

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: P242643

Luminaire Tested: **S124DR-S350D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242643
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-S350D840-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1468.6 lumens
Efficiency: N/A
Efficacy: 126.6 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

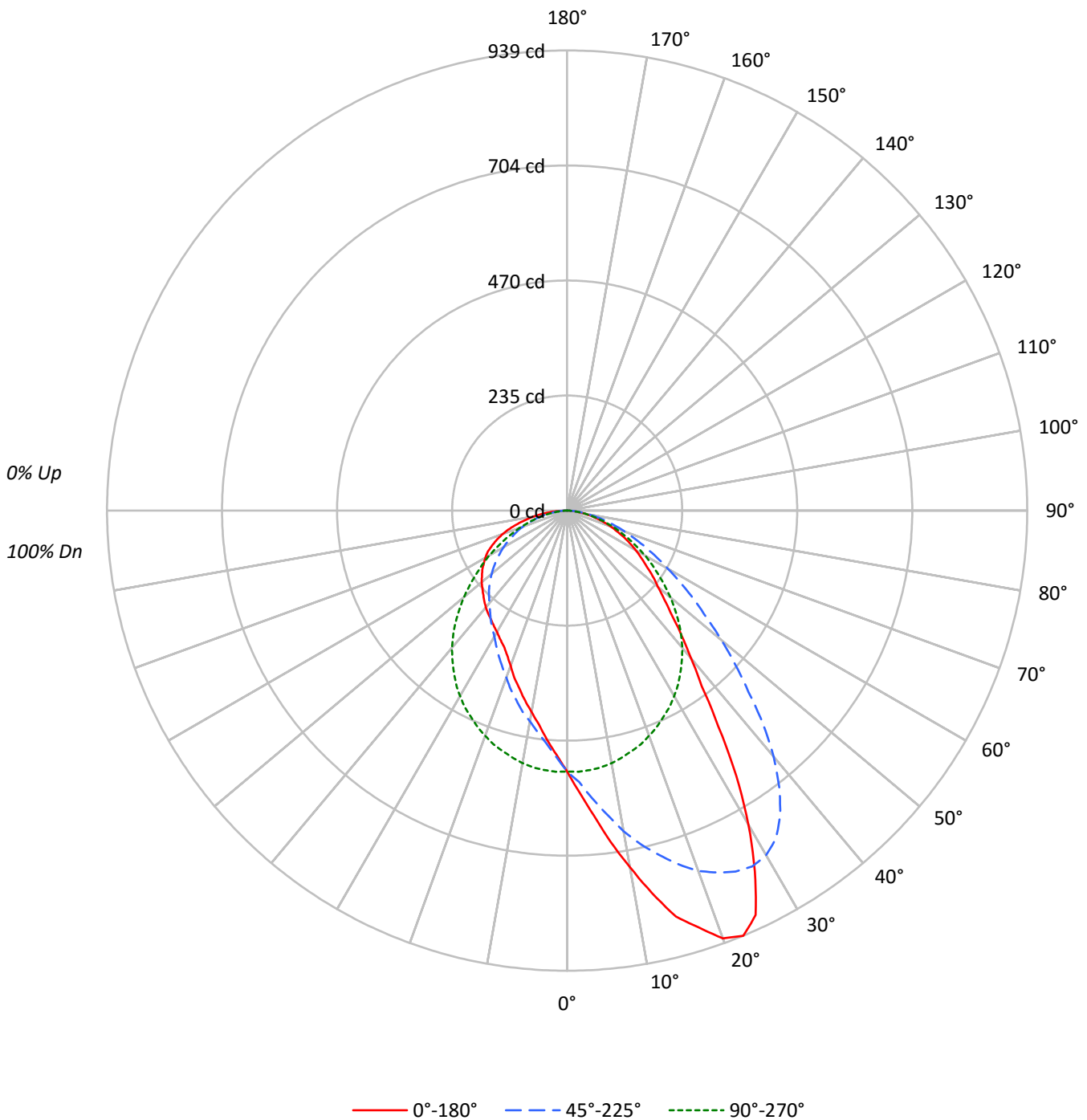
Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	4731	4731	4731
5°	5571	4743	4187
10°	6670	4722	3769
15°	7892	4675	3461
20°	8788	4626	3187
25°	8930	4554	2997
30°	7598	4485	2938
35°	5842	4373	2937
40°	4553	4241	2993
45°	3796	4044	3043
50°	3341	3802	3146
55°	3061	3512	3273
60°	2869	3253	3426
65°	2671	2964	3552
70°	2440	2677	3633
75°	2181	2356	3589
80°	1827	1930	3476
85°	1346	1397	3325



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	51.8	3.5
10°-20°	159.9	10.9
20°-30°	254.0	17.3
30°-40°	282.2	19.2
40°-50°	256.7	17.5
50°-60°	209.7	14.3
60°-70°	149.7	10.2
70°-80°	82.4	5.6
80°-90°	22.3	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°	465.7	31.7
0°-40°	747.9	50.9
0°-60°	1214.2	82.7
0°-90°	1468.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1468.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	532	532	532	532	532	
5°	624	590	532	478	469	63
15°	858	728	508	400	376	242
25°	910	813	464	329	306	404
35°	538	758	403	272	271	341
45°	302	523	322	225	242	237
55°	198	315	227	176	211	178
65°	127	176	141	122	169	126
75°	64	82	69	68	104	67
85°	13	17	14	19	33	16
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°	532.2	532.2	532.2	532.2	532.2	532.2	532.2	532.2	532.2	532.2	532.2
2.5°	575.0	574.8	572.6	572.1	570.6	568.6	568.1	564.6	557.6	554.3	553.4
5°	624.4	628.8	623.0	621.9	621.3	614.0	610.3	605.8	595.7	589.7	585.1
7.5°	682.1	682.3	679.9	677.5	673.3	667.1	658.8	649.1	637.4	625.5	617.1
10°	739.0	740.8	737.9	737.5	726.2	719.2	705.1	693.1	679.5	664.3	650.4
12.5°	799.0	795.4	794.3	782.7	782.9	768.5	751.6	739.2	716.3	698.2	678.6
15°	857.6	852.8	849.7	836.7	830.3	812.4	795.0	781.6	754.0	727.8	707.9
