

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: P242471

Luminaire Tested: **S123DR-S340D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242471
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-20)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DR-S340D840-X4F0-XX-UDD-A-W
Description: DEFINE 3 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: 1373.4 lumens
Efficiency: N/A
Efficacy: 118.4 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

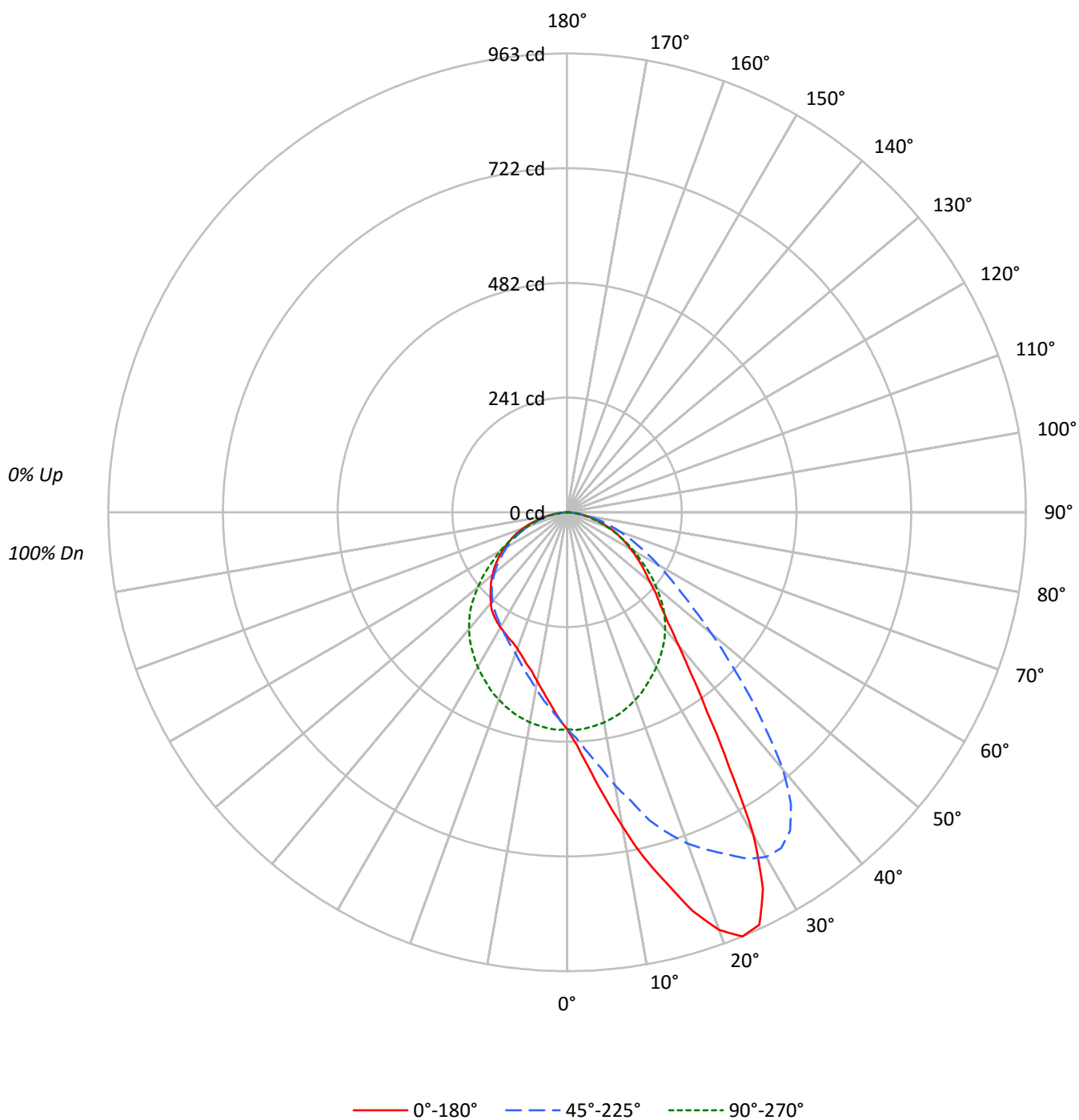
Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		100
1	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85		85
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	74	72		72
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62		62
4	84	73	65	58	82	72	64	58	69	62	57	67	61	56	65	60	56	53		53
5	78	66	57	51	76	64	56	50	62	55	50	60	54	49	59	53	49	47		47
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	43	41		41
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36		36
8	62	49	41	35	61	49	41	35	47	40	35	46	39	35	45	39	35	33		33
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	36	31	29		29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27		27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	5515	5515	5515
5°	6578	5539	4908
10°	8233	5510	4433
15°	10098	5466	4127
20°	12028	5397	3930
25°	12772	5314	3887
30°	10948	5251	3906
35°	7613	5164	3948
40°	5734	5062	3935
45°	4762	4909	3884
50°	4266	4597	3849
55°	3988	4262	3802
60°	3741	3913	3762
65°	3516	3565	3643
70°	3296	3172	3470
75°	2955	2777	3180
80°	2583	2276	2736
85°	2031	1655	1836

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.7	3.3
10°-20°	143.7	10.5
20°-30°	241.8	17.6
30°-40°	273.3	19.9
40°-50°	244.8	17.8
50°-60°	197.6	14.4
60°-70°	137.7	10.0
70°-80°	72.3	5.3
80°-90°	17.3	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°	430.3	31.3
0°-40°	703.7	51.2
0°-60°	1146.1	83.5
0°-90°	1373.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1373.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	455	455	455	455	455	
5°	541	507	455	412	403	56
15°	805	670	436	344	329	232
25°	955	791	397	295	291	422
35°	514	816	349	261	267	332
45°	278	538	286	223	227	219
