

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: P242997

Luminaire Tested: **S121DR-H305D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242997
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-H305D935-X4F0-XX-UDD-A-W
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1037.7 lumens
Efficiency: N/A
Efficacy: 92.6 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

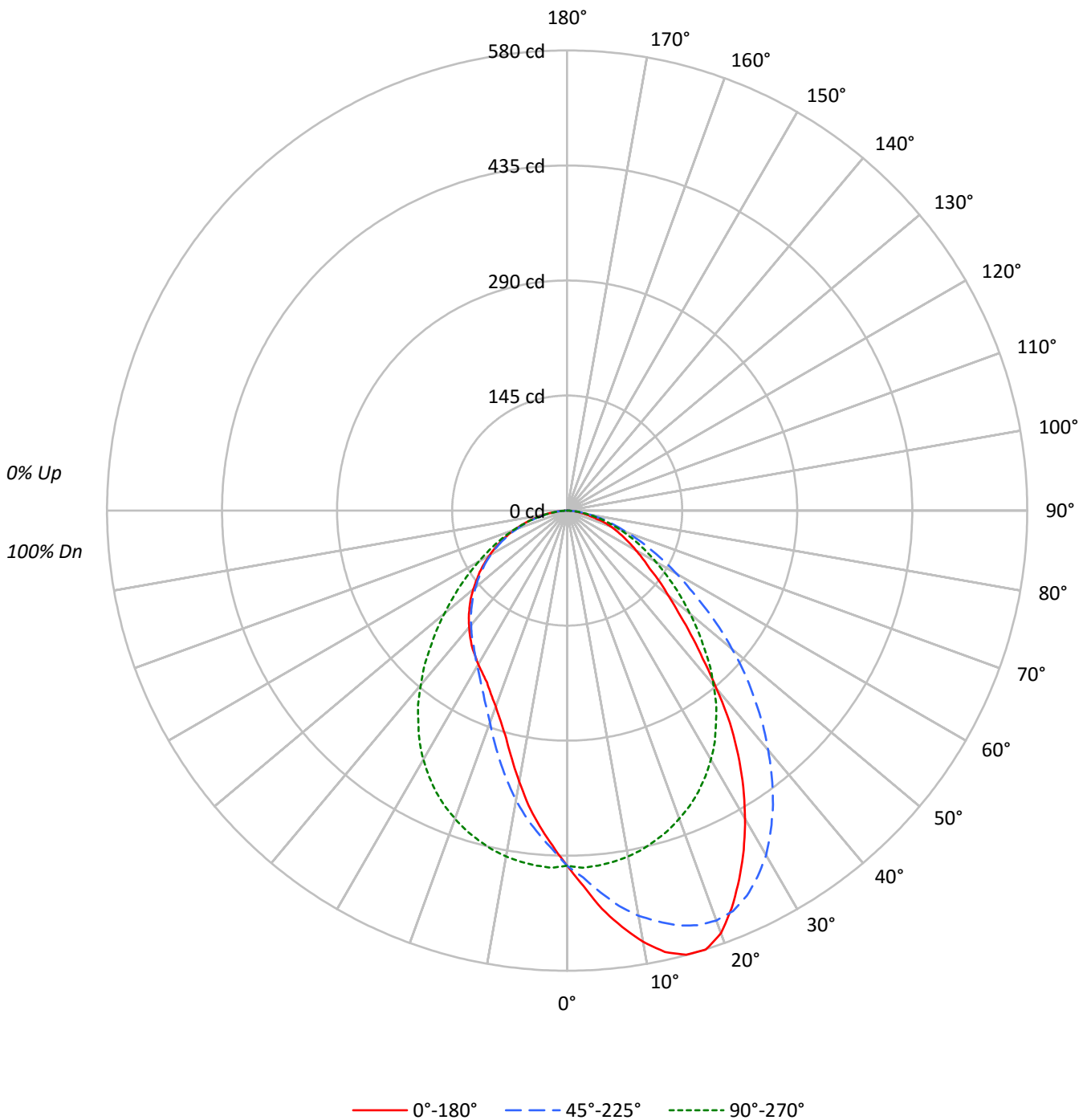
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	13265	13265	13265
5°	14987	13358	11867
10°	16605	13319	10434
15°	17779	13202	9101
20°	17878	13032	8286
25°	16771	12786	7814
30°	15341	12402	7660
35°	13586	11832	7563
40°	11321	11097	7430
45°	9227	10212	7295
50°	7661	9307	7113
55°	6555	8436	6927
60°	5938	7639	6708
65°	5483	6948	6471
70°	5059	6263	6090
75°	4087	5552	5610
80°	3259	4488	4795
85°	2448	3298	3910



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	42.8	4.1
10°-20°	122.5	11.8
20°-30°	178.4	17.2
30°-40°	198.9	19.2
40°-50°	183.9	17.7
50°-60°	146.5	14.1
60°-70°	100.3	9.7
70°-80°	52.1	5.0
80°-90°	12.3	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°	343.7	33.1
0°-40°	542.6	52.3
0°-60°	873.0	84.1
0°-90°	1037.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1037.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	448	448	448	448	448	
5°	504	483	449	409	399	49
15°	580	542	430	327	297	162
25°	513	536	391	251	239	235
35°	376	452	327	206	209	233
45°	220	333	244	170	174	172
55°	127	210	163	131	134	116
65°	78	116	99	90	92	78
75°	36	52	48	46	49	39
85°	7	10	10	10	12	9
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°	447.7	447.7	447.7	447.7	447.7	447.7	447.7	447.7	447.7	447.7	447.7
2.5°	473.7	473.7	472.4	472.9	472.2	471.0	469.0	466.8	464.1	463.0	462.5
5°	503.9	504.7	503.8	502.0	501.6	500.2	495.8	493.3	487.5	483.0	481.6
7.5°	529.2	530.4	530.4	527.2	525.7	522.1	519.1	514.9	507.7	502.7	498.5
10°	551.9	552.4	550.4	548.6	545.8	542.9	537.6	532.4	524.7	518.5	511.7
12.5°	569.9	571.0	569.5	566.7	563.2	559.5	553.0	546.3	538.7	530.4	523.0
15°	579.6	581.3	581.4	579.1	576.6	572.1	567.4	560.2	551.9	541.6	529.5
17.5°	580.4	581.1	581.6	579.8	578.2	576.6	571.9	565.9	558.0	547.9	536.7