17.5°	891.6	897.5	889.6	884.3	866.9	855.2	837.8	810.2	789.7	757.1	734.4
20°	929.0	929.5	925.5	920.0	907.0	891.1	871.7	840.9	815.1	782.7	748.3
22.5°	939.2	939.2	938.1	933.0	924.0	911.9	892.2	867.8	835.1	799.2	764.8
25°	910.5	909.6	911.6	917.4	913.6	909.6	898.4	879.2	850.1	812.9	775.8
27.5°	829.4	835.1	847.0	861.1	871.3	880.3	879.7	871.5	850.8	818.6	779.1
30°	740.3	747.8	756.2	770.3	797.6	813.3	830.5	843.5	836.2	811.8	775.6
32.5°	642.4	642.9	656.3	672.9	697.3	731.1	760.8	790.6	803.4	793.5	764.8
35°	538.4	541.5	554.9	570.8	601.4	638.3	679.3	715.9	746.1	758.2	742.8
37.5°	451.1	460.8	470.9	489.0	517.0	550.3	594.4	640.0	684.3	711.2	714.1
40°	392.4	397.9	404.8	417.8	440.7	473.3	509.9	564.2	612.0	655.2	669.3
42.5°	346.1	348.8	352.3	363.8	379.9	412.3	444.9	491.0	539.0	592.8	618.9
45°	302.0	305.3	312.4	319.2	332.5	355.0	386.0	425.3	473.6	523.4	567.0
47.5°	269.0	271.2	275.6	283.1	295.0	310.2	336.7	369.9	417.1	465.4	512.1
50°	241.6	243.4	246.7	253.3	261.9	275.1	295.9	326.5	361.6	410.3	455.9
52.5°	220.0	220.5	222.7	226.6	233.0	243.6	259.7	283.7	315.7	357.8	403.2
55°	197.5	198.4	200.6	203.9	209.9	216.9	229.9	248.9	277.3	315.0	354.5
57.5°	179.0	179.9	181.7	183.0	188.3	194.2	204.8	218.5	240.7	274.3	310.2
60°	161.4	160.9	163.1	164.2	167.6	172.4	180.1	193.1	211.9	237.7	270.1
62.5°	144.2	143.5	145.3	146.8	148.4	152.3	158.3	167.8	182.1	204.8	231.7
65°	127.0	126.1	127.2	129.0	130.7	132.9	137.6	146.6	158.7	175.5	196.9
67.5°	109.4	110.5	110.5	111.6	112.7	115.7	119.1	126.1	134.7	148.4	167.3
70°	93.9	94.1	95.0	95.0	95.7	98.3	101.0	104.7	113.1	125.4	140.2
72.5°	78.5	79.6	78.9	79.8	80.2	81.8	83.6	87.1	93.9	102.3	114.2
75°	63.5	64.2	64.2	64.4	65.0	65.7	67.2	69.9	75.0	81.8	90.4
77.5°	48.9	48.9	49.4	50.3	50.3	51.4	52.7	54.7	57.5	62.6	68.1
80°	35.7	36.2	35.9	36.4	36.4	37.3	37.7	40.3	41.4	44.5	48.7
82.5°	23.8	24.3	24.3	24.9	25.4	25.4	26.0	26.7	27.8	30.4	31.5
85°	13.2	13.7	13.2	13.7	14.3	14.6	15.2	15.4	16.3	17.0	18.5
87.5°	4.9	5.5	5.5	5.7	6.2	6.4	6.6	6.4	7.3	7.5	8.4
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°	532.2	532.2	532.2	532.2	532.2	532.2	532.2	532.2	532.2	532.2	532.2
