636.4	643.5	660.4	678.9	712.2	747.0	797.2	838.9	879.3	891.5	877.5
40°	550.3	553.5	571.4	587.0	621.1	657.3	699.2	752.6	799.1	828.9	830.8
42.5°	486.4	486.1	493.5	507.5	535.0	567.2	612.6	664.9	719.3	761.6	781.4
45°	425.1	424.6	432.3	446.5	466.1	494.6	533.9	586.2	641.9	690.0	721.2
47.5°	373.4	378.1	381.6	392.7	408.8	433.1	466.9	508.6	562.2	616.1	658.1
50°	331.7	333.8	341.2	346.5	364.4	381.3	408.5	446.0	492.0	548.5	593.9
52.5°	298.4	299.7	304.2	311.1	321.4	336.2	357.8	392.4	433.9	483.0	530.0
55°	270.4	269.6	272.5	277.0	286.0	298.4	314.2	340.6	376.8	424.1	467.4
57.5°	242.9	242.9	245.6	248.8	253.8	264.1	279.6	300.5	329.6	371.5	409.8
60°	216.0	217.9	218.9	222.1	226.3	234.0	245.6	262.0	286.5	320.8	358.9
62.5°	192.2	192.2	194.1	195.1	200.7	206.2	214.7	228.7	248.0	278.6	308.2
65°	167.4	169.0	169.0	171.1	175.9	180.1	186.7	197.3	213.1	235.0	262.7
67.5°	146.3	146.3	147.6	148.7	151.3	154.2	160.0	168.2	181.7	199.1	224.2
70°	124.6	125.4	124.9	126.2	127.8	130.7	134.9	141.8	151.6	166.6	185.1
72.5°	105.1	104.0	104.6	105.9	106.7	108.5	111.2	116.5	124.4	136.5	150.0
75°	84.0	83.4	85.3	84.8	86.1	87.7	90.0	94.0	100.1	108.5	118.8
77.5°	65.5	64.7	65.5	66.0	66.5	67.9	69.7	72.1	76.3	81.9	91.1
80°	47.0	46.7	47.3	47.8	48.1	50.2	50.7	53.1	54.9	59.2	63.6
82.5°	31.2	31.7	32.0	32.5	32.2	33.3	33.8	35.4	37.0	39.1	42.5
85°	18.0	17.2	18.0	18.0	18.0	19.3	19.0	20.1	21.1	22.2	24.6
87.5°	6.3	6.3	6.6	6.9	6.9	7.7	7.4	7.9	9.0	9.0	9.8
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°	647.0	647.0	647.0	647.0	647.0	647.0	647.0	647.0	647.0	647.0	647.0
2.5°	672.8	669.9	667.8	661.8	658.1	654.6	651.5	648.0	644.3	639.6	636.7
5°	702.7	696.3	687.1	678.7	669.1	660.7	653.8	646.2	637.7	629.0	621.3
7.5°	735.7	723.8	709.5	694.0	679.2	666.8	653.8	641.7	629.8	618.2	607.4
10°	768.7	748.1	729.4	708.0	688.4	669.7	652.8	635.9	621.1	605.8	592.0
12.5°	799.3	774.5	747.0	720.4	694.2	669.9	649.1	628.5	609.5	591.2	575.1
15°	822.8	791.7	759.2	727.5	697.4	672.0	644.9	618.2	598.4	576.2	558.5
17.5°	849.8	812.8	780.6	742.6	705.1	664.1	635.3	606.3	582.5	561.1	543.4
20°	867.7	827.1	780.6	737.5	699.0	662.3	627.7	594.4	569.3	544.5	523.1
22.5°	882.0	840.0	788.8	743.9	695.6	651.2	613.7	580.9	551.4	527.9	507.5
25°	889.4	838.1	789.3	734.9	686.6	644.1	601.8	565.6	535.8	509.6	492.2
27.5°	889.6	837.1	779.3	725.4	673.6	627.7	586.0	550.3	516.8	491.7	470.8
30°	888.3	830.2	769.2	710.3	658.8	611.8	568.3	531.3	500.7	474.0	454.2
32.5°	879.9	820.7	754.2	692.4	636.4	589.1	549.0	512.3	479.5	455.3	434.4
35°	860.9	799.9	733.0	669.4	616.3	567.2	527.6	490.6	461.3	434.9	413.5