55°	189	292	202	172	180	169
65°	123	164	124	117	127	122
75°	63	78	59	59	68	67
85°	15	17	12	12	13	18
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°	455.0	455.0	455.0	455.0	455.0	455.0	455.0	455.0	455.0	455.0	455.0
2.5°	489.9	489.4	488.3	489.2	487.4	485.0	484.8	482.6	476.2	475.7	474.0
5°	540.6	538.8	538.6	538.4	535.3	531.1	523.1	522.5	511.9	506.6	500.2
7.5°	601.8	601.2	599.4	597.4	587.1	582.0	574.5	564.8	552.5	540.6	533.1
10°	668.9	676.1	667.1	660.9	655.2	644.4	631.8	616.2	600.5	582.2	568.3
12.5°	740.7	743.4	743.4	737.6	727.9	710.1	685.4	667.8	653.7	620.1	608.2
15°	804.7	818.1	809.5	789.7	790.1	774.5	745.4	713.4	696.4	669.7	633.4
17.5°	877.0	879.4	876.8	858.2	849.2	826.5	800.3	770.5	738.5	706.1	668.4
20°	932.5	931.2	923.5	914.9	895.9	879.2	849.9	815.7	771.6	739.9	697.7
22.5°	963.4	961.0	958.3	951.5	936.5	918.2	892.6	854.5	813.0	766.3	716.0
25°	955.0	957.9	958.3	956.3	950.8	940.0	919.3	889.5	847.7	791.4	740.7
27.5°	890.2	897.5	906.7	912.9	922.8	929.4	922.8	904.1	869.7	819.4	757.0
30°	782.2	773.4	795.2	822.7	841.5	874.6	893.1	894.2	876.8	835.1	774.7
32.5°	632.3	646.6	653.2	688.7	735.2	773.4	814.8	851.6	860.2	836.0	785.0
35°	514.5	526.7	544.3	561.9	606.0	644.0	708.8	765.2	810.2	816.1	783.7
37.5°	427.7	434.7	445.5	464.3	494.5	541.4	592.8	666.2	728.2	771.8	767.4
40°	362.4	364.2	376.8	390.2	413.6	450.6	495.8	558.9	636.9	704.6	732.8
42.5°	313.5	317.9	321.4	334.2	351.6	377.2	418.4	467.8	537.7	618.2	680.1
45°	277.8	282.2	285.5	294.1	307.3	326.1	355.4	403.0	457.4	537.9	612.2
47.5°	253.1	252.6	255.5	262.3	271.8	286.8	308.4	340.2	392.4	459.7	537.5
50°	226.2	229.7	230.6	235.7	242.7	253.1	270.3	296.3	337.3	394.6	464.7
52.5°	207.2	207.7	210.5	213.8	219.8	227.3	241.6	260.6	290.6	337.3	400.3
55°	188.7	188.7	191.1	194.0	197.5	204.8	214.7	229.7	254.2	292.1	345.5
57.5°	171.5	172.4	174.6	175.3	178.3	183.4	192.0	203.9	222.7	253.3	297.4
60°	154.3	156.3	156.1	157.8	160.5	164.2	171.3	180.6	196.9	220.2	255.9
62.5°	139.3	138.7	138.7	140.9	143.5	147.0	151.0	158.7	172.0	192.0	221.1
65°	122.6	122.1	123.7	125.0	125.9	128.5	132.1	139.1	148.4	163.8	187.4
67.5°	108.0	106.7	107.8	108.2	109.8	112.0	115.5	119.9	127.4	140.4	159.4
70°	93.0	91.9	91.7	92.2	93.5	95.0	97.4	101.6	108.5	118.4	131.4
