

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: P242230

Luminaire Tested: **S121RDR-S305D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242230
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-28)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-S305D840-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED 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: 1062.6 lumens
Efficiency: N/A
Efficacy: 91.6 lumens/watt
Spacing Criteria (0/90/45): 0.96 / 1.23 / 1.1
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

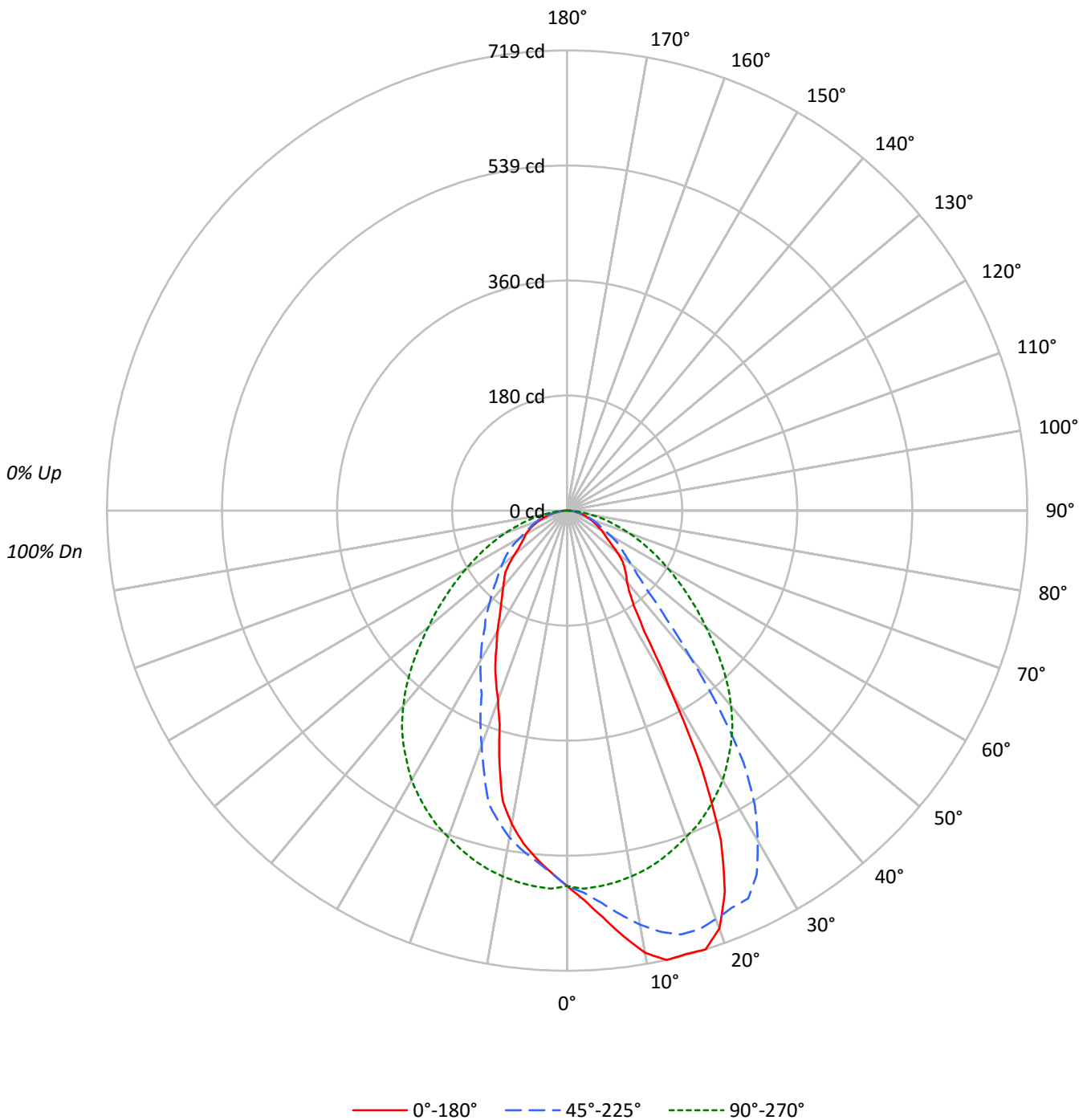
Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	111	107	103	100	108	104	101	98	100	97	95		96	94	92		93	91	89	87
2	102	95	89	84	100	93	88	83	90	85	82		87	83	80		84	81	78	76
3	94	85	78	73	92	84	77	72	81	75	71		78	74	70		76	72	68	67
4	88	77	69	64	85	76	69	63	73	67	62		71	66	61		69	65	61	59
5	81	70	62	56	79	69	62	56	67	60	55		65	59	55		63	58	54	52
6	76	64	56	50	74	63	56	50	61	55	50		60	54	49		58	53	49	47
7	71	59	51	45	69	58	51	45	57	50	45		55	49	45		54	48	44	43
8	67	54	47	41	65	54	46	41	52	46	41		51	45	41		50	45	40	39
9	63	50	43	38	61	50	43	38	49	42	37		48	42	37		47	41	37	35
10	59	47	40	35	58	46	39	35	45	39	35		44	39	34		44	38	34	33

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	17378	17378	17378
5°	18964	17527	16237
10°	21109	17459	14965
15°	22006	17328	12525
20°	21911	17121	9942
25°	18583	16932	8680
30°	10938	16641	7452
35°	6572	16132	6507
40°	5628	15402	6003
45°	5322	14356	5711
50°	4757	13040	4941
55°	3962	11902	4463
60°	3686	10844	4444
65°	3400	9878	4298
70°	3205	8897	4046
75°	3034	7876	3686
80°	2713	6586	3242
85°	2550	5167	2550



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	56.2	5.3
10°-20°	160.2	15.1
20°-30°	218.8	20.6
30°-40°	203.8	19.2
40°-50°	168.5	15.9
50°-60°	124.2	11.7
60°-70°	79.4	7.5
70°-80°	40.9	3.8
80°-90°	10.5	1.0
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°	435.2	41.0
0°-40°	639.0	60.1
0°-60°	931.7	87.7
0°-90°	1062.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1062.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	586	586	586	586	586	
5°	638	615	589	550	546	63
15°	717	686	565	474	408	202