2.5°	553.6	550.5	548.3	546.5	541.7	538.8	536.6	533.5	530.0	526.3	521.6
5°	580.5	573.0	567.5	559.1	551.2	544.6	537.7	531.5	524.0	515.9	509.9
7.5°	608.0	597.7	583.8	573.0	560.0	548.7	538.8	528.5	517.4	506.9	496.9
10°	634.1	619.7	603.9	585.1	567.5	551.8	537.3	523.2	509.5	495.8	484.1
12.5°	662.1	643.3	618.0	595.3	575.0	552.7	534.4	516.3	499.1	484.6	470.5
15°	686.5	660.7	633.6	604.3	578.3	553.8	529.8	508.0	489.4	470.5	457.2
17.5°	702.0	670.0	640.9	610.3	580.3	549.6	524.7	500.2	477.3	458.8	442.3
20°	717.2	685.4	646.8	616.2	578.7	547.0	517.0	489.0	464.7	444.7	427.5
22.5°	730.4	692.5	653.9	611.1	573.9	539.7	506.2	478.0	453.1	431.7	415.4
25°	733.5	691.4	649.5	609.4	567.0	527.1	497.4	464.3	437.8	415.6	397.9
27.5°	734.6	690.1	643.5	599.9	556.2	519.9	481.1	452.2	424.8	401.2	384.5
30°	732.2	685.2	634.3	586.0	542.1	501.8	469.2	437.0	409.0	385.6	368.0
32.5°	724.5	675.1	622.4	570.6	524.7	485.5	451.5	421.3	394.2	371.3	352.5
35°	708.1	659.9	604.1	550.9	504.4	464.5	434.1	403.0	375.7	353.8	336.0
37.5°	686.3	641.3	584.7	529.3	484.6	444.0	413.4	384.7	360.0	337.5	319.0
40°	655.9	617.5	560.6	507.1	457.7	419.5	391.3	365.5	341.1	320.1	302.7
42.5°	620.8	588.6	537.3	479.7	432.6	394.2	366.9	344.4	321.7	302.7	285.3
45°	577.8	555.8	506.4	453.9	404.3	368.2	341.9	321.7	302.3	283.3	268.7
47.5°	530.0	517.7	474.7	424.4	376.8	340.6	317.9	298.5	280.9	264.3	251.3
50°	481.7	476.4	440.5	392.4	347.5	313.9	291.0	274.9	260.4	246.3	234.1
52.5°	434.1	435.2	403.7	360.7	319.9	287.9	265.2	250.5	238.3	227.5	216.9
55°	385.4	391.5	366.2	327.0	289.7	260.6	240.1	226.6	217.8	208.3	200.2
57.5°	340.6	351.0	328.9	293.0	261.5	233.7	215.6	205.3	195.6	189.4	183.0
60°	297.0	306.7	290.4	261.3	231.9	209.0	192.0	183.0	174.8	170.9	166.7
62.5°	258.2	266.5	255.5	229.1	204.6	182.8	169.1	160.5	155.6	151.2	148.8
65°	221.6	228.8	218.5	198.9	177.0	159.4	147.7	140.9	135.6	133.8	130.7
67.5°	185.4	192.0	186.5	169.3	150.8	136.9	127.7	120.4	117.3	115.5	113.5
70°	153.9	160.5	154.5	140.0	126.5	115.3	106.7	103.0	99.7	99.0	95.9