72.5°	77.6	76.9	76.9	78.0	78.5	79.4	80.9	84.7	89.7	96.6	108.5
75°	63.1	63.1	63.1	63.3	63.9	64.8	66.1	68.1	72.3	77.6	85.8
77.5°	49.8	50.0	49.6	49.4	50.5	50.9	51.1	53.4	55.8	59.7	66.1
80°	37.0	35.9	36.4	37.0	37.5	37.7	38.4	38.8	40.8	42.8	47.0
82.5°	25.1	24.3	24.3	25.4	25.4	25.6	26.2	26.9	27.3	29.1	30.9
85°	14.6	14.6	14.8	14.8	15.0	14.8	15.4	15.7	15.7	16.8	18.1
87.5°	6.6	6.2	6.4	6.6	6.4	6.6	6.8	7.1	7.3	7.5	7.7
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	455.0	455.0	455.0	455.0	455.0	455.0	455.0	455.0	455.0	455.0	455.0
2.5°	472.7	470.9	469.1	466.0	463.4	459.7	458.5	457.2	453.3	449.7	447.1
5°	497.8	492.5	484.8	477.7	472.0	464.3	459.9	455.2	448.6	442.7	437.8
7.5°	521.8	512.6	501.8	490.1	478.8	468.0	459.4	451.7	443.1	434.7	428.3
10°	551.6	536.6	519.8	501.8	486.3	471.3	458.8	447.7	435.8	425.5	416.9
12.5°	585.5	561.5	536.8	513.9	494.9	472.7	456.8	442.0	428.1	415.1	405.2
15°	610.9	582.7	555.3	525.1	497.3	471.3	453.3	435.6	420.0	407.2	394.8
17.5°	636.0	605.2	570.3	533.9	501.3	471.3	446.6	427.7	408.5	393.1	381.2
20°	656.7	620.4	579.6	541.4	504.4	470.0	442.2	418.4	397.3	380.7	366.8
22.5°	674.6	630.5	588.0	546.5	504.2	466.5	434.1	409.4	386.0	369.9	354.9
25°	685.8	634.9	592.6	544.7	498.7	460.3	425.0	397.3	374.3	355.4	340.2
27.5°	696.4	634.3	586.4	534.8	492.1	453.9	416.0	386.2	362.2	341.7	326.1
30°	707.0	635.4	575.6	524.7	481.5	441.8	405.2	375.2	349.6	328.7	314.2
32.5°	713.6	634.7	565.7	510.6	464.7	430.8	393.5	362.2	335.8	315.3	301.4
35°	715.4	630.9	554.0	490.1	446.4	412.3	381.2	349.0	321.4	302.2	286.4
37.5°	711.6	624.1	541.2	471.6	424.4	390.4	363.3	335.8	309.3	287.9	274.0
40°	699.5	617.5	525.8	451.7	401.5	369.0	346.8	319.9	293.9	273.8	261.0
42.5°	676.4	604.1	508.8	429.7	377.6	345.2	325.2	303.8	279.5	261.0	248.2
45°	635.8	583.3	491.8	407.6	354.3	320.8	302.7	286.4	264.1	245.8	234.8
47.5°	584.0	555.3	467.4	384.5	329.8	297.4	278.4	265.0	247.6	232.8	222.0
50°	529.5	519.2	442.5	360.7	305.3	273.8	255.7	243.8	232.1	217.4	207.7
52.5°	466.7	477.3	413.4	336.0	280.4	249.6	232.8	224.0	213.6	202.2	194.0
55°	408.5	431.7	379.0	307.8	255.7	226.2	210.1	201.7	195.5	186.5	179.2
57.5°	352.1	381.6	343.3	279.3	231.5	205.7	189.8	180.3	176.4	171.3	165.3