25°	568	669	518	316	266	247
35°	182	481	446	224	180	123
45°	127	179	343	157	136	97
55°	77	103	230	112	86	71
65°	48	56	141	65	61	48
75°	26	29	69	36	32	28
85°	8	8	15	9	8	8
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°	586.5	586.5	586.5	586.5	586.5	586.5	586.5	586.5	586.5	586.5	586.5
2.5°	609.0	608.5	609.2	608.7	608.3	607.2	606.3	603.7	599.7	597.5	599.7
5°	637.6	639.4	638.7	637.8	635.9	634.1	630.1	627.7	620.6	615.1	616.7
7.5°	670.3	672.5	669.6	667.6	666.5	661.4	657.0	650.2	642.5	636.3	632.8
10°	701.6	702.2	701.3	699.6	695.8	690.3	683.9	676.2	666.5	657.0	650.6
12.5°	719.2	720.3	721.6	718.5	715.7	711.3	704.6	696.9	685.0	674.0	666.7
15°	717.4	718.3	720.7	719.6	718.3	716.3	712.6	706.2	697.8	685.7	675.3
17.5°	718.8	719.4	720.5	716.6	714.3	711.9	707.1	702.7	695.6	686.1	678.4
20°	694.9	705.7	704.4	709.7	711.9	711.7	707.1	698.7	689.0	679.3	675.8
22.5°	643.8	652.4	653.5	661.7	671.8	680.0	690.1	693.8	686.3	671.8	666.9
25°	568.4	574.6	580.7	592.4	603.2	625.9	646.7	662.3	670.9	668.9	659.4
27.5°	456.8	450.2	474.7	488.1	518.3	551.4	580.5	609.2	622.8	641.1	650.4
30°	319.7	319.0	337.6	360.9	406.1	436.5	491.0	537.1	573.0	595.5	620.6
32.5°	224.4	227.8	241.4	255.8	280.7	330.3	371.9	435.4	496.7	545.9	576.8
35°	181.7	182.1	185.2	193.8	209.0	236.6	269.0	330.7	413.8	480.6	526.7
37.5°	159.2	160.5	161.4	166.2	171.8	183.4	203.9	246.7	315.5	390.0	470.1
40°	145.5	146.6	147.5	149.0	152.4	157.9	171.3	191.8	231.5	300.1	389.1
42.5°	136.3	135.8	137.8	138.5	140.2	143.3	149.3	160.3	183.2	229.7	306.5
45°	127.0	127.7	127.7	128.5	130.1	131.8	134.3	141.1	152.8	179.2	239.4
47.5°	117.3	117.1	118.4	119.1	120.6	122.1	123.9	127.4	134.3	149.7	184.5
50°	103.2	103.6	106.0	108.3	110.5	112.4	114.6	116.9	121.3	129.6	151.0
52.5°	88.2	88.2	90.8	92.4	95.5	100.3	104.1	107.4	110.2	114.4	127.2
55°	76.7	76.9	77.8	79.2	81.4	83.8	88.6	94.4	99.2	102.7	109.8
57.5°	68.8	69.0	69.2	70.3	71.4	72.3	75.2	79.6	86.0	92.4	96.6
60°	62.2	62.0	62.0	62.6	63.5	64.6	66.1	67.9	71.4	78.3	85.8
62.5°	54.7	55.1	55.1	55.8	56.4	57.5	58.2	60.0	62.0	65.0	72.8
65°	48.5	48.9	48.5	49.2	49.6	50.3	51.4	52.3	54.0	56.0	59.1
67.5°	42.3	42.6	43.0	43.2	43.7	43.9	44.8	45.9	47.0	48.3	50.7
70°	37.0	37.0	37.0	37.5	37.9	37.9	38.6	39.0	40.1	41.4	42.8