20°	567.0	568.6	570.4	568.8	569.5	569.5	567.6	564.5	558.0	549.9	539.1
22.5°	542.1	545.9	548.3	549.9	551.5	553.9	556.2	554.8	552.2	546.3	536.6
25°	513.0	516.0	520.5	522.0	523.2	530.1	534.2	537.1	537.1	535.8	529.4
27.5°	482.0	483.9	487.7	492.8	497.5	501.6	510.2	515.7	520.0	520.0	516.6
30°	448.4	451.3	455.8	459.2	465.0	473.5	480.7	487.2	497.1	501.4	500.7
32.5°	413.1	416.0	420.7	423.6	431.8	438.7	449.9	460.0	471.3	477.8	481.8
35°	375.6	375.8	383.7	388.4	395.6	404.1	417.8	429.1	441.6	452.4	460.9
37.5°	337.0	336.9	342.4	350.7	356.5	368.4	382.5	395.1	412.4	423.9	437.3
40°	292.7	296.5	301.2	308.7	318.7	332.7	346.1	362.5	379.8	394.2	408.4
42.5°	253.1	256.1	263.7	272.2	282.8	294.7	310.9	329.1	346.1	364.8	380.7
45°	220.2	221.9	226.4	233.2	244.4	257.9	274.9	294.1	314.2	333.3	350.9
47.5°	190.0	194.8	197.2	203.5	211.6	224.2	241.9	259.2	282.2	303.5	322.8
50°	166.2	167.1	171.2	175.9	185.5	194.8	208.2	226.0	247.5	271.4	291.1
52.5°	146.7	146.4	149.8	153.9	160.6	170.5	182.0	199.3	217.5	241.3	262.8
55°	126.9	128.7	130.3	134.5	140.4	148.0	157.7	172.3	189.4	210.5	233.0
57.5°	113.2	113.4	114.3	117.7	121.7	127.6	137.0	149.4	164.7	183.1	204.9
60°	100.2	100.4	102.0	103.1	105.8	110.8	118.1	128.3	141.8	159.5	178.6
62.5°	89.0	89.2	90.1	91.2	93.7	95.7	101.8	110.7	121.7	137.3	153.7
65°	78.2	78.4	78.4	79.8	81.5	83.3	87.6	93.2	103.8	116.3	130.9
67.5°	67.8	68.9	68.5	69.6	71.0	71.9	75.0	80.0	87.2	97.7	110.3
70°	58.4	58.2	58.8	59.3	59.8	61.3	63.3	66.7	72.8	80.2	91.4
72.5°	48.3	47.2	47.9	48.7	49.6	50.6	52.3	54.8	59.5	65.4	73.7
75°	35.7	35.1	36.2	36.4	38.0	39.5	41.3	43.8	47.2	52.3	57.7
77.5°	26.0	26.7	27.0	27.4	27.6	29.2	31.2	33.3	35.3	40.0	44.2
80°	19.1	19.1	19.3	19.6	20.0	20.4	21.6	23.1	24.7	27.6	31.7
82.5°	13.3	13.2	13.2	13.3	13.5	13.9	14.4	15.0	16.4	17.8	20.0
85°	7.2	7.4	7.6	7.2	7.4	7.6	7.9	8.5	8.8	9.9	10.8
87.5°	2.5	3.1	2.9	2.9	3.1	3.1	3.1	3.4	3.4	3.4	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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	447.7	447.7	447.7	447.7	447.7	447.7	447.7	447.7	447.7	447.7	447.7
2.5°	461.9	461.4	460.0	457.1	455.1	451.5	450.8	450.6	447.3	442.5	442.1
5°	479.1	474.9	471.5	466.5	461.4	455.3	451.7	449.1	443.4	436.2	432.9