72.5°	127.2	131.2	125.2	114.6	103.6	94.6	88.4	84.4	83.1	81.8	80.5
75°	99.4	103.4	99.4	90.6	82.5	75.8	70.1	68.6	66.6	65.9	64.8
77.5°	74.5	78.3	75.2	69.2	62.8	57.3	54.0	51.8	51.6	50.3	50.7
80°	53.8	56.0	53.1	49.4	44.5	41.0	38.8	37.7	36.4	35.9	36.8
82.5°	34.8	35.5	34.4	32.2	28.9	26.9	25.6	24.3	24.3	24.5	24.3
85°	20.1	19.8	19.6	17.4	16.3	14.8	13.9	13.7	13.4	13.9	14.3
87.5°	8.4	8.6	8.4	7.5	6.8	6.2	6.0	5.7	6.0	6.2	6.4
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	532.2	532.2	532.2	532.2	532.2	532.2	532.2	532.2	532.2	532.2	532.2
2.5°	519.4	517.4	514.6	510.6	507.3	503.8	502.9	501.6	504.2	502.0	501.3
5°	504.9	500.2	494.3	487.5	483.5	477.8	476.6	474.4	472.2	472.0	469.8
7.5°	489.7	483.3	475.8	468.7	462.5	456.4	452.4	452.0	448.4	446.7	444.5
10°	475.1	466.7	457.7	451.1	443.6	437.0	432.3	429.7	427.5	425.1	422.9
12.5°	457.9	448.9	441.8	434.5	425.3	420.7	412.3	407.2	407.2	407.9	401.2
15°	445.3	436.5	425.1	414.9	410.1	400.4	396.2	390.9	387.6	384.3	381.6
17.5°	429.9	419.1	410.3	398.8	389.8	382.5	376.8	373.9	368.6	363.8	360.5
20°	415.6	403.9	394.4	382.1	371.9	362.4	357.8	353.4	349.7	345.7	341.9
22.5°	401.0	388.7	376.6	364.7	355.4	345.3	340.8	334.4	330.9	329.2	325.4
25°	385.6	372.4	359.1	347.7	338.0	329.2	323.2	318.6	314.6	312.8	310.4
27.5°	368.8	355.8	343.3	330.0	318.8	312.4	307.6	303.8	301.4	298.7	297.6
30°	353.0	339.3	325.6	313.5	303.4	297.0	292.6	290.1	288.4	287.3	286.2
32.5°	336.9	323.4	308.9	298.1	289.3	283.7	280.7	278.2	277.6	277.3	277.1
35°	319.5	305.8	292.6	282.6	274.0	271.8	269.0	267.6	267.2	268.7	269.4
37.5°	302.7	289.9	277.6	267.6	261.9	258.4	257.3	257.1	258.6	259.9	261.5
40°	286.6	274.3	262.8	254.4	249.1	247.1	246.7	247.8	249.6	251.1	252.9
42.5°	271.0	258.8	248.7	241.0	237.7	235.9	236.3	237.4	240.1	242.1	244.9
45°	254.6	244.5	234.4	228.0	224.9	225.3	225.3	227.3	229.7	232.6	235.5
47.5°	239.4	229.1	220.5	215.0	213.4	212.8	213.9	216.5	219.8	223.1	227.1
50°	224.0	214.3	207.0	202.2	200.4	201.1	202.8	205.3	209.4	213.9	218.0
52.5°	208.3	199.7	193.1	188.7	187.6	188.9	190.7	194.9	198.4	203.3	208.6
