

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: P243085

Luminaire Tested: **S121RDR-H305D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243085
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-67)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-H305D835-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 978.7 lumens
Efficiency: N/A
Efficacy: 87.4 lumens/watt
Spacing Criteria (0/90/45): 0.89 / 1.21 / 1.07
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

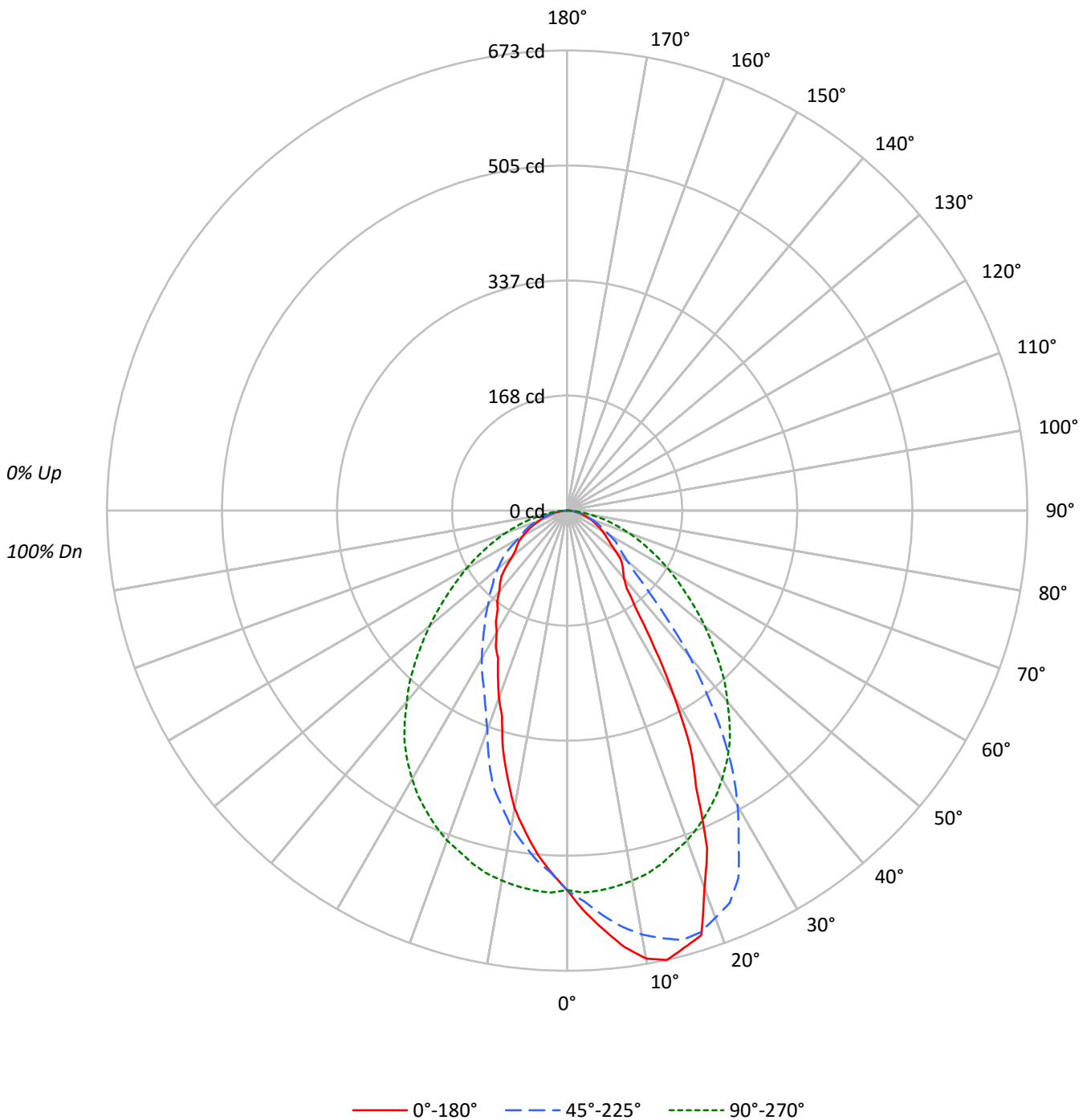
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	81	87	83	80	84	81	78	76
3	94	85	78	73	92	84	77	72	81	75	71	78	73	70	76	72	68	66
4	87	77	69	63	85	76	69	63	73	67	62	71	66	61	69	64	61	59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52
6	76	64	56	50	74	63	55	50	61	55	50	60	54	49	58	53	49	47
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44	42
8	66	54	46	41	65	53	46	41	52	46	41	51	45	41	50	44	40	39
9	62	50	43	38	61	50	42	38	49	42	37	48	42	37	47	41	37	35
10	59	47	39	35	58	46	39	35	45	39	34	44	38	34	44	38	34	33

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	16447	16447	16447
5°	18304	16579	14979
10°	20014	16533	13301
15°	20304	16393	11107
20°	18509	16185	9188
25°	14578	15892	7817
30°	10657	15506	7048
35°	6359	14993	6406
40°	4986	14102	5976
45°	4806	13166	5682
50°	4282	12109	4826
55°	3740	11019	4608
60°	3496	10086	4468
65°	3260	9170	4136
70°	3084	8273	3768
75°	2828	7361	3354
80°	2577	5972	2935
85°	2414	4556	2142



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	53.0	5.4
10°-20°	147.8	15.1
20°-30°	196.6	20.1
30°-40°	187.5	19.2
40°-50°	155.6	15.9
50°-60°	115.7	11.8
60°-70°	74.9	7.7
70°-80°	38.1	3.9
80°-90°	9.3	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°	397.4	40.6
0°-40°	584.9	59.8
0°-60°	856.3	87.5
0°-90°	978.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	978.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	555	555	555	555	555	
5°	615	594	557	513	504	60
15°	662	650	534	418	362	184
25°	446	593	486	288	239	207
35°	176	394	414	211	177	120
45°	115	170	314	154	136	88
55°	72	92	213	111	89	66
