

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: P243341

Luminaire Tested: **S123DR-H340D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243341
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-59)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DR-H340D935-X4F0-XX-UDD-A-W
Description: DEFINE 3 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: 1186.2 lumens
Efficiency: N/A
Efficacy: 105.9 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

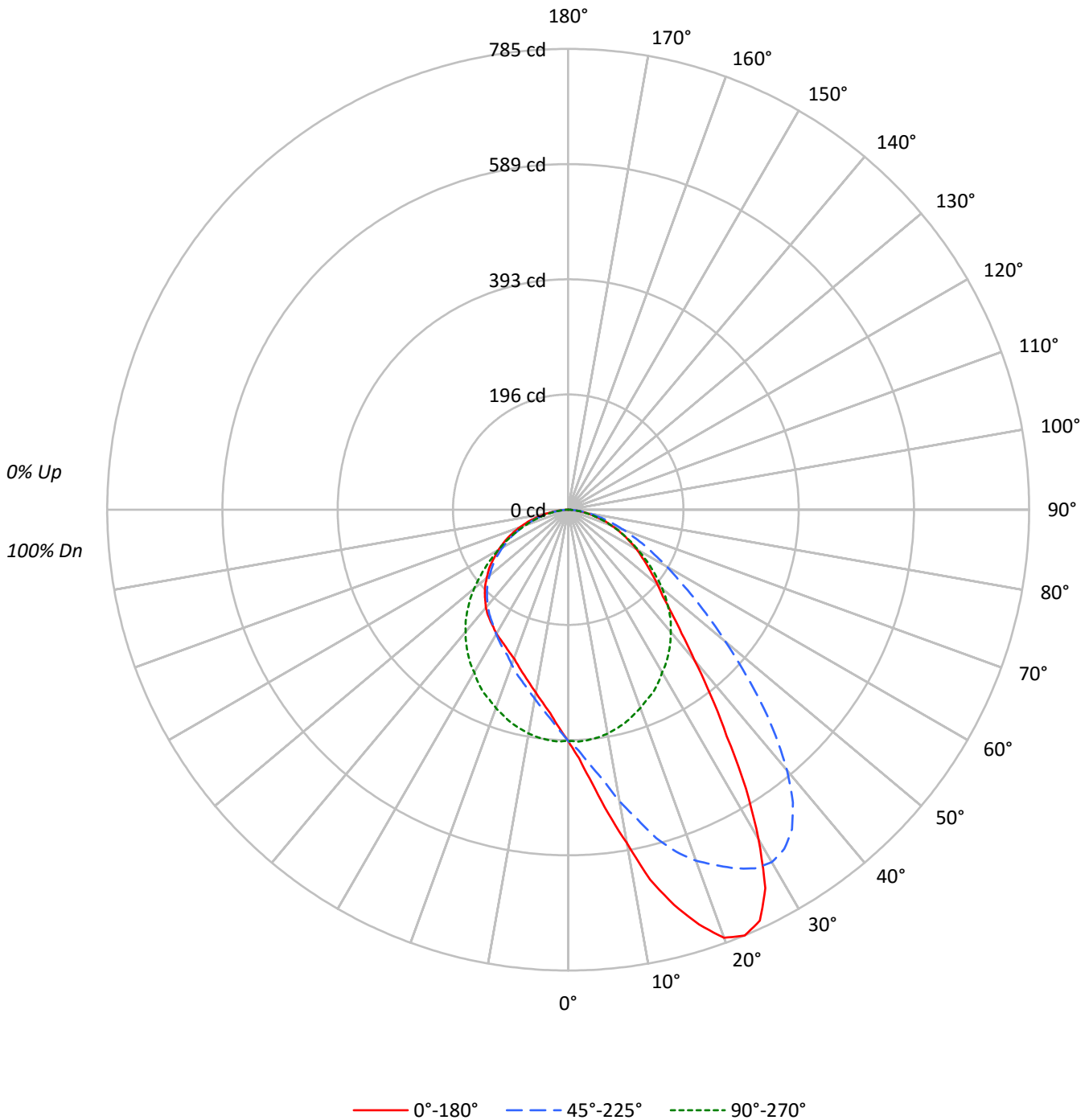
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	110	105	101	98	107	103	99	96	99	96	93		95	92	90		91	89	87	85
2	100	92	86	81	98	91	85	80	87	82	78		84	80	76		81	77	74	72
3	92	82	74	68	89	80	73	67	77	71	66		75	69	65		72	68	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	50	44	70	58	50	44	56	49	44		55	48	43		53	47	43	41
7	67	54	45	39	65	53	45	39	51	44	39		50	43	39		49	43	38	36
8	62	49	41	35	61	48	41	35	47	40	35		46	39	35		45	39	34	33
9	58	45	37	32	57	45	37	32	43	36	31		42	36	31		41	35	31	29
10	55	42	34	29	53	41	34	29	40	33	29		39	33	28		38	33	28	27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	4771	4771	4771
5°	5683	4793	4237
10°	7098	4765	3894
15°	8747	4713	3654
20°	10010	4637	3478
25°	10330	4586	3413
30°	9075	4477	3415
35°	6965	4411	3418
40°	5298	4302	3445
45°	4263	4164	3442
50°	3751	3941	3411
55°	3457	3652	3390
60°	3258	3343	3321
65°	3029	3055	3255
70°	2771	2740	3115
75°	2463	2388	2904
80°	2066	1975	2541
85°	1460	1432	1905



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.7	3.3
10°-20°	124.3	10.5
20°-30°	205.3	17.3
30°-40°	235.0	19.8
40°-50°	213.0	18.0
50°-60°	172.1	14.5
60°-70°	119.9	10.1
70°-80°	62.9	5.3
80°-90°	15.0	1.3
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°	368.4	31.1
0°-40°	603.4	50.9
0°-60°	988.4	83.3
0°-90°	1186.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1186.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	394	394	394	394	394	
5°	467	437	394	356	348	48
15°	697	579	376	303	291	198
25°	772	674	343	262	255	345
35°	471	664	298	229	231	298
45°	249	464	243	196	201	196
55°	164	261	173	154	160	147
65°	106	142	106	105	114	105
75°	53	65	51	53	62	56
85°	10	13	10	12	14	13