60°	302.9	332.0	304.5	250.7	207.0	182.8	169.1	161.4	157.4	154.1	149.2
62.5°	259.0	288.6	266.5	221.6	183.0	160.9	149.5	142.0	139.1	137.8	133.8
65°	219.6	244.9	229.5	191.1	160.3	140.4	129.6	124.3	121.5	120.8	118.2
67.5°	185.4	205.0	193.1	164.2	139.1	121.0	111.6	106.9	104.5	104.3	102.1
70°	151.9	170.0	161.4	135.8	114.9	101.4	93.5	89.5	88.2	88.0	86.9
72.5°	125.9	137.1	130.7	110.4	95.5	83.6	78.3	74.1	72.5	73.0	72.3
75°	97.0	106.5	102.5	87.7	74.7	66.8	61.9	59.3	58.0	58.6	57.8
77.5°	74.1	80.7	76.7	65.5	57.1	51.1	47.4	45.6	44.3	44.3	43.9
80°	52.7	56.2	54.2	48.1	41.4	36.6	33.7	32.6	32.0	31.7	31.5
82.5°	33.7	36.6	34.2	30.4	26.5	24.0	22.7	21.2	20.7	20.9	20.7
85°	19.0	20.1	19.2	16.5	14.8	13.4	12.6	11.9	11.5	11.7	11.2
87.5°	8.2	8.4	7.7	6.8	6.4	5.7	5.7	5.3	4.9	4.9	4.6
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	455.0	455.0	455.0	455.0	455.0	455.0	455.0	455.0	455.0	455.0	455.0
2.5°	445.5	444.0	441.8	438.5	435.8	431.7	431.7	432.3	432.3	432.1	431.7
5°	433.9	430.6	426.6	422.0	417.1	412.3	411.4	409.6	408.3	407.4	406.3
7.5°	422.0	416.4	410.9	404.5	399.0	394.4	391.1	388.2	386.5	384.5	382.9
10°	409.8	402.6	395.7	388.9	381.4	375.4	371.7	369.0	367.1	365.3	364.4
12.5°	395.5	386.9	379.2	372.8	364.4	358.2	354.7	353.8	351.4	347.2	345.0
15°	381.6	373.9	364.9	354.9	351.0	343.5	339.3	337.3	336.0	333.1	332.2
17.5°	370.1	359.8	349.4	342.1	334.9	328.9	326.5	323.9	322.1	319.4	318.8
20°	355.8	346.8	337.5	329.6	321.9	315.3	313.3	311.5	309.7	308.6	307.8
22.5°	341.3	332.2	325.0	317.7	309.3	305.6	303.3	301.4	300.3	299.6	298.7
25°	327.8	319.9	311.3	304.7	298.1	295.2	293.9	292.8	291.9	290.8	290.6
27.5°	315.9	307.1	299.8	293.4	288.6	286.2	284.6	283.9	283.9	284.4	284.6
30°	302.2	294.3	288.6	283.3	278.9	276.7	276.5	276.5	277.3	277.6	278.0
32.5°	289.7	283.5	277.8	272.7	269.6	268.3	269.4	269.4	270.1	270.7	271.6
35°	277.6	271.8	267.4	263.0	260.1	260.8	261.2	261.7	262.8	264.1	265.0
37.5°	266.1	260.8	256.2	252.6	250.9	252.2	253.3	254.2	255.5	256.6	257.5
40°	253.5	249.8	245.4	242.3	242.7	243.4	244.3	245.4	246.5	247.1	248.0
42.5°	241.8	237.9	234.8	232.4	233.0	233.9	234.3	234.8	236.1	237.4	237.9
45°	229.9	226.8	223.8	222.2	222.7	223.1	223.5	224.2	225.3	226.2	226.4
