

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: P243174

Luminaire Tested: **S122DR-H290D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243174
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-58)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S122DR-H290D940-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1119.2 lumens
Efficiency: N/A
Efficacy: 99.9 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.24
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

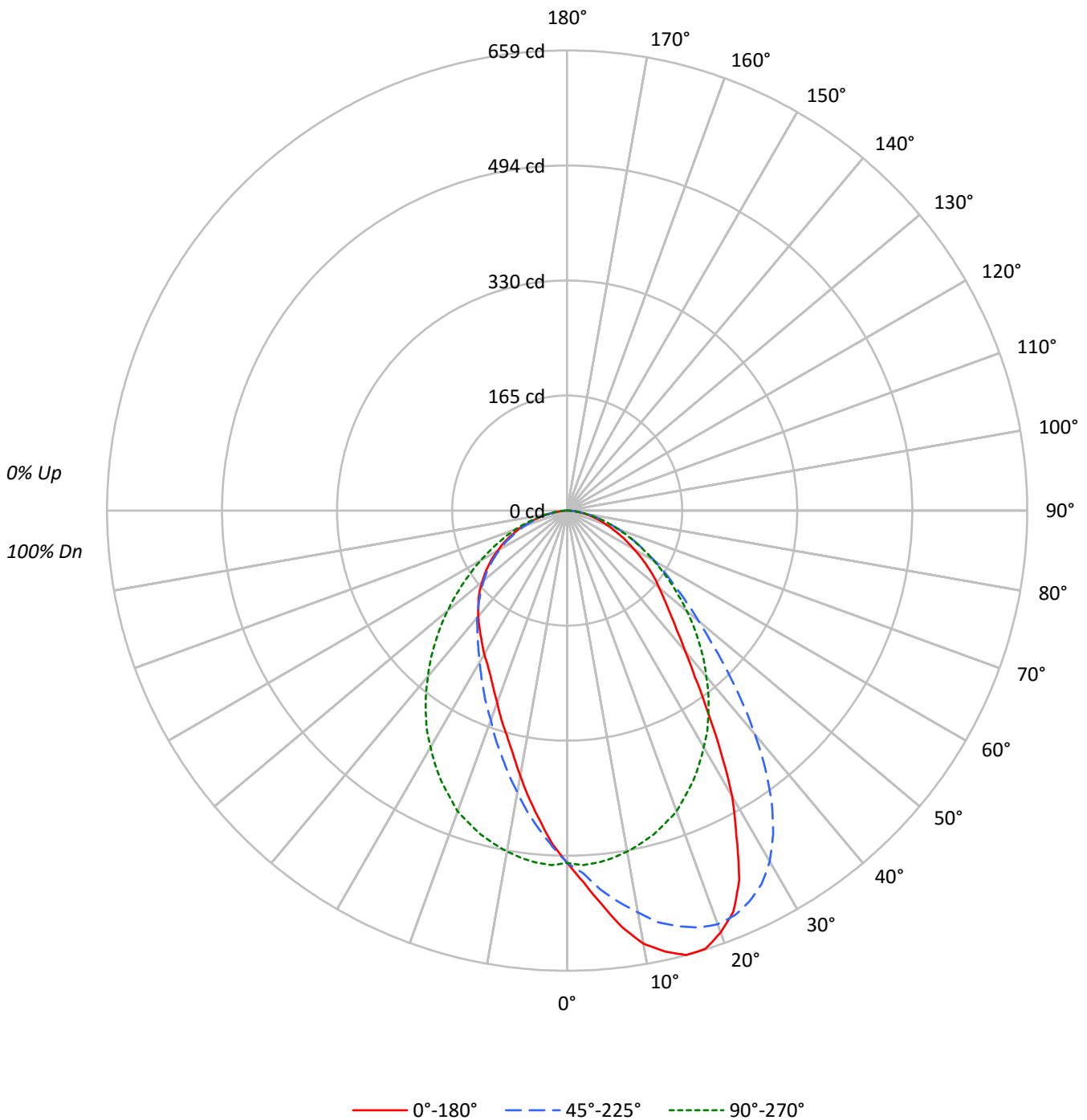
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86
2	101	93	87	82	98	92	86	81	88	83	79	85	81	77	82	79	76	74
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	73	69	66	63
4	86	74	66	60	83	73	66	60	71	64	59	68	63	58	66	61	57	55
5	79	67	59	52	77	66	58	52	64	57	52	62	56	51	60	55	51	49
6	73	61	52	46	72	60	52	46	58	51	46	57	50	45	55	49	45	43
7	68	56	47	41	67	55	47	41	53	46	41	52	46	41	51	45	40	39
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37	35
9	60	47	39	34	58	46	39	34	45	38	34	44	38	34	43	38	33	32
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31	29

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	9608	9608	9608
5°	10822	9677	8524
10°	12181	9590	7460
15°	12995	9461	6575
20°	13032	9290	5933
25°	12257	8980	5469
30°	10403	8606	5221
35°	8134	8204	5027
40°	6535	7711	4928
45°	5622	7200	4838
50°	5100	6626	4703
55°	4699	6037	4576
60°	4225	5440	4366
65°	3804	4890	4156
70°	3392	4344	3887
75°	3047	3739	3407
80°	2666	3006	2666
85°	2295	2251	1464



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	48.1	4.3
10°-20°	138.1	12.3
20°-30°	200.9	17.9
30°-40°	215.5	19.3
40°-50°	193.1	17.3
50°-60°	153.9	13.8
60°-70°	104.1	9.3
70°-80°	53.1	4.7
80°-90°	12.4	1.1
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°	387.0	34.6
0°-40°	602.5	53.8
0°-60°	949.5	84.8
0°-90°	1119.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1119.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	504	504	504	504	504	
5°	566	544	506	458	446	56
15°	659	616	480	363	333	185
25°	583	618	427	284	260	262
35°	350	511	353	223	216	222
45°	209	323	267	177	180	163
55°	142	188	182	134	138	126