72.5°	31.3	31.5	31.5	31.3	32.2	32.4	32.6	33.1	34.0	35.1	36.2
75°	26.5	26.0	26.0	26.2	26.9	26.9	27.1	27.3	28.0	28.9	29.5
77.5°	20.7	20.7	20.9	21.2	21.4	21.4	21.8	21.8	22.7	23.2	23.6
80°	15.9	16.3	16.5	16.3	16.3	16.5	16.5	17.0	17.2	17.4	17.9
82.5°	11.9	12.1	11.7	11.7	11.9	11.9	12.1	12.1	12.3	12.6	12.6
85°	7.5	7.5	7.7	7.5	7.7	7.5	7.5	7.9	7.7	7.7	7.9
87.5°	3.5	3.7	3.5	3.7	3.5	3.7	3.7	3.7	3.7	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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	586.5	586.5	586.5	586.5	586.5	586.5	586.5	586.5	586.5	586.5	586.5
2.5°	599.0	598.8	597.7	595.3	593.5	590.2	590.2	591.3	585.6	581.6	581.4
5°	612.9	610.7	607.0	602.3	598.2	592.4	590.2	589.3	581.6	575.7	573.7
7.5°	627.7	622.2	615.8	608.3	601.2	593.1	588.9	585.6	575.7	568.4	564.0
10°	643.1	634.3	624.4	613.6	603.9	592.9	586.0	580.3	568.8	558.7	553.6
12.5°	656.8	644.5	631.9	617.8	604.6	590.7	581.2	573.7	560.2	548.1	541.9
15°	663.2	650.0	639.6	620.2	602.3	588.2	576.1	564.9	550.5	537.1	527.6
17.5°	668.7	654.2	640.5	622.2	601.5	583.2	568.6	554.3	538.8	524.7	513.1
20°	667.2	654.8	638.1	618.7	599.0	577.9	561.3	543.0	523.9	509.5	497.2
22.5°	658.3	648.2	630.8	612.3	593.3	570.6	551.9	532.0	508.4	492.8	478.9
25°	647.1	637.4	620.2	601.0	582.3	560.2	538.2	517.9	492.5	473.8	455.9
27.5°	638.3	623.7	606.5	585.1	567.1	546.1	523.0	502.5	475.1	454.4	433.7
30°	628.1	611.6	590.4	567.7	548.5	529.4	506.9	486.4	456.2	432.6	406.8
32.5°	599.0	599.3	574.1	548.8	528.3	507.8	487.7	465.9	435.9	408.1	381.6
35°	561.1	575.9	557.4	528.3	502.9	483.9	467.4	446.0	412.7	384.1	354.1
37.5°	510.4	536.4	538.6	508.4	480.4	458.2	441.8	424.0	390.5	359.6	329.8
40°	459.7	494.1	507.8	486.8	456.4	430.8	414.5	398.2	366.7	333.4	305.8
42.5°	397.5	453.3	470.3	464.1	431.5	403.9	386.7	371.9	341.3	308.7	281.3
45°	327.4	402.8	427.5	433.9	406.3	376.8	357.0	342.6	315.7	287.1	258.6
47.5°	263.0	345.9	386.7	393.3	378.8	350.1	327.4	312.4	291.0	266.3	238.1
50°	200.6	285.5	343.9	354.1	350.6	321.5	300.5	282.9	266.6	244.5	218.1
52.5°	159.6	228.2	297.6	316.6	317.7	294.8	272.7	256.6	240.8	223.3	199.3
55°	127.4	176.4	246.7	278.9	282.0	266.1	245.8	230.4	218.5	202.2	181.9