65°	46	53	131	67	59	46
75°	25	27	64	33	29	26
85°	7	7	13	7	6	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°	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1
2.5°	587.0	585.5	587.2	586.5	583.8	584.4	581.1	579.0	574.0	572.1	572.1
5°	615.4	617.5	616.3	616.7	614.0	612.3	608.7	604.7	598.5	593.9	592.2
7.5°	643.9	644.5	645.1	643.5	640.3	637.4	632.4	626.5	619.6	613.7	609.1
10°	665.2	666.7	665.9	663.4	661.1	656.7	651.2	644.9	637.4	629.7	624.0
12.5°	673.2	674.5	676.3	674.9	674.7	672.6	667.1	659.4	650.2	640.5	634.1
15°	661.9	661.1	666.1	664.8	664.4	663.6	665.0	663.4	658.5	650.2	642.2
17.5°	651.4	651.0	656.0	657.3	655.4	652.7	651.0	648.9	646.6	646.8	645.8
20°	587.0	599.7	602.2	608.9	623.2	632.6	642.0	641.6	634.9	633.8	633.4
22.5°	535.0	539.9	537.6	548.4	556.2	573.1	589.7	610.6	624.6	621.1	618.8
25°	445.9	460.9	467.8	481.5	501.1	522.7	532.1	554.3	575.9	592.6	605.4
27.5°	390.6	394.0	398.4	412.4	419.7	439.4	474.5	504.7	524.8	543.0	576.7
30°	311.5	312.9	328.2	336.0	357.5	376.8	407.4	431.6	472.0	499.0	525.0
32.5°	237.8	236.5	253.3	262.3	283.6	309.6	343.7	366.3	405.9	450.1	481.0
35°	175.8	175.6	184.6	190.9	214.4	234.2	277.6	307.1	350.4	393.7	433.7
37.5°	143.2	143.0	144.9	150.3	160.1	182.5	203.5	247.2	289.5	332.2	382.2
40°	128.9	130.0	130.4	132.9	136.3	143.0	155.7	186.3	227.7	278.6	328.9
42.5°	121.4	121.4	121.8	122.5	124.1	126.0	133.8	145.5	178.8	219.4	275.7
45°	114.7	114.9	115.3	115.8	115.3	116.4	119.9	124.8	137.7	169.8	224.2
47.5°	106.8	106.5	107.6	108.2	109.1	110.3	110.5	113.0	118.7	135.4	175.0
50°	92.9	93.2	94.2	96.7	99.4	101.7	103.2	104.9	106.8	114.7	135.6
52.5°	80.4	80.6	81.2	83.1	85.6	88.5	93.2	96.9	98.4	100.9	112.6
55°	72.4	72.4	73.3	74.3	74.9	77.0	80.2	84.4	89.8	91.9	96.9
57.5°	65.7	65.7	66.1	66.1	67.0	68.0	70.1	72.2	76.8	83.5	86.7
60°	59.0	59.0	59.4	59.4	60.5	60.9	62.4	63.6	66.1	70.8	77.0
62.5°	52.8	52.3	52.8	53.0	53.6	54.2	55.3	56.7	58.2	60.9	65.5
65°	46.5	46.3	46.7	47.1	47.5	48.4	49.0	50.0	51.3	52.8	55.1
67.5°	41.0	40.8	41.0	41.7	41.4	41.9	42.9	43.3	44.6	46.1	47.9
70°	35.6	35.2	35.6	35.6	35.8	36.4	36.4	37.5	38.5	39.4	41.0
72.5°	29.7	29.9	29.7	29.9	30.4	30.6	31.0	31.6	32.2	33.1	34.1