65°	84	109	108	88	92	84
75°	41	52	51	44	46	44
85°	10	12	10	8	7	12
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°	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4
2.5°	532.4	534.1	532.6	532.0	530.9	530.5	527.5	525.1	523.6	519.5	519.9
5°	566.0	569.7	567.7	567.5	563.4	560.8	558.2	554.4	548.8	544.3	540.8
7.5°	601.5	599.6	599.0	597.0	594.0	590.3	584.5	579.1	572.0	565.4	560.6
10°	629.8	629.3	630.2	625.0	623.1	617.3	612.3	603.9	594.7	584.5	578.1
12.5°	646.6	648.3	649.6	647.6	643.1	641.4	633.0	621.3	618.1	604.1	596.4
15°	659.0	659.7	659.9	657.7	655.4	651.1	646.1	638.6	628.3	616.2	610.4
17.5°	658.2	658.0	659.1	657.8	656.5	655.2	651.3	645.5	637.5	626.1	616.4
20°	642.9	646.3	648.9	649.4	649.3	650.0	648.1	644.4	638.6	630.4	619.4
22.5°	622.0	620.7	626.3	625.9	628.3	633.9	636.4	634.9	632.6	627.4	618.6
25°	583.2	584.5	588.4	592.5	602.0	605.4	612.7	618.3	619.0	617.7	612.3
27.5°	524.9	534.3	536.3	541.7	555.0	566.0	580.7	589.5	602.0	603.1	600.7
30°	473.0	472.7	475.8	485.5	497.7	514.3	533.3	555.9	570.3	580.2	583.7
32.5°	409.2	410.7	418.9	430.8	443.2	459.8	481.8	509.4	528.7	549.2	560.8
35°	349.8	354.5	362.3	370.5	384.0	406.8	431.2	454.2	483.7	511.1	529.8
37.5°	300.9	307.3	313.2	321.1	334.1	351.7	373.7	404.1	433.5	466.5	493.9
40°	262.8	265.3	269.4	277.0	285.8	303.3	325.6	348.3	380.1	418.0	454.0
42.5°	233.0	232.4	236.9	241.7	249.8	262.8	282.3	305.0	336.6	370.2	406.6
45°	208.7	208.9	210.8	215.8	222.1	229.6	244.5	266.0	289.9	323.3	362.0
47.5°	188.9	189.5	192.3	195.8	199.6	206.5	216.4	230.4	252.8	280.8	317.0
50°	172.1	173.0	174.9	177.5	180.3	185.2	192.6	203.7	221.4	245.1	278.0
52.5°	157.2	157.6	158.1	160.5	162.8	167.3	172.9	181.4	195.4	215.2	240.8
55°	141.5	141.1	142.4	144.5	146.5	149.7	155.5	162.4	172.3	188.0	209.1
57.5°	125.4	126.0	126.9	128.1	131.8	135.2	139.4	145.8	153.6	166.0	183.5
60°	110.9	110.9	112.0	113.5	115.9	118.2	122.3	128.1	135.0	144.5	159.2
62.5°	96.7	97.4	98.6	99.3	101.6	104.4	107.5	112.0	118.4	126.0	137.0
65°	84.4	84.0	85.1	86.6	88.3	90.2	93.7	97.4	102.3	109.2	118.4
67.5°	71.7	72.8	73.2	73.9	75.2	77.7	79.3	83.3	87.2	93.3	101.0
70°	60.9	61.6	62.2	63.1	64.2	65.3	67.0	70.2	74.1	78.4	83.8