57.5°	107.4	136.5	197.5	241.0	242.3	237.9	218.5	205.7	195.8	181.7	163.8
60°	91.7	108.3	152.4	203.1	209.7	209.7	194.2	183.0	173.5	162.9	146.0
62.5°	79.4	88.4	115.5	161.4	178.4	181.0	171.3	161.4	154.3	143.8	128.1
65°	66.8	73.6	89.5	124.8	148.2	153.0	148.2	140.9	135.4	124.3	112.0
67.5°	54.9	61.5	71.4	94.6	120.2	126.1	125.2	121.5	115.8	107.6	94.6
70°	45.4	49.4	56.7	70.1	94.4	103.4	106.0	102.7	97.7	88.9	79.4
72.5°	37.5	40.6	44.1	53.8	70.6	82.5	86.9	85.1	81.4	73.0	65.0
75°	30.6	32.6	35.1	39.7	50.7	64.2	69.2	68.8	65.0	58.0	51.6
77.5°	24.7	25.4	27.1	30.0	35.5	47.6	51.6	52.9	50.0	44.1	39.0
80°	18.5	19.4	20.3	21.8	24.5	31.5	36.6	38.6	36.2	32.6	27.6
82.5°	13.0	13.2	14.1	15.0	16.3	19.2	24.5	26.7	24.5	20.7	19.2
85°	8.2	7.9	8.2	8.4	9.7	10.4	13.7	15.2	14.8	12.6	10.8
87.5°	3.7	3.7	3.5	3.7	3.5	4.2	4.9	7.1	5.3	4.6	4.2
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°	586.5	586.5	586.5	586.5	586.5	586.5	586.5	586.5	586.5	586.5	586.5
2.5°	579.6	579.0	576.8	573.7	571.0	566.6	566.6	567.7	567.5	568.0	567.5
5°	570.4	567.3	564.0	559.8	555.8	550.1	549.4	549.9	549.7	549.4	548.1
7.5°	558.5	554.9	550.8	545.5	541.1	535.5	534.0	533.6	531.8	531.1	529.4
10°	547.0	542.8	537.3	530.9	525.0	518.6	514.6	512.4	509.5	506.4	503.8
12.5°	534.2	528.7	521.7	513.9	504.0	497.0	491.0	487.3	483.3	478.0	474.2
15°	520.5	509.3	500.9	488.4	476.2	473.8	464.8	452.9	452.0	426.2	417.1
17.5°	502.2	493.0	477.3	461.0	444.5	431.0	431.3	399.1	389.1	388.9	373.0
20°	483.3	470.5	452.4	435.9	418.5	390.7	368.6	358.1	342.0	335.8	326.7
22.5°	461.0	444.3	423.1	400.6	376.4	353.9	332.3	322.1	314.0	307.1	303.4
25°	434.6	417.6	392.2	364.2	337.1	316.2	304.3	299.6	285.7	280.9	276.3
27.5°	407.9	389.4	356.3	329.4	307.1	292.8	280.4	272.7	266.1	253.8	248.3
30°	382.5	352.8	325.4	300.7	284.0	270.5	261.5	245.8	236.6	230.8	228.4
32.5°	355.0	323.2	298.5	277.1	259.9	248.3	234.8	224.2	220.0	212.5	201.7
35°	326.7	297.9	272.1	254.9	240.1	224.2	215.8	205.7	195.1	189.4	188.5
37.5°	299.4	272.1	253.5	235.5	217.6	208.4	196.0	185.2	181.5	176.2	170.4
40°	274.7	251.3	234.1	213.4	202.6	188.3	178.8	173.3	164.3	162.3	160.5
42.5°	254.4	234.4	215.0	196.4	183.9	172.4	164.0	157.6	154.8	149.9	148.4
45°	233.9	215.4	195.6	181.0	166.7	157.0	151.2	145.7	142.4	141.1	138.5