75°	24.7	24.7	24.9	25.1	25.5	25.5	25.7	26.2	26.6	27.0	28.3
77.5°	19.7	19.9	20.1	20.3	20.3	20.5	20.7	20.9	21.6	21.8	22.4
80°	15.1	15.3	15.3	15.3	15.7	15.3	15.7	16.1	16.1	16.3	16.7
82.5°	10.9	11.1	10.9	11.1	11.3	11.3	11.1	11.3	11.3	11.7	11.7
85°	7.1	6.7	6.7	6.7	6.7	6.7	6.9	7.1	6.9	6.9	7.1
87.5°	2.9	2.9	2.9	2.9	3.1	2.9	3.1	3.1	3.1	2.9	3.1
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°	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1
2.5°	573.1	571.5	570.0	567.5	564.3	559.7	559.1	559.3	553.7	548.2	547.4
5°	588.6	585.9	581.3	575.9	570.8	563.1	559.7	557.4	548.9	541.5	538.6
7.5°	605.2	598.7	592.4	583.8	575.4	565.4	559.1	554.3	543.0	533.4	528.3
10°	618.1	610.2	601.2	590.3	578.8	566.4	557.0	549.5	535.9	523.9	517.7
12.5°	627.4	618.4	607.7	594.7	581.5	565.2	553.7	543.6	527.1	512.9	505.3
15°	632.2	622.5	609.4	595.1	581.5	564.3	549.1	534.4	518.1	500.3	490.9
17.5°	636.6	624.0	609.1	592.8	579.0	561.0	542.2	523.1	504.7	487.9	472.7
20°	633.4	622.8	606.2	589.3	573.8	552.8	532.9	513.3	490.2	470.8	455.5
22.5°	618.8	616.9	599.1	580.9	563.1	543.0	520.0	500.5	475.8	452.8	434.4
25°	601.6	599.3	589.7	570.2	550.1	529.2	508.5	486.1	457.6	433.7	412.6
27.5°	587.2	581.9	575.0	556.8	535.3	514.3	493.0	471.2	440.8	414.3	390.2
30°	557.9	562.9	555.1	542.6	517.7	497.4	476.8	453.2	423.1	392.5	367.8
32.5°	511.4	541.7	534.0	523.9	499.5	477.3	457.8	434.6	401.3	371.1	345.6
35°	470.4	496.5	514.1	502.0	480.4	454.7	434.8	414.5	379.7	348.9	324.5
37.5°	430.6	458.4	487.7	476.6	458.8	431.2	410.3	390.2	358.0	327.0	302.5
40°	378.5	419.1	447.3	451.7	433.5	405.7	385.4	364.6	336.2	305.4	279.2
42.5°	328.4	380.6	403.4	426.0	407.4	381.2	358.6	341.0	313.6	286.6	258.1
45°	276.1	335.3	369.0	386.4	379.7	355.9	331.2	314.2	291.2	266.1	239.1
47.5°	230.7	287.0	335.1	345.0	351.5	328.0	305.0	287.8	267.9	247.2	221.5
50°	183.0	241.4	292.8	310.6	323.0	301.6	277.6	262.7	246.0	227.3	204.5
52.5°	142.3	197.0	251.0	281.3	285.5	274.4	252.2	237.6	224.2	207.4	186.7
55°	113.0	155.3	209.3	244.7	248.7	246.0	226.1	213.3	203.5	189.4	172.1
57.5°	93.8	120.8	169.6	210.4	216.2	218.7	202.4	190.9	182.1	171.0	155.3
