

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: P242977

Luminaire Tested: **S121DR-H305D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242977  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-57)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S121DR-H305D830-X4F0-XX-UDD-A-W  
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1135.9 lumens  
Efficiency: N/A  
Efficacy: 101.4 lumens/watt  
Spacing Criteria (0/90/45): 1.13 / 1.2 / 1.28  
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')  
CIE Type: Direct

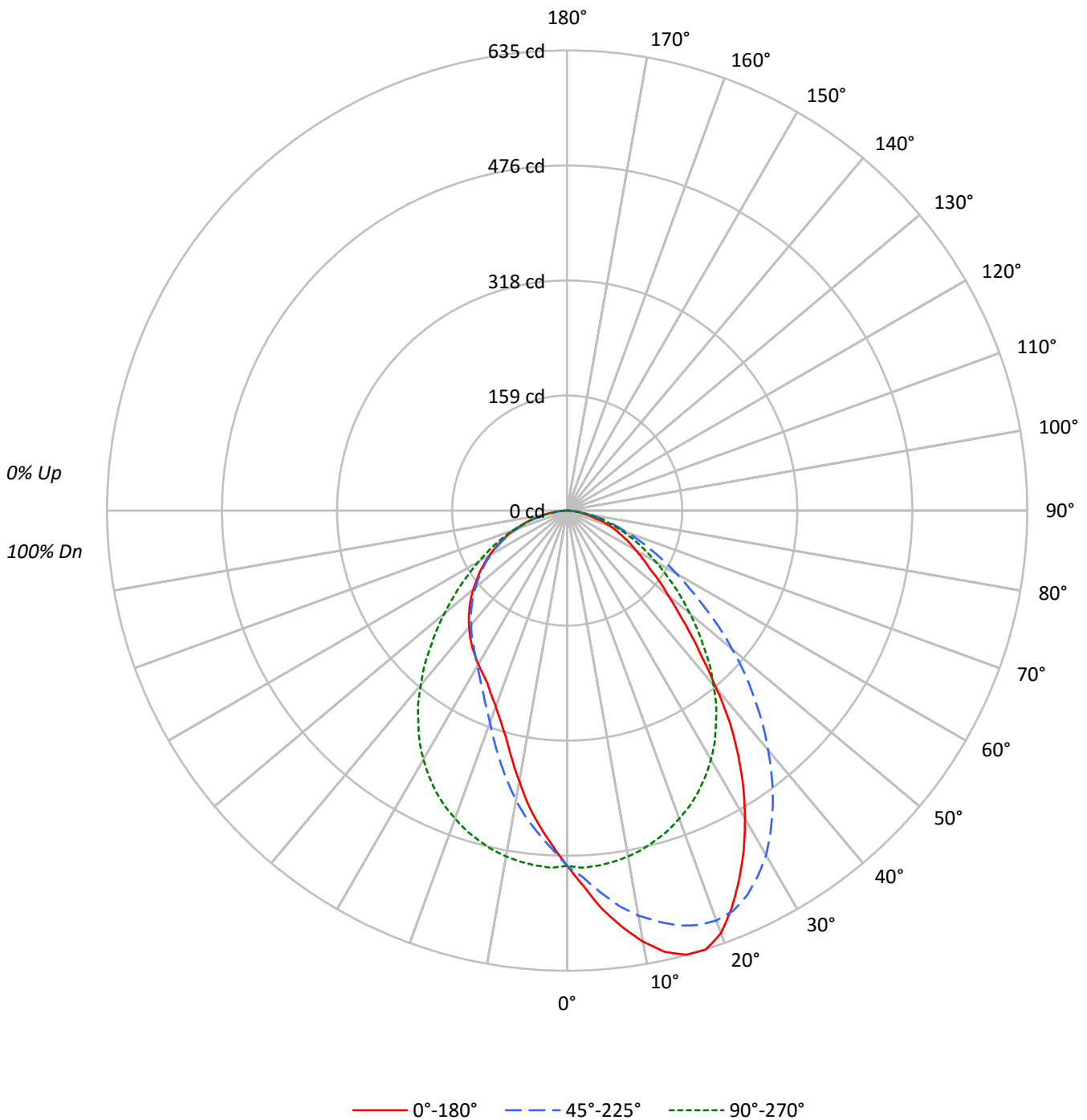
Input Watts (W): 11.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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					100			
1	110	105	102	98	107	103	100	96	99	96	93	95	93	91	92	90	88					86				
2	101	93	87	81	98	91	85	80	88	83	79	84	80	77	81	78	75					73				
3	92	83	75	69	90	81	74	68	78	72	67	75	70	66	73	69	65					63				
4	85	74	66	59	83	72	65	59	70	63	58	68	62	57	66	61	57					54				
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50					48				
6	73	60	52	46	71	59	51	45	57	50	45	56	49	45	54	49	44					42				
7	68	55	46	41	66	54	46	40	53	45	40	51	45	40	50	44	40					38				
8	63	50	42	37	62	50	42	36	48	41	36	47	41	36	46	40	36					34				
9	59	46	38	33	58	46	38	33	45	38	33	44	37	33	43	37	33					31				
10	56	43	35	30	54	42	35	30	41	35	30	41	34	30	40	34	30					28				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	14522	14522	14522
5°	16409	14625	12992
10°	18175	14580	11421
15°	19463	14454	9963
20°	19571	14265	9072
25°	18357	13999	8552
30°	16795	13576	8386
35°	14874	12953	8280
40°	12393	12149	8134
45°	10103	11180	7987
50°	8385	10187	7786
55°	7175	9236	7583
60°	6501	8362	7342
65°	6001	7607	7081
70°	5536	6853	6662
75°	4476	6079	6148
80°	3566	4914	5255
85°	2686	3638	4284



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	46.8	4.1
10°-20°	134.1	11.8
20°-30°	195.3	17.2
30°-40°	217.7	19.2
40°-50°	201.3	17.7
50°-60°	160.4	14.1
60°-70°	109.8	9.7
70°-80°	57.0	5.0
80°-90°	13.5	1.2
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°	376.3	33.1
0°-40°	594.0	52.3
0°-60°	955.7	84.1
0°-90°	1135.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1135.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	490	490	490	490	490	