47.5°	215.4	197.3	179.0	161.2	151.5	145.1	138.7	135.8	133.8	131.0	129.4
50°	197.8	177.7	160.5	149.3	138.9	133.2	129.0	126.3	123.2	120.2	115.8
52.5°	179.9	162.7	146.2	134.3	126.6	122.8	118.8	116.0	109.8	103.8	100.1
55°	161.8	144.2	130.7	121.7	116.2	112.2	107.6	99.2	93.5	90.2	88.4
57.5°	145.5	129.6	117.7	110.2	106.3	99.7	91.5	86.2	83.3	82.0	81.1
60°	128.1	114.4	104.5	98.8	92.6	83.8	79.4	76.7	75.8	75.4	74.7
62.5°	113.1	101.0	93.3	86.9	78.0	73.4	71.0	69.7	69.7	69.0	68.6
65°	97.2	87.8	81.1	71.9	67.2	65.3	64.4	63.7	63.1	62.8	62.0
67.5°	84.2	75.8	67.2	62.4	59.5	58.4	57.5	57.3	56.4	55.8	55.1
70°	71.0	62.8	55.8	53.6	52.0	51.6	50.7	49.8	49.2	48.3	47.8
72.5°	57.8	50.0	47.6	46.5	45.0	44.3	43.2	42.6	41.4	41.0	40.6
75°	44.1	41.0	39.7	38.8	37.7	36.2	35.7	35.1	34.6	34.0	33.3
77.5°	35.1	33.3	31.7	30.6	29.8	28.7	27.8	27.6	27.1	26.5	26.2
80°	26.2	24.9	24.3	23.2	22.0	21.4	20.9	20.7	20.1	19.8	19.6
82.5°	18.1	17.0	16.5	15.2	14.8	14.8	14.6	14.1	13.7	13.4	13.2
85°	10.1	9.7	9.0	9.3	8.6	8.6	8.4	8.2	7.9	7.7	7.5
87.5°	4.0	3.7	3.5	3.3	3.3	2.6	2.6	2.6	2.9	2.6	2.4
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):

	165°	170°	175°	180°
0°	586.5	586.5	586.5	586.5
2.5°	568.2	568.6	567.1	566.2
5°	548.1	547.4	546.6	545.9
7.5°	527.6	526.9	526.9	524.3
10°	502.7	500.9	499.6	497.4
12.5°	470.9	468.3	467.4	464.8
15°	411.0	405.5	401.7	408.3
17.5°	369.3	355.0	356.1	350.6
20°	326.5	320.8	323.7	315.3
22.5°	298.7	295.2	291.9	290.1
25°	273.0	268.8	263.7	265.5
27.5°	240.5	240.5	237.2	238.6
30°	224.0	222.2	216.7	217.8
32.5°	198.2	196.0	195.3	195.8
35°	185.9	182.3	181.2	179.9
37.5°	168.7	167.3	167.6	166.7
40°	157.2	156.1	154.8	155.2
42.5°	147.3	146.6	145.3	145.5
45°	137.6	136.9	136.3	136.3
47.5°	126.8	125.5	124.3	123.0
50°	112.7	110.0	108.0	107.2
52.5°	97.5	96.1	94.8	94.8
55°	87.8	87.1	86.6	86.4
57.5°	80.9	80.5	80.5	79.8
60°	74.7	74.7	74.5	75.0
62.5°	68.8	68.1	68.3	68.3
65°	62.0	61.7	61.5	61.3
67.5°	54.7	54.5	54.7	54.2
70°	47.4	47.4	47.2	46.7
72.5°	39.9	40.3	39.9	39.7
75°	32.9	32.6	32.9	32.2
77.5°	26.2	25.4	25.8	26.0
80°	19.4	19.4	19.2	19.0
82.5°	13.0	13.2	12.8	12.8
85°	7.5	7.5	7.1	7.5
87.5°	2.2	2.2	2.2	2.6
90°	0.0	0.0	0.0	0.0

(END OF REPORT)