60°	81.0	95.2	132.5	172.5	188.6	193.0	178.6	170.2	162.9	152.8	138.2
62.5°	71.6	78.1	101.3	139.8	160.6	164.3	157.0	150.7	144.6	135.0	122.0
65°	59.7	66.6	78.1	108.0	133.6	135.4	136.9	130.8	126.0	118.1	106.5
67.5°	50.0	55.5	63.0	82.9	107.2	112.6	116.4	113.7	109.1	101.1	91.3
70°	42.5	45.6	51.1	62.2	81.8	93.6	97.5	95.5	93.2	84.6	76.2
72.5°	35.4	37.9	41.0	47.7	61.8	74.3	80.2	79.1	76.6	70.1	63.2
75°	29.3	30.4	32.9	36.6	44.8	56.5	63.4	64.3	61.3	55.3	49.8
77.5°	23.0	24.1	25.5	27.8	33.1	41.0	46.7	48.8	46.9	42.5	37.1
80°	17.6	18.2	19.3	20.3	22.4	27.8	33.7	35.0	33.9	30.4	27.0
82.5°	11.7	12.1	13.0	13.8	14.9	17.4	22.4	23.2	23.0	19.9	17.6
85°	7.1	7.1	7.3	8.0	8.4	9.4	12.1	13.4	12.8	10.7	9.6
87.5°	2.9	3.1	2.9	2.9	2.9	3.1	4.0	5.4	4.2	3.1	2.9
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1
2.5°	545.1	544.3	541.1	538.2	534.8	530.9	531.1	531.7	530.2	529.8	531.3
5°	534.4	531.5	526.7	521.9	518.1	513.1	510.1	511.6	510.6	508.7	507.4
7.5°	523.1	518.9	512.0	505.9	500.9	491.5	489.4	486.9	484.8	480.6	479.8
10°	509.7	503.6	494.9	486.3	477.1	469.7	462.8	459.9	454.2	450.5	449.4
12.5°	495.9	485.9	476.0	463.5	453.0	442.3	436.2	432.1	426.4	417.2	412.8
15°	481.7	466.4	453.2	439.4	432.3	417.8	406.3	393.3	386.4	370.9	361.9
17.5°	462.6	445.0	427.2	415.9	401.1	381.0	361.7	355.0	344.6	334.5	324.5
20°	436.9	420.7	403.8	386.8	364.2	341.0	333.7	322.2	310.6	304.6	299.3
22.5°	413.2	395.8	375.7	353.3	330.1	311.9	302.3	293.9	286.8	281.3	275.3
25°	390.8	372.8	344.1	321.3	301.0	287.6	282.8	271.9	264.4	260.4	255.2
27.5°	366.1	341.4	318.4	294.7	276.7	269.2	258.1	249.5	241.6	233.8	231.9
30°	342.7	315.2	292.4	273.2	260.0	249.5	238.2	228.2	222.9	220.0	215.2
32.5°	319.4	291.6	270.2	255.2	240.9	229.8	219.2	213.9	206.0	199.5	195.3
35°	294.5	270.2	253.3	235.7	222.1	211.2	205.8	193.8	189.4	187.6	183.2
37.5°	272.5	251.0	233.8	220.4	205.6	196.8	186.1	183.4	177.5	172.5	171.0
40°	254.3	234.0	217.9	200.5	191.3	179.8	174.6	167.3	165.2	163.3	159.9
42.5°	234.4	217.1	198.7	186.9	173.3	168.1	159.9	157.8	152.8	150.9	149.7
45°	217.5	201.4	183.8	169.6	161.8	154.1	150.9	145.7	143.4	141.1	138.8