55°	192.0	184.5	179.2	175.9	175.5	176.2	178.1	182.3	187.6	193.6	198.4
57.5°	175.9	169.5	164.5	162.0	162.3	162.7	165.8	170.9	176.2	182.5	188.7
60°	159.6	153.9	149.9	148.2	148.4	149.7	153.7	158.3	165.4	171.5	178.1
62.5°	144.2	139.3	135.6	134.0	133.6	136.9	140.7	145.5	152.6	159.6	166.9
65°	127.4	123.5	120.4	119.5	120.2	122.4	127.2	133.6	139.6	146.8	154.3
67.5°	111.1	107.8	105.6	106.0	106.7	109.8	114.0	119.5	126.1	133.6	141.3
70°	95.7	92.6	90.8	91.1	92.4	96.3	99.9	105.4	112.7	120.4	126.5
72.5°	79.8	78.0	76.5	77.6	78.9	81.4	86.0	91.5	97.7	104.7	111.3
75°	63.7	63.7	62.8	63.5	65.5	68.1	71.4	77.2	83.6	89.3	94.6
77.5°	50.0	49.4	49.8	50.5	51.8	55.1	58.9	63.1	68.1	74.1	78.5
80°	36.2	36.4	37.5	38.8	39.2	41.7	45.6	49.4	53.1	58.0	62.2
82.5°	24.9	25.1	25.6	27.3	27.8	30.4	32.6	36.4	39.7	42.6	45.9
85°	14.8	14.8	15.9	16.5	17.6	19.4	20.9	23.1	26.2	28.4	31.7
87.5°	7.1	7.1	7.9	8.4	9.0	10.1	10.6	13.0	13.9	15.0	17.0
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°	532.2	532.2	532.2	532.2
2.5°	500.9	500.5	498.9	498.7
5°	468.5	467.4	466.7	469.2
7.5°	444.0	443.1	441.2	440.5
10°	420.7	419.8	418.0	417.6
12.5°	398.2	396.2	396.2	396.8
15°	378.8	377.9	375.5	376.1
17.5°	358.9	358.0	354.7	358.0
20°	340.4	338.6	337.1	336.9
22.5°	322.8	321.2	321.4	319.7
25°	308.7	307.1	306.7	305.6
27.5°	297.2	296.3	295.4	295.9
30°	286.8	286.6	286.2	286.2
32.5°	278.2	278.2	278.7	278.7
35°	270.3	271.0	271.4	270.7
37.5°	263.2	263.7	264.3	265.0
40°	254.9	256.4	256.8	257.9
42.5°	246.9	248.7	250.0	250.0
45°	238.8	240.5	242.1	242.1
47.5°	230.4	232.8	234.4	234.6
50°	221.8	224.9	226.4	227.5
52.5°	213.4	216.5	218.7	219.1
55°	203.5	207.9	210.3	211.2
57.5°	194.7	198.6	201.3	201.9
60°	184.1	188.5	192.0	192.7
62.5°	173.3	177.9	181.0	183.0
65°	160.5	165.1	168.2	168.9
67.5°	147.1	151.9	153.9	155.2
70°	132.7	136.5	138.7	139.8
72.5°	116.4	120.4	123.0	123.0
75°	99.7	103.2	104.5	104.5
77.5°	82.2	84.2	86.0	86.4
80°	65.5	66.6	67.9	67.9
82.5°	48.3	49.2	50.5	50.3
85°	31.3	33.3	33.1	32.6
87.5°	17.6	17.9	18.5	19.0
90°	0.0	0.0	0.0	0.0

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