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°	393.6	393.6	393.6	393.6	393.6	393.6	393.6	393.6	393.6	393.6	393.6
2.5°	423.8	424.8	423.3	424.2	422.0	420.8	418.8	417.9	413.6	410.5	409.4
5°	467.1	467.1	467.5	465.3	462.8	458.3	452.3	448.5	444.2	436.8	433.0
7.5°	521.5	518.8	517.0	513.1	509.6	502.2	495.8	488.0	477.9	465.7	459.2
10°	576.7	579.5	577.7	573.6	564.8	552.7	543.1	532.0	516.3	504.4	487.5
12.5°	645.5	641.7	638.8	632.5	622.8	610.0	595.2	578.6	558.5	538.8	519.9
15°	697.0	697.6	697.4	689.1	679.6	662.3	648.6	621.0	595.4	578.8	547.5
17.5°	740.7	743.0	740.3	727.9	719.4	709.1	691.6	661.0	637.8	610.9	576.3
20°	776.0	776.3	772.0	762.8	753.1	741.6	718.5	695.1	672.4	636.3	603.3
22.5°	785.3	786.2	785.3	781.4	773.5	761.2	743.9	722.3	693.6	655.2	624.6
25°	772.4	771.8	774.9	772.6	772.2	768.2	756.9	739.4	711.1	674.2	635.2
27.5°	727.0	723.2	730.9	741.0	742.5	748.8	748.9	740.8	720.5	688.9	646.6
30°	648.4	652.0	655.8	676.9	688.6	705.0	719.2	724.4	716.7	693.4	653.8
32.5°	563.0	574.5	585.1	599.7	616.9	644.6	667.1	687.0	695.4	685.2	653.8
35°	470.7	476.8	493.6	512.2	536.8	558.5	603.2	632.0	657.8	664.4	645.5
37.5°	398.6	404.2	410.0	424.4	452.1	488.2	525.1	563.0	601.2	628.6	627.5
40°	334.8	336.1	341.1	353.6	376.6	408.7	447.5	493.0	542.6	579.9	595.6
42.5°	285.8	285.8	292.1	306.5	319.9	343.3	380.8	421.0	475.2	523.1	556.7
45°	248.7	249.0	254.1	264.4	274.8	293.2	321.0	358.8	414.7	464.2	510.9
47.5°	218.4	221.8	224.7	230.1	240.6	256.8	277.0	309.2	349.1	403.1	457.5
50°	198.9	199.7	201.8	205.1	213.2	223.8	241.3	265.8	301.1	349.1	404.0
52.5°	179.8	179.8	182.0	186.0	190.7	199.3	211.9	232.3	258.8	302.2	351.6
55°	163.6	164.2	164.5	167.8	171.7	178.2	188.1	201.5	225.8	260.6	303.7
57.5°	147.8	149.8	149.2	151.7	154.6	159.3	166.3	177.9	196.4	222.9	261.7
60°	134.4	134.1	135.0	136.1	138.0	141.3	147.8	156.2	171.7	193.9	225.6
62.5°	119.3	118.9	120.0	121.3	123.1	125.8	130.5	137.0	149.2	165.8	193.4
65°	105.6	105.2	105.8	106.5	108.5	110.6	114.3	119.7	127.8	142.4	163.4
67.5°	91.9	91.9	92.3	93.0	94.2	95.9	98.8	102.0	110.1	119.8	136.4
70°	78.2	78.4	78.4	79.1	80.2	81.5	83.8	86.7	91.7	100.4	113.7
72.5°	66.3	66.3	66.0	66.3	67.0	67.6	69.0	71.7	75.5	81.8	91.9