5°	552	529	492	448	437	54
15°	634	593	471	358	325	178
25°	562	587	428	275	262	257
35°	411	495	358	225	229	255
45°	241	365	267	186	191	188
55°	139	230	179	143	147	127
65°	86	127	108	98	101	85
75°	39	57	53	50	54	43
85°	8	11	11	11	13	10
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°	490.1	490.1	490.1	490.1	490.1	490.1	490.1	490.1	490.1	490.1	490.1
2.5°	518.5	518.5	517.1	517.7	516.9	515.6	513.4	511.0	508.1	506.9	506.3
5°	551.7	552.5	551.5	549.5	549.1	547.5	542.8	540.0	533.7	528.8	527.2
7.5°	579.3	580.7	580.7	577.1	575.5	571.6	568.2	563.7	555.8	550.3	545.7
10°	604.1	604.7	602.6	600.6	597.4	594.3	588.6	582.8	574.4	567.6	560.1
12.5°	623.9	625.1	623.5	620.3	616.6	612.4	605.3	598.0	589.7	580.7	572.6
15°	634.5	636.3	636.5	633.9	631.2	626.2	621.1	613.2	604.1	592.9	579.7
17.5°	635.3	636.1	636.7	634.7	633.0	631.2	626.0	619.5	610.9	599.8	587.6
20°	620.7	622.5	624.5	622.7	623.5	623.5	621.3	618.0	610.9	602.0	590.1
22.5°	593.5	597.6	600.2	602.0	603.8	606.3	608.9	607.3	604.5	598.0	587.4
25°	561.5	564.9	569.8	571.4	572.8	580.3	584.8	588.0	588.0	586.6	579.5
27.5°	527.6	529.8	533.9	539.4	544.6	549.1	558.6	564.5	569.2	569.2	565.5
30°	490.9	494.1	499.0	502.7	509.0	518.3	526.2	533.3	544.2	548.9	548.1
32.5°	452.2	455.4	460.5	463.7	472.7	480.2	492.5	503.5	516.0	523.1	527.4
35°	411.2	411.4	420.1	425.2	433.1	442.4	457.4	469.8	483.4	495.2	504.5
37.5°	369.0	368.8	374.9	384.0	390.3	403.3	418.7	432.5	451.4	464.1	478.7
40°	320.4	324.6	329.7	338.0	348.8	364.2	378.8	396.8	415.7	431.5	447.1
42.5°	277.0	280.4	288.7	297.9	309.6	322.6	340.4	360.3	378.8	399.3	416.7
45°	241.1	242.9	247.8	255.3	267.5	282.3	300.9	322.0	343.9	364.8	384.2
47.5°	208.0	213.3	215.9	222.8	231.6	245.4	264.8	283.7	309.0	332.3	353.4
50°	181.9	182.9	187.4	192.6	203.0	213.3	227.9	247.4	270.9	297.1	318.6
52.5°	160.6	160.2	164.0	168.5	175.8	186.7	199.3	218.2	238.1	264.2	287.7
55°	138.9	140.9	142.7	147.2	153.7	162.0	172.6	188.6	207.4	230.5	255.1
57.5°	123.9	124.1	125.1	128.8	133.2	139.7	150.0	163.6	180.3	200.5	224.3
60°	109.7	109.9	111.7	112.9	115.8	121.3	129.2	140.5	155.3	174.6	195.5
62.5°	97.5	97.7	98.7	99.8	102.6	104.8	111.5	121.1	133.2	150.3	168.3
65°	85.6	85.8	85.8	87.4	89.2	91.2	95.9	102.0	113.6	127.3	143.2