37.5°	836.6	779.5	711.7	645.1	587.8	541.3	504.1	469.2	438.6	414.3	392.9
40°	805.9	752.3	685.5	616.3	559.0	512.0	476.9	444.4	418.3	393.5	372.6
42.5°	763.9	722.8	654.1	586.8	526.8	482.5	448.4	421.5	394.5	372.1	351.2
45°	719.1	681.6	620.6	553.7	496.2	450.5	418.5	393.7	370.7	348.0	331.1
47.5°	669.4	638.8	582.3	517.0	460.3	419.9	388.4	366.3	345.1	327.7	310.8
50°	610.3	594.2	541.3	482.2	427.0	385.5	359.7	336.9	321.4	304.5	288.6
52.5°	555.3	542.4	499.4	441.3	391.1	354.6	326.9	309.0	293.6	281.2	268.6
55°	495.7	489.1	452.6	402.4	357.0	320.6	296.8	280.4	268.3	256.7	247.4
57.5°	440.7	440.2	408.0	364.9	320.6	289.7	267.0	253.5	242.9	234.8	226.8
60°	384.5	389.0	362.6	323.2	288.1	259.0	238.5	226.3	219.2	211.5	204.9
62.5°	333.5	340.4	316.4	285.5	250.9	227.1	211.3	202.0	194.1	188.5	183.5
65°	284.7	293.4	273.8	246.1	219.7	197.3	183.8	175.1	169.0	165.8	162.4
67.5°	241.6	246.4	233.2	211.5	189.6	170.1	159.0	151.3	146.0	144.7	140.7
70°	198.6	204.1	194.9	175.1	158.2	143.9	133.9	127.8	124.6	122.8	120.2
72.5°	164.0	166.4	157.1	143.4	129.9	118.0	110.6	106.2	102.5	101.7	100.3
75°	128.3	131.8	124.4	113.8	102.7	94.3	88.7	85.0	83.2	81.9	81.9
77.5°	96.9	99.8	95.6	86.3	79.7	72.4	68.7	65.2	64.4	63.1	63.6
80°	68.9	70.2	67.9	61.5	55.7	51.8	48.6	46.7	46.5	45.4	46.5
82.5°	45.7	45.9	43.3	40.4	35.9	33.8	31.7	30.9	30.6	30.6	30.1
85°	25.4	25.9	24.0	22.2	20.6	18.7	18.2	17.7	17.2	18.0	18.5
87.5°	9.8	10.0	9.8	9.0	8.5	7.9	7.7	8.2	7.4	7.9	8.2
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°	647.0	647.0	647.0	647.0	647.0	647.0	647.0	647.0	647.0	647.0	647.0
2.5°	632.2	630.1	626.9	621.6	617.9	614.0	612.4	612.9	611.3	609.2	609.7
5°	615.5	609.5	604.2	596.8	589.9	584.1	582.3	579.9	577.8	576.5	575.1
7.5°	597.8	589.4	581.5	574.1	566.2	558.8	555.9	553.7	552.7	549.0	547.4
10°	580.9	571.2	561.7	553.0	544.8	536.6	533.7	531.0	527.3	525.8	523.9
12.5°	563.0	553.2	542.9	532.4	524.2	517.6	512.6	510.7	507.0	505.4	504.4
15°	545.6	533.7	525.5	517.3	504.9	497.5	495.4	488.8	486.7	483.5	481.4
17.5°	528.1	517.0	504.9	495.4	487.7	478.5	473.5	470.6	466.6	463.7	459.7
20°	511.0	498.0	488.5	476.6	468.2	459.7	453.4	450.8	447.3	443.4	437.8
22.5°	494.3	480.1	470.8	459.7	449.2	439.4	434.1	430.4	423.6	422.8	417.8
25°	474.8	462.1	450.0	438.4	428.1	418.3	414.8	409.0	406.7	401.9	401.1
27.5°	456.3	442.8	429.6	417.0	408.0	401.1	395.0	391.3	389.0	385.3	385.5
30°	437.0	422.2	409.8	398.2	388.4	381.8	377.9	376.0	372.6	372.1	370.2
32.5°	416.4	403.0	390.0	379.7	369.7	363.9	362.0	360.2	358.1	358.3	357.8
35°	395.8	384.0	370.2	360.7	352.5	349.1	346.2	345.7	344.9	345.4	345.4
37.5°	375.8	362.8	351.5	342.8	338.0	333.3	331.9	331.7	331.9	332.5	333.8