75°	52.6	53.5	53.3	53.2	53.7	54.6	55.9	58.0	60.4	64.9	72.4
77.5°	40.4	40.9	40.9	41.1	41.6	42.3	42.7	44.9	47.0	49.7	55.3
80°	29.6	29.9	29.6	29.7	30.1	30.8	31.5	31.9	33.5	35.9	38.6
82.5°	19.8	19.3	20.0	19.8	20.2	20.4	20.7	20.9	22.0	23.4	25.2
85°	10.5	11.4	11.2	11.5	11.2	11.4	11.5	12.3	12.4	13.3	14.4
87.5°	4.0	4.3	4.3	4.3	4.3	4.3	4.7	4.9	5.2	5.4	5.8
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°	393.6	393.6	393.6	393.6	393.6	393.6	393.6	393.6	393.6	393.6	393.6
2.5°	410.2	408.5	406.2	403.7	401.0	398.3	397.0	395.4	392.1	388.9	386.4
5°	430.0	425.5	419.3	414.8	408.4	402.2	397.4	393.9	388.7	382.4	378.3
7.5°	452.1	444.0	434.3	424.4	414.7	405.5	397.9	391.4	383.3	375.6	369.2
10°	478.3	462.6	449.1	434.7	420.2	407.3	396.5	387.1	376.6	367.3	359.5
12.5°	501.3	483.1	464.4	444.0	424.6	407.8	393.9	381.7	369.1	358.3	350.3
15°	526.7	501.2	475.2	452.1	428.5	408.0	389.8	375.6	361.1	348.9	339.7
17.5°	555.9	521.7	489.1	455.9	435.0	408.5	386.2	367.4	352.7	340.4	328.5
20°	573.2	539.2	499.2	465.1	430.5	403.3	378.4	359.5	342.2	328.2	318.4
22.5°	582.6	546.8	504.9	470.0	429.6	399.2	372.7	350.3	331.8	317.7	306.7
25°	595.8	546.8	508.0	466.0	431.1	394.3	364.4	342.9	323.5	307.3	295.7
27.5°	601.7	551.6	508.4	458.4	422.4	385.1	354.8	332.1	310.5	294.6	284.7
30°	606.6	552.5	501.2	452.5	412.3	374.8	345.3	319.9	299.7	284.5	274.1
32.5°	606.9	550.2	491.4	441.3	398.8	362.8	333.9	310.0	288.9	272.8	262.6
35°	603.7	544.4	480.3	424.2	383.1	350.3	321.5	298.1	276.6	261.3	250.8
37.5°	595.4	537.9	469.8	408.2	364.6	332.7	308.2	285.8	264.5	249.2	240.6
40°	577.7	527.5	456.1	391.1	345.8	313.9	292.5	271.9	253.0	237.2	228.5
42.5°	554.3	511.8	439.5	372.9	324.9	294.1	275.2	258.6	239.3	225.6	216.8
45°	521.2	490.5	422.9	353.7	304.2	273.9	256.6	242.9	226.3	212.6	204.9
47.5°	483.7	464.9	401.5	332.3	282.4	253.9	237.5	226.5	212.5	200.8	193.0
50°	441.5	434.5	377.9	310.7	262.0	232.8	217.7	209.0	197.1	187.8	181.1
52.5°	395.7	400.1	353.0	288.7	242.4	212.8	198.4	190.5	182.9	175.0	168.7
55°	349.2	359.5	322.9	264.7	219.9	194.1	180.0	172.8	167.2	160.6	156.1
57.5°	305.6	321.7	291.8	239.1	199.1	174.4	161.1	154.8	150.7	147.0	142.9
60°	263.3	281.8	259.7	215.2	178.4	155.9	144.0	137.9	135.9	133.2	129.2