67.5°	74.2	75.4	75.0	76.2	77.7	78.7	82.1	87.6	95.5	106.9	120.8
70°	63.9	63.7	64.3	64.9	65.5	67.1	69.3	73.0	79.7	87.8	100.0
72.5°	52.9	51.7	52.5	53.3	54.3	55.4	57.2	60.0	65.1	71.6	80.7
75°	39.1	38.5	39.7	39.9	41.6	43.2	45.2	47.9	51.7	57.2	63.1
77.5°	28.4	29.2	29.6	30.0	30.2	32.0	34.1	36.5	38.7	43.8	48.3
80°	20.9	20.9	21.1	21.5	21.9	22.3	23.7	25.3	27.0	30.2	34.7
82.5°	14.6	14.4	14.4	14.6	14.8	15.2	15.8	16.4	18.0	19.5	21.9
85°	7.9	8.1	8.3	7.9	8.1	8.3	8.7	9.3	9.7	10.9	11.8
87.5°	2.8	3.4	3.2	3.2	3.4	3.4	3.4	3.7	3.7	3.7	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):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	490.1	490.1	490.1	490.1	490.1	490.1	490.1	490.1	490.1	490.1	490.1
2.5°	505.7	505.1	503.5	500.4	498.2	494.2	493.5	493.3	489.7	484.4	484.0
5°	524.4	519.9	516.2	510.6	505.1	498.4	494.4	491.7	485.4	477.5	473.9
7.5°	541.6	535.1	527.4	518.7	510.6	501.2	494.2	488.7	479.5	469.4	463.3
10°	555.4	547.3	537.7	526.0	515.0	502.5	492.9	484.6	472.3	459.9	451.6
12.5°	564.9	555.8	544.8	531.1	517.7	503.5	489.5	479.1	463.7	449.3	438.6
15°	575.5	560.5	549.1	533.7	517.9	501.0	486.2	471.2	453.4	437.2	423.4
17.5°	578.1	564.3	550.7	533.7	517.3	496.6	479.5	462.9	443.1	423.2	409.8
20°	580.5	564.7	547.9	529.6	512.4	491.1	471.8	452.4	429.5	408.0	391.3
22.5°	578.7	563.3	544.6	523.8	505.3	483.4	462.5	441.2	415.5	393.0	374.1
25°	573.6	559.4	540.0	517.3	495.0	472.7	450.8	428.2	400.3	374.3	353.4
27.5°	563.1	550.5	531.9	507.9	484.4	459.7	436.8	413.2	383.4	356.7	334.4
30°	549.1	539.0	520.3	496.2	470.8	444.3	420.9	396.8	365.8	336.8	313.1
32.5°	529.8	522.7	506.5	483.0	455.6	427.6	403.5	379.0	345.9	318.3	294.2
35°	508.1	504.7	490.3	466.8	438.4	409.0	383.2	358.1	327.5	298.3	275.2
37.5°	482.6	485.0	472.0	448.7	419.3	389.3	362.1	337.8	306.8	278.8	256.1
40°	457.4	460.9	451.0	429.3	398.8	367.8	340.2	314.1	285.3	260.6	238.1
42.5°	429.3	436.4	428.7	407.6	377.8	345.1	316.3	292.0	264.6	241.9	222.2
45°	399.5	408.6	405.5	384.0	354.6	322.4	292.0	266.8	244.7	224.5	206.6
47.5°	369.4	379.8	378.4	360.5	332.3	299.3	269.3	244.5	224.1	208.0	193.0
50°	338.4	349.0	349.2	333.2	307.0	275.6	243.5	221.0	204.8	190.6	178.4
52.5°	308.2	318.8	319.0	306.6	280.4	249.8	220.2	199.7	185.9	174.8	164.6
55°	276.6	289.1	290.2	278.2	254.9	225.5	198.3	178.8	166.5	159.4	150.5