72.5°	51.1	51.7	51.1	52.1	52.6	53.8	56.0	57.5	60.5	64.2	69.1
75°	41.4	41.8	41.6	42.6	42.7	43.9	45.0	46.3	49.7	51.7	55.1
77.5°	32.5	32.9	33.0	33.4	33.8	34.3	34.9	36.2	38.1	39.9	42.6
80°	24.3	24.3	24.8	25.0	25.2	25.6	26.5	26.9	28.2	28.7	30.8
82.5°	16.8	17.0	17.2	17.2	17.4	17.7	17.9	18.7	19.0	20.0	20.9
85°	10.5	10.6	10.6	10.6	11.2	11.0	11.0	11.4	11.9	11.9	12.3
87.5°	5.2	5.4	5.4	5.4	5.6	5.6	5.6	5.6	5.6	6.0	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°	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4
2.5°	519.7	519.5	518.8	515.4	512.8	509.4	508.9	508.3	503.6	498.6	497.1
5°	538.0	534.6	530.0	524.4	518.8	512.6	509.1	506.1	499.0	491.1	486.7
7.5°	555.9	549.4	542.1	533.3	524.0	514.1	507.8	501.8	492.1	481.8	475.6
10°	571.2	562.4	552.4	540.8	527.9	514.5	505.1	495.8	483.5	471.0	462.8
12.5°	583.9	572.7	559.5	543.8	532.0	513.5	500.5	488.2	474.5	458.3	449.3
15°	593.6	582.6	564.7	548.8	533.3	508.7	492.8	479.8	461.5	445.6	431.4
17.5°	605.4	589.7	572.0	549.2	532.0	503.8	485.9	468.9	449.1	430.5	414.8
20°	610.6	594.2	575.1	549.8	527.9	498.6	474.7	458.3	434.4	412.9	395.2
22.5°	611.4	595.7	575.0	548.1	520.8	491.0	463.5	442.0	418.1	395.4	375.4
25°	608.2	593.2	571.8	545.1	513.0	482.7	452.1	427.3	399.7	376.1	355.8
27.5°	599.6	587.5	567.1	538.6	505.0	470.0	436.6	409.6	382.3	355.6	336.2
30°	585.8	577.8	560.2	530.0	494.7	456.2	422.8	391.3	361.8	336.8	315.9
32.5°	568.0	564.1	549.6	519.7	484.2	441.1	406.2	373.7	341.6	317.9	296.4
35°	545.5	547.5	535.2	508.1	471.0	425.8	386.8	352.8	321.5	296.3	276.5
37.5°	516.2	526.2	518.4	493.0	454.0	410.3	366.4	332.3	299.4	275.2	257.8
40°	483.3	501.0	497.3	476.0	435.7	392.2	346.8	310.1	278.0	255.0	238.4
42.5°	444.7	470.4	474.5	455.3	417.6	369.6	324.8	289.3	258.4	235.8	219.9
45°	401.3	433.3	447.1	432.0	396.5	347.8	302.2	267.3	236.7	217.5	204.2
47.5°	357.9	396.3	415.0	407.7	371.9	324.4	279.8	245.7	216.7	199.9	187.4
50°	314.9	356.2	383.4	378.6	347.6	302.2	257.2	223.6	197.1	181.6	171.0
52.5°	277.2	316.2	345.9	348.3	320.5	276.8	233.3	202.2	179.6	165.6	156.6
55°	240.1	276.3	308.8	314.7	292.1	250.1	211.3	181.8	161.3	149.7	142.4
57.5°	206.8	239.7	272.0	282.4	264.1	226.2	187.6	161.7	143.9	135.0	128.6