62.5°	225.8	244.7	228.1	190.5	157.5	138.2	127.4	122.4	119.5	118.6	116.2
65°	190.7	208.3	195.7	164.7	137.7	120.6	111.0	106.5	104.9	104.7	102.9
67.5°	160.2	177.3	165.8	139.7	116.8	102.9	95.7	92.1	90.5	90.6	89.4
70°	132.1	144.2	137.3	116.8	99.1	86.9	81.3	77.3	76.0	76.0	75.7
72.5°	106.0	115.5	110.3	94.6	80.7	71.4	66.5	64.2	63.1	62.9	63.1
75°	82.9	91.2	86.5	74.2	63.8	56.8	52.6	51.0	50.5	50.1	50.3
77.5°	62.0	67.2	64.3	56.4	47.8	42.9	40.9	39.3	38.7	38.9	39.3
80°	43.8	46.7	45.1	40.0	34.2	31.0	29.6	28.3	27.8	28.3	28.3
82.5°	27.8	29.9	28.5	25.2	22.3	20.2	18.7	18.4	18.2	17.8	18.4
85°	15.1	16.2	15.5	14.4	12.4	11.5	10.5	10.3	10.3	10.3	10.3
87.5°	5.9	6.7	5.8	5.8	5.4	4.5	4.5	4.3	4.1	4.3	4.3
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°	393.6	393.6	393.6	393.6	393.6	393.6	393.6	393.6	393.6	393.6	393.6
2.5°	385.3	382.9	381.5	379.5	377.2	374.1	372.9	374.1	373.4	372.1	372.7
5°	374.7	371.6	367.6	364.4	360.8	356.3	354.8	354.1	353.0	352.5	351.6
7.5°	364.2	359.7	354.8	350.3	345.1	341.1	339.3	338.1	337.7	335.0	333.9
10°	353.4	347.8	342.9	336.8	332.3	327.1	324.9	323.5	321.9	320.0	318.8
12.5°	342.0	336.4	330.3	324.6	320.0	314.3	311.4	309.8	308.5	307.3	305.8
15°	332.1	326.5	318.1	313.7	308.3	302.6	300.8	297.2	297.5	295.4	293.9
17.5°	321.7	313.4	307.4	300.9	297.0	292.8	289.4	285.6	285.1	283.5	282.9
20°	310.0	301.3	297.2	290.5	285.1	280.9	277.9	277.5	276.4	274.1	273.2
22.5°	298.4	291.4	285.6	279.5	274.6	269.2	267.8	268.3	266.3	265.8	263.8
25°	288.0	281.8	274.6	268.9	264.9	261.5	259.5	258.8	258.1	257.5	256.6
27.5°	276.8	270.3	264.2	259.5	255.7	253.4	252.1	250.5	250.3	250.3	249.9
30°	265.6	259.9	255.7	249.8	246.3	244.9	243.8	243.3	243.8	243.8	244.0
32.5°	255.4	249.8	244.9	240.8	237.3	236.3	236.1	236.1	236.8	236.8	237.3
35°	244.7	239.1	234.6	231.7	228.9	228.7	228.9	229.2	230.1	230.3	231.0
37.5°	233.2	228.9	225.4	221.8	221.1	221.5	221.8	222.2	222.6	224.0	224.0
40°	222.6	219.3	215.9	213.5	212.3	213.2	213.7	213.9	215.0	215.9	216.6
42.5°	212.1	209.0	206.3	204.4	203.8	204.5	205.1	205.6	206.7	207.4	208.7
45°	200.4	198.4	196.1	194.4	194.6	195.7	195.7	197.5	198.2	198.6	199.5
47.5°	189.6	187.4	185.8	185.1	184.9	185.8	186.3	187.8	188.1	189.4	190.1