47.5°	201.0	184.2	170.2	156.8	148.2	144.6	139.0	135.2	132.7	130.4	128.1
50°	185.7	168.7	153.0	143.4	137.3	132.3	128.7	125.6	122.0	117.0	111.8
52.5°	169.1	153.9	141.1	131.7	126.2	121.4	118.3	112.8	105.9	100.5	98.0
55°	152.6	138.2	127.1	119.5	115.8	111.2	104.0	96.1	91.7	90.8	90.2
57.5°	138.6	125.0	114.7	108.9	104.5	96.3	88.8	85.8	84.6	84.1	83.7
60°	122.9	110.7	103.4	97.1	89.8	82.1	79.8	79.3	78.1	77.5	77.0
62.5°	108.4	98.0	91.3	83.7	76.0	74.5	72.8	71.8	71.2	69.7	69.1
65°	94.4	86.0	78.7	70.8	68.0	67.0	65.5	64.1	62.4	61.3	60.5
67.5°	81.0	72.8	65.1	62.2	60.7	59.0	57.1	55.1	54.2	52.8	52.5
70°	67.8	60.3	56.1	54.2	51.5	50.0	47.9	47.1	45.6	45.0	44.4
72.5°	55.3	49.8	48.1	45.4	43.5	41.2	40.2	39.4	38.5	37.5	37.5
75°	43.1	41.7	38.5	36.4	34.5	33.3	32.9	31.4	31.2	30.6	30.1
77.5°	34.3	31.4	30.4	28.0	26.8	26.2	25.7	24.9	24.1	23.9	23.7
80°	24.3	22.8	21.6	20.5	19.5	19.0	18.6	18.4	18.0	17.6	17.4
82.5°	15.9	15.1	14.2	13.6	13.4	12.8	12.4	12.1	11.7	11.7	11.7
85°	8.6	8.4	8.0	7.5	7.1	7.1	6.9	6.7	6.7	6.1	6.1
87.5°	2.7	2.7	2.5	2.5	2.1	2.3	2.1	2.1	1.9	2.1	2.1
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°	555.1	555.1	555.1	555.1
2.5°	529.6	529.6	528.8	529.6
5°	506.6	504.7	504.1	503.6
7.5°	477.3	475.6	473.9	472.2
10°	447.3	444.8	443.4	442.1
12.5°	408.4	405.3	399.4	401.1
15°	360.5	360.7	347.1	362.1
17.5°	321.3	322.4	316.9	316.1
20°	296.4	296.0	293.9	291.4
22.5°	270.9	269.0	268.1	264.2
25°	247.0	243.7	244.7	239.1
27.5°	229.6	226.9	226.1	225.7
30°	212.3	206.6	204.7	206.0
32.5°	194.7	194.3	193.6	193.8
35°	179.8	179.0	177.1	177.1
37.5°	169.6	169.8	168.7	167.9
40°	157.0	155.9	155.7	154.5
42.5°	148.0	145.9	145.1	145.3
45°	137.5	136.3	135.2	135.6
47.5°	125.2	123.9	121.6	121.0
50°	108.4	106.8	105.7	104.7
52.5°	95.9	95.7	95.2	95.0
55°	89.8	89.2	89.2	89.2
57.5°	83.5	83.1	82.9	83.3
60°	76.6	76.2	75.4	75.4
62.5°	68.0	67.6	67.4	66.6
65°	59.4	59.2	58.8	59.0
67.5°	51.5	51.3	51.3	50.7
70°	43.7	43.7	43.1	43.5
72.5°	36.6	36.4	36.4	36.4
75°	29.7	29.5	29.3	29.3
77.5°	23.4	23.4	23.0	23.0
80°	17.0	17.0	16.7	17.2
82.5°	11.3	11.7	11.3	11.3
85°	6.1	6.3	6.3	6.3
87.5°	1.9	1.7	1.7	1.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)