40°	356.2	344.3	333.3	326.1	320.8	318.7	316.9	317.7	318.7	320.6	322.2
42.5°	336.7	325.3	316.1	309.0	303.9	302.9	303.1	304.7	305.0	307.6	310.5
45°	316.1	306.3	297.6	292.1	288.9	287.6	288.1	289.7	291.5	295.2	298.9
47.5°	297.1	288.4	280.7	275.2	272.8	272.3	273.3	275.4	279.6	283.3	287.6
50°	277.8	269.9	262.7	257.7	257.5	255.6	258.0	260.6	265.7	270.7	277.0
52.5°	258.8	251.1	245.1	241.1	240.0	240.0	242.9	247.7	252.2	258.8	264.6
55°	239.0	232.1	226.3	225.0	223.4	224.2	227.4	232.1	238.5	245.8	252.2
57.5°	218.6	212.8	208.6	206.8	206.0	208.6	212.3	217.3	225.5	232.9	239.8
60°	199.4	194.4	189.9	189.3	188.8	192.2	196.7	202.0	210.2	217.6	226.0
62.5°	178.8	174.8	171.9	171.1	171.1	174.5	179.6	186.4	194.1	202.0	211.0
65°	157.9	154.5	153.7	152.6	155.0	157.1	162.1	168.7	176.9	185.6	195.1
67.5°	138.6	136.5	134.9	134.9	136.8	140.7	145.2	151.8	160.3	169.5	178.0
70°	119.4	117.2	115.9	117.2	118.3	123.1	127.8	134.1	142.1	151.0	160.0
72.5°	99.3	99.6	99.8	99.6	100.6	105.1	109.9	115.9	123.6	132.3	140.5
75°	81.6	80.3	80.5	81.1	84.5	86.9	91.6	97.4	105.6	113.5	120.4
77.5°	63.4	62.8	64.2	64.2	67.3	70.2	74.2	80.0	87.1	94.3	99.8
80°	46.5	46.7	47.8	48.1	50.7	53.9	58.1	62.1	68.4	73.4	78.7
82.5°	31.4	32.0	33.3	35.1	36.2	38.0	41.7	45.9	50.4	55.7	58.9
85°	18.2	19.0	20.1	21.4	22.4	24.3	26.9	30.4	33.5	36.4	39.1
87.5°	9.0	9.0	9.8	10.3	11.1	12.1	14.0	15.3	17.4	19.5	20.6
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):

	165°	170°	175°	180°
0°	647.0	647.0	647.0	647.0
2.5°	608.7	608.4	607.4	607.9
5°	574.3	571.7	571.4	570.4
7.5°	544.8	544.0	544.0	541.9
10°	522.1	519.7	520.2	519.2
12.5°	500.4	499.1	497.5	495.9
15°	476.1	476.1	476.1	471.6
17.5°	457.1	456.8	455.5	455.3
20°	437.3	436.2	432.8	435.2
22.5°	417.2	416.4	413.5	414.1
25°	398.5	397.7	397.2	395.0
27.5°	382.4	382.6	383.2	381.8
30°	370.2	369.4	370.5	369.2
32.5°	358.9	358.9	357.8	358.1
35°	345.9	347.0	347.2	347.0
37.5°	334.6	335.9	336.9	335.9
40°	324.0	325.1	326.1	325.9
42.5°	312.9	314.8	315.6	316.4
45°	302.4	304.7	306.1	306.3
47.5°	291.5	294.4	297.1	296.8
50°	281.0	284.7	287.0	286.8
52.5°	270.4	274.1	277.0	278.3
55°	258.5	263.3	265.9	268.3
57.5°	246.6	251.9	254.6	255.6
60°	233.4	238.2	241.6	242.4
62.5°	218.6	223.7	228.2	229.2
65°	203.3	208.9	212.3	212.8
67.5°	185.6	190.9	194.4	195.9
70°	167.4	171.4	175.1	177.5
72.5°	147.1	151.8	155.3	156.9
75°	126.0	131.2	133.1	134.1
77.5°	104.0	107.2	110.1	110.4
80°	82.1	86.1	87.1	89.8
82.5°	60.5	64.2	63.4	64.4
85°	39.9	41.2	42.0	42.3
87.5°	21.1	21.9	22.4	22.7
90°	0.0	0.0	0.0	0.0

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