57.5°	244.7	258.1	260.4	250.8	228.3	200.9	178.0	159.2	149.4	144.4	137.7
60°	214.9	228.1	231.8	220.8	202.2	178.8	156.9	141.1	133.2	129.2	124.5
62.5°	187.4	200.7	202.6	193.2	174.8	155.1	138.5	124.1	117.6	114.6	110.9
65°	160.6	172.4	175.0	166.5	150.0	133.6	119.0	108.5	102.8	100.2	97.9
67.5°	135.9	147.0	148.8	141.1	127.3	113.3	102.6	93.5	89.6	86.2	85.2
70°	112.7	122.7	124.3	116.6	105.8	94.3	85.4	79.1	75.4	73.4	72.0
72.5°	91.2	99.0	100.4	95.7	87.2	77.1	70.2	64.9	62.5	60.8	60.2
75°	71.2	78.9	79.1	75.0	68.1	61.2	55.8	53.1	50.3	48.5	48.1
77.5°	54.7	59.0	59.6	57.4	50.7	46.4	42.2	40.3	39.3	37.5	37.5
80°	39.1	41.6	42.6	39.5	36.3	32.6	30.4	28.8	28.0	26.8	26.8
82.5°	24.3	26.4	27.6	25.3	23.7	21.7	20.1	19.1	18.5	18.0	17.8
85°	13.2	14.8	14.8	14.0	12.6	11.6	11.0	10.7	10.5	10.3	10.1
87.5°	4.7	5.9	5.3	5.5	4.9	4.7	4.5	4.5	4.7	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°	490.1	490.1	490.1	490.1	490.1	490.1	490.1	490.1	490.1	490.1	490.1
2.5°	481.4	480.4	477.5	474.7	472.5	467.8	466.8	467.2	467.2	467.4	465.2
5°	469.8	465.6	460.9	456.6	453.2	447.9	444.9	444.1	443.5	442.4	440.2
7.5°	456.6	451.8	445.1	441.2	434.1	428.2	424.0	421.2	419.5	416.9	413.4
10°	443.1	436.2	428.7	420.9	413.7	405.9	399.3	396.2	392.4	389.9	385.9
12.5°	429.7	420.1	409.8	400.7	391.1	381.8	375.1	370.7	364.0	360.3	356.1
15°	412.2	400.3	391.7	375.9	371.1	357.7	349.6	346.3	339.8	338.6	332.1
17.5°	395.6	382.0	369.2	355.9	343.3	334.0	327.1	322.8	317.7	314.5	310.2
20°	374.9	360.7	345.3	331.5	320.8	311.0	306.6	301.1	298.1	295.0	291.8
22.5°	355.1	337.8	322.4	311.2	300.3	292.2	287.5	283.7	281.2	278.0	275.8
25°	334.0	317.9	303.7	292.0	281.6	275.2	271.3	269.1	267.5	265.2	263.8
27.5°	313.9	297.5	283.5	274.6	266.2	260.6	258.7	256.7	254.7	253.9	253.7
30°	292.4	277.4	266.0	258.3	250.6	247.6	246.6	244.7	245.1	245.3	244.7
32.5°	274.3	259.7	251.0	244.5	238.5	236.4	236.2	235.4	235.6	236.6	236.2
35°	255.5	244.7	236.0	230.6	226.9	225.3	225.5	225.7	226.9	227.1	227.9
37.5°	239.5	229.1	223.3	218.2	216.4	216.4	216.6	216.8	217.8	219.0	219.4
40°	223.7	215.3	210.3	207.0	206.0	206.0	206.8	207.8	208.4	209.5	209.7
42.5°	209.5	202.4	198.7	195.3	195.7	196.7	196.9	197.5	199.1	199.3	199.7
45°	195.5	190.2	186.5	185.5	185.5	186.3	187.2	187.6	188.8	189.0	189.4