60°	178.6	208.3	236.1	246.8	234.3	199.7	166.0	142.8	128.1	120.0	115.0
62.5°	154.0	177.0	201.6	213.4	205.0	174.9	145.4	124.9	112.9	106.0	102.1
65°	131.8	149.5	168.9	182.6	173.2	150.8	126.2	108.5	98.4	92.0	89.2
67.5°	111.3	126.0	141.5	152.3	147.7	127.3	106.6	92.8	84.4	79.5	76.9
70°	92.6	103.6	116.1	124.5	121.2	105.5	89.0	78.0	70.9	67.6	65.3
72.5°	76.0	83.1	92.6	99.5	96.0	84.9	73.2	64.4	59.2	55.3	53.6
75°	60.3	66.5	73.2	77.8	75.0	66.8	57.5	50.8	47.2	44.8	43.7
77.5°	45.7	50.6	55.3	57.5	56.2	50.2	43.9	38.6	35.7	34.2	32.9
80°	32.9	35.7	38.8	40.9	40.1	36.0	31.5	27.4	26.1	24.3	23.9
82.5°	22.0	24.3	25.0	25.9	25.4	23.5	20.3	17.9	16.8	15.9	15.7
85°	13.1	13.6	14.6	14.6	14.0	12.7	11.0	10.3	9.1	9.0	8.4
87.5°	5.8	5.8	5.8	5.8	5.8	5.4	4.7	4.3	3.9	3.7	3.5
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°	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4
2.5°	495.8	493.9	491.3	488.3	485.7	481.6	480.3	480.3	481.2	480.1	479.2
5°	482.9	479.2	475.5	469.7	464.8	458.3	456.4	454.6	454.4	452.5	450.1
7.5°	469.1	463.5	455.9	447.6	442.4	435.3	431.4	430.3	426.7	423.4	419.5
10°	453.1	444.5	435.3	427.5	419.3	410.1	405.5	402.3	398.7	394.6	391.8
12.5°	433.6	423.9	415.5	406.4	399.5	386.6	385.1	381.0	373.9	367.7	365.5
15°	421.7	404.7	395.2	386.8	376.3	363.1	358.2	353.7	347.0	343.1	339.9
17.5°	400.6	385.3	373.3	362.1	352.1	341.8	334.5	330.8	325.4	322.0	318.8
20°	381.4	364.8	352.3	339.2	328.7	319.4	313.2	308.6	305.8	302.4	299.2
22.5°	362.0	344.6	332.7	319.4	307.1	301.5	294.2	290.3	286.5	283.9	280.6
25°	339.4	325.6	310.6	300.4	289.5	283.7	276.8	273.1	270.1	267.1	265.5
27.5°	319.2	305.2	291.4	281.1	272.0	266.4	262.1	258.5	254.8	252.6	251.3
30°	298.3	285.4	273.3	263.4	256.3	250.1	247.5	244.2	241.4	240.4	238.4
32.5°	279.6	265.3	255.6	246.6	240.6	236.3	234.5	230.9	230.4	229.4	228.3
35°	261.0	248.6	239.3	231.7	226.6	223.4	221.0	220.1	219.2	218.2	217.3
37.5°	242.5	232.8	224.0	217.8	213.7	211.3	210.8	208.9	208.7	207.4	207.4
40°	225.9	216.0	209.8	205.0	201.6	200.5	199.0	198.6	198.1	197.7	198.4
42.5°	209.3	202.5	197.3	192.3	189.7	188.7	188.4	187.8	187.4	188.5	188.9
45°	193.8	188.0	183.5	180.0	178.5	177.3	177.3	177.9	177.7	178.3	178.3