50°	178.0	176.4	175.2	174.3	174.4	174.8	176.1	177.5	177.9	179.3	180.6
52.5°	166.0	164.5	163.4	163.8	164.3	164.3	165.6	166.5	167.4	168.5	169.8
55°	154.1	152.1	152.3	151.7	152.3	153.5	154.1	155.5	156.2	156.8	158.6
57.5°	141.1	140.7	140.2	139.7	140.7	141.3	142.2	143.1	144.3	145.1	146.3
60°	127.8	127.2	127.2	127.9	128.3	129.4	130.8	131.4	131.7	133.2	134.8
62.5°	115.5	115.0	114.8	115.9	115.9	117.0	117.5	118.4	119.8	120.4	122.5
65°	102.4	102.0	102.0	102.9	103.1	105.1	105.1	105.1	106.0	107.9	109.0
67.5°	88.7	88.8	89.4	89.9	90.6	91.2	91.4	92.4	93.9	95.1	97.3
70°	75.0	75.9	76.9	76.8	77.3	78.2	78.4	79.5	80.7	82.4	84.9
72.5°	62.7	63.3	64.3	64.3	65.1	65.6	66.5	67.2	68.8	70.3	71.4
75°	50.5	50.6	51.5	52.1	52.6	53.0	53.9	55.1	56.0	57.3	58.9
77.5°	39.6	39.3	40.0	40.2	40.5	41.3	42.0	43.2	44.0	45.4	46.0
80°	28.1	28.8	29.0	29.2	29.6	30.5	31.0	31.5	32.3	33.5	34.1
82.5°	18.6	18.9	19.5	19.6	20.0	20.2	20.4	21.3	21.8	22.2	24.0
85°	10.8	11.4	11.0	11.0	11.4	11.5	12.3	12.3	13.0	12.6	13.5
87.5°	4.7	4.5	4.5	4.7	4.5	4.3	4.9	4.9	4.7	4.9	4.9
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°	393.6	393.6	393.6	393.6
2.5°	371.8	371.8	370.3	370.9
5°	349.8	350.5	348.7	348.2
7.5°	333.6	332.8	331.6	331.6
10°	317.7	317.0	316.4	316.4
12.5°	304.0	303.3	302.2	303.1
15°	291.8	291.9	291.2	291.2
17.5°	282.4	280.8	280.2	280.0
20°	271.2	271.6	270.9	269.6
22.5°	264.2	263.3	262.6	262.4
25°	257.0	256.1	255.9	255.2
27.5°	249.8	249.9	249.4	249.4
30°	243.8	244.4	243.8	244.0
32.5°	237.9	237.9	237.9	237.2
35°	231.4	231.6	231.4	231.0
37.5°	224.7	224.7	224.9	225.3
40°	217.3	217.3	217.7	217.7
42.5°	208.5	209.4	209.9	209.0
45°	200.6	200.8	200.9	200.8
47.5°	191.7	191.2	191.4	191.7
50°	180.7	182.0	182.0	180.9
52.5°	170.1	170.5	171.2	171.2
55°	159.7	159.8	160.0	160.4
57.5°	147.8	148.0	148.0	147.8
60°	135.9	137.0	136.8	137.0
62.5°	123.1	124.7	125.2	125.1
65°	111.0	111.4	112.3	113.5
67.5°	98.2	99.1	100.6	100.2
70°	85.6	86.9	87.2	87.9
72.5°	73.0	74.6	75.0	75.3
75°	60.7	61.5	62.2	62.0
77.5°	47.4	48.5	49.7	49.0
80°	35.5	35.7	36.8	36.4
82.5°	23.4	24.9	24.9	24.1
85°	13.7	13.7	13.7	13.7
87.5°	4.7	4.5	4.9	4.7
90°	0.0	0.0	0.0	0.0

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