47.5°	216.5	214.3	212.3	210.5	211.4	211.2	211.9	213.2	213.6	214.1	215.4
50°	203.7	201.7	199.3	198.9	198.9	198.9	199.1	200.8	200.8	201.7	202.6
52.5°	189.6	188.5	187.2	186.3	185.8	185.8	186.9	187.6	188.0	189.4	190.3
55°	175.7	174.4	173.1	172.4	172.0	172.4	174.2	174.6	175.7	176.4	177.0
57.5°	161.2	160.3	159.2	158.7	158.7	158.9	160.3	161.4	161.6	163.8	164.7
60°	146.8	145.3	144.4	144.4	144.0	145.9	145.5	147.7	148.1	149.5	151.0
62.5°	132.1	129.8	129.6	129.6	130.5	130.7	131.6	132.3	133.6	135.4	136.5
65°	116.0	114.9	116.4	116.2	115.7	117.1	117.1	118.2	119.5	121.0	123.5
67.5°	101.0	100.1	100.5	100.3	101.0	101.9	102.5	103.4	104.9	106.7	108.2
70°	85.8	86.4	85.3	86.2	86.9	87.1	87.5	88.8	90.6	91.7	93.5
72.5°	71.0	70.8	71.2	71.4	72.1	72.5	73.0	74.5	76.5	77.4	78.7
75°	56.9	56.7	57.3	57.3	58.4	58.9	59.3	60.0	61.7	63.1	64.2
77.5°	44.1	44.3	44.1	45.0	44.5	44.8	46.1	46.7	47.0	49.8	50.3
80°	31.3	31.7	32.0	32.2	32.4	32.0	33.5	34.2	34.2	35.7	36.8
82.5°	20.3	20.5	21.2	21.4	21.4	22.0	21.8	22.3	22.9	23.4	24.9
85°	11.2	11.9	12.1	11.9	12.1	11.7	12.3	12.6	12.8	12.8	12.8
87.5°	4.4	4.6	4.4	4.6	4.4	4.6	4.6	4.2	4.2	4.9	4.0
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°	455.0	455.0	455.0	455.0
2.5°	430.1	429.9	431.4	430.3
5°	405.0	405.6	403.4	403.4
7.5°	382.3	381.4	381.6	380.1
10°	361.8	360.4	360.0	360.2
12.5°	344.8	344.8	341.3	341.3
15°	332.2	328.0	327.6	328.9
17.5°	318.3	315.9	316.1	315.7
20°	307.8	306.4	306.2	304.7
22.5°	298.1	297.8	298.1	296.3
25°	290.3	291.4	290.6	290.6
27.5°	285.1	285.1	284.4	284.4
30°	278.9	278.7	279.1	279.1
32.5°	272.7	273.1	273.1	273.4
35°	266.3	266.5	267.2	266.8
37.5°	257.9	259.0	258.8	259.3
40°	248.2	248.9	248.7	248.7
42.5°	238.3	238.8	238.1	237.7
45°	227.3	226.8	227.5	226.6
47.5°	215.2	215.4	215.6	216.5
50°	203.0	204.4	204.4	204.1
52.5°	191.1	191.6	192.7	192.7
55°	178.8	179.2	179.7	179.9
57.5°	166.2	166.0	166.9	167.1
60°	152.8	152.8	154.5	155.2
62.5°	138.4	139.3	141.1	139.8
65°	124.6	126.3	126.1	127.0
67.5°	110.0	111.1	112.9	112.9
70°	95.2	96.3	97.2	97.9
72.5°	80.9	81.3	83.8	82.5
75°	65.7	67.2	68.6	67.9
77.5°	51.1	53.1	53.6	52.9
80°	38.4	38.1	39.5	39.2
82.5°	25.6	25.4	25.8	26.0
85°	13.7	14.3	13.4	13.2
87.5°	4.0	4.0	3.7	3.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)