47.5°	179.4	174.2	170.4	169.1	167.3	166.9	167.1	166.9	167.8	168.6	169.3
50°	165.8	161.1	158.1	156.8	156.4	155.9	156.6	157.0	157.6	158.3	158.7
52.5°	150.6	148.4	146.5	145.2	145.0	145.2	145.0	146.4	146.9	148.0	147.8
55°	137.8	136.1	134.8	133.3	133.1	133.7	134.0	135.2	135.9	136.8	136.6
57.5°	125.6	124.3	122.8	122.5	122.3	122.5	124.1	124.0	125.1	125.8	126.2
60°	112.4	111.4	110.1	110.1	110.7	111.1	111.6	112.6	113.7	113.5	114.8
62.5°	100.2	99.1	98.8	99.3	99.1	100.1	100.6	100.6	102.1	102.7	103.0
65°	88.1	87.7	87.2	87.2	87.7	87.9	88.9	89.4	90.0	91.1	92.0
67.5°	76.7	75.8	75.8	75.4	76.2	76.7	77.3	78.0	78.4	79.7	80.3
70°	64.8	64.4	64.2	64.6	64.6	65.1	66.1	67.0	67.8	67.9	69.1
72.5°	53.2	53.2	53.2	53.8	54.1	54.7	54.9	55.6	56.7	56.9	57.5
75°	42.7	42.9	42.7	42.9	43.1	43.7	44.1	44.8	45.5	45.7	46.1
77.5°	33.0	32.7	32.3	32.9	33.2	34.3	34.2	34.5	35.3	34.9	35.3
80°	23.1	23.7	23.0	24.1	24.1	23.9	24.3	24.8	24.6	25.0	24.6
82.5°	15.7	15.1	15.1	15.7	15.9	15.3	15.7	15.9	16.1	15.7	15.5
85°	8.6	8.4	8.8	8.2	8.4	8.0	8.0	7.7	8.0	7.7	7.3
87.5°	3.2	3.0	3.2	2.6	2.4	2.2	2.1	2.1	1.7	1.7	1.7
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°	504.4	504.4	504.4	504.4
2.5°	480.5	478.4	477.5	478.3
5°	447.5	448.0	444.7	445.8
7.5°	418.9	416.5	417.2	415.9
10°	388.7	387.3	385.3	385.7
12.5°	368.3	359.5	359.0	357.3
15°	339.7	334.9	333.8	333.4
17.5°	317.0	312.9	314.4	313.2
20°	296.4	296.6	294.2	292.7
22.5°	278.3	278.0	277.0	275.5
25°	263.0	263.0	260.8	260.2
27.5°	249.0	249.4	247.5	247.5
30°	238.6	237.3	237.1	237.4
32.5°	228.1	226.6	226.8	226.6
35°	216.9	217.3	216.7	216.2
37.5°	207.4	207.4	207.4	206.8
40°	198.1	198.4	197.9	198.2
42.5°	188.7	188.9	188.9	188.2
45°	179.4	179.2	178.8	179.6
47.5°	169.7	169.7	169.5	169.9
50°	159.0	159.4	158.9	158.7
52.5°	148.2	148.4	148.2	148.6
55°	137.2	137.2	137.4	137.8
57.5°	125.8	127.1	126.2	126.9
60°	114.6	114.8	115.0	114.6
62.5°	104.0	103.8	104.0	104.5
65°	92.4	92.8	92.6	92.2
67.5°	81.0	80.6	81.2	80.6
70°	68.9	69.6	69.1	69.8
72.5°	57.9	57.7	58.1	57.1
75°	46.3	46.3	46.5	46.3
77.5°	35.5	35.1	34.9	34.3
80°	24.5	24.5	23.7	24.3
82.5°	14.9	15.1	15.3	14.2
85°	7.1	7.1	6.9	6.7
87.5°	1.5	1.5	1.7	1.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)