47.5°	183.5	178.0	175.2	174.2	174.8	175.8	177.2	177.8	178.8	178.6	179.5
50°	170.1	165.5	163.4	163.0	163.4	165.1	165.7	167.1	168.1	168.7	169.1
52.5°	157.3	153.7	152.7	152.5	153.3	154.5	155.3	156.7	157.8	157.8	157.6
55°	145.0	141.9	140.7	141.7	142.7	143.2	144.8	145.6	146.8	147.0	146.8
57.5°	132.6	129.8	129.4	129.8	131.8	133.0	134.0	134.0	134.6	134.8	135.4
60°	119.8	118.0	117.6	118.6	120.8	121.5	122.1	122.3	123.1	122.7	123.9
62.5°	107.7	106.0	106.7	107.7	108.5	109.7	110.1	111.1	110.9	111.3	111.9
65°	95.3	94.3	94.5	95.7	96.7	98.3	98.3	98.3	99.2	99.2	99.6
67.5°	83.3	82.7	83.5	84.4	84.6	85.6	85.4	86.6	87.4	87.8	88.2
70°	71.6	71.2	71.2	72.2	73.2	73.6	74.0	74.8	75.0	75.6	76.6
72.5°	60.6	59.4	59.6	61.0	61.0	61.8	62.7	62.7	63.9	64.1	65.1
75°	48.5	48.1	48.5	49.3	50.3	50.1	51.3	51.1	51.5	52.9	53.1
77.5°	37.9	37.3	38.3	38.7	38.9	39.1	39.5	40.4	41.2	41.8	42.0
80°	27.2	27.0	28.0	28.4	28.2	28.6	29.2	30.2	30.2	30.6	31.2
82.5°	18.3	18.0	18.5	19.1	19.5	19.7	19.7	20.1	20.3	20.7	20.7
85°	10.5	10.5	10.9	11.0	11.4	11.2	11.6	11.4	11.8	12.2	12.0
87.5°	4.5	4.5	4.5	4.5	4.7	4.7	4.9	4.9	4.7	4.9	4.5
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):**

	165°	170°	175°	180°
0°	490.1	490.1	490.1	490.1
2.5°	464.5	464.9	463.9	462.9
5°	440.0	438.6	437.2	436.8
7.5°	412.6	412.6	409.2	410.0
10°	383.2	382.0	379.4	379.6
12.5°	354.6	353.6	352.2	351.6
15°	328.7	329.3	330.3	324.8
17.5°	308.4	306.8	306.0	305.0
20°	290.2	289.4	287.9	287.7
22.5°	276.2	274.5	274.1	274.3
25°	262.8	262.8	262.8	261.6
27.5°	253.3	253.3	252.7	252.9
30°	245.1	245.4	244.9	245.1
32.5°	237.2	237.4	237.0	236.8
35°	228.3	228.9	228.7	228.9
37.5°	219.8	220.2	219.8	219.8
40°	210.1	211.1	210.9	210.3
42.5°	200.5	200.5	201.1	200.9
45°	190.4	190.0	190.0	190.6
47.5°	179.7	180.5	180.1	180.3
50°	169.9	169.7	169.1	168.9
52.5°	158.2	158.6	158.4	157.4
55°	147.0	147.0	146.8	146.8
57.5°	135.0	135.5	135.4	135.4
60°	123.5	123.9	124.1	123.9
62.5°	111.9	112.1	111.9	112.1
65°	100.6	100.6	100.4	101.0
67.5°	88.4	88.6	88.4	88.8
70°	76.8	77.1	77.3	76.9
72.5°	65.7	65.3	65.5	65.1
75°	53.5	53.7	53.5	53.7
77.5°	42.0	42.2	42.0	42.2
80°	31.0	31.0	31.2	30.8
82.5°	20.9	20.9	21.5	20.9
85°	12.2	12.2	11.8	12.6
87.5°	4.7	4.7	4.7	4.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)