7.5°	494.7	488.8	481.8	473.8	466.5	457.8	451.5	446.4	438.0	428.8	423.2
10°	507.4	500.0	491.1	480.5	470.4	459.1	450.2	442.7	431.5	420.1	412.6
12.5°	516.0	507.7	497.6	485.2	472.9	460.0	447.2	437.6	423.6	410.4	400.7
15°	525.7	512.0	501.6	487.5	473.1	457.6	444.1	430.4	414.2	399.4	386.8
17.5°	528.1	515.5	503.0	487.5	472.6	453.7	438.0	422.8	404.8	386.6	374.3
20°	530.3	515.8	500.5	483.8	468.1	448.6	430.9	413.3	392.4	372.7	357.4
22.5°	528.6	514.6	497.5	478.5	461.6	441.6	422.5	403.0	379.6	359.0	341.7
25°	523.9	511.0	493.3	472.6	452.2	431.8	411.8	391.1	365.7	341.9	322.8
27.5°	514.4	502.9	485.9	463.9	442.5	419.9	399.0	377.4	350.2	325.9	305.5
30°	501.6	492.4	475.3	453.3	430.0	405.9	384.4	362.5	334.2	307.7	286.0
32.5°	483.9	477.4	462.7	441.2	416.2	390.6	368.6	346.2	316.0	290.7	268.7
35°	464.1	461.0	447.9	426.4	400.5	373.6	350.0	327.1	299.2	272.5	251.4
37.5°	440.9	443.0	431.1	409.9	383.0	355.6	330.7	308.6	280.3	254.7	233.9
40°	417.8	421.0	412.0	392.2	364.3	336.0	310.7	286.9	260.6	238.1	217.5
42.5°	392.2	398.7	391.7	372.4	345.2	315.2	288.9	266.7	241.7	221.0	202.9
45°	365.0	373.3	370.4	350.7	323.9	294.5	266.7	243.7	223.5	205.1	188.7
47.5°	337.4	347.0	345.7	329.3	303.5	273.4	246.0	223.3	204.7	190.0	176.3
50°	309.1	318.8	319.0	304.4	280.4	251.8	222.4	201.9	187.1	174.1	162.9
52.5°	281.5	291.3	291.4	280.1	256.1	228.2	201.1	182.4	169.8	159.7	150.3
55°	252.7	264.0	265.1	254.1	232.9	206.0	181.1	163.3	152.1	145.6	137.5
57.5°	223.5	235.7	237.9	229.1	208.5	183.5	162.6	145.5	136.4	131.9	125.8
60°	196.3	208.4	211.8	201.7	184.7	163.3	143.3	128.9	121.7	118.1	113.7
62.5°	171.2	183.3	185.1	176.5	159.7	141.7	126.5	113.4	107.4	104.7	101.3
65°	146.7	157.5	159.9	152.1	137.0	122.0	108.7	99.1	93.9	91.6	89.4
67.5°	124.2	134.3	135.9	128.9	116.3	103.5	93.7	85.4	81.8	78.8	77.9
70°	102.9	112.1	113.5	106.5	96.6	86.2	78.0	72.3	68.9	67.0	65.8
72.5°	83.3	90.5	91.7	87.4	79.7	70.5	64.2	59.3	57.1	55.5	55.0
75°	65.1	72.1	72.3	68.5	62.2	55.9	51.0	48.5	46.0	44.3	44.0
77.5°	49.9	53.9	54.4	52.4	46.3	42.4	38.6	36.8	35.9	34.2	34.2
80°	35.7	38.0	38.9	36.0	33.2	29.7	27.8	26.3	25.6	24.5	24.5
82.5°	22.2	24.2	25.2	23.1	21.6	19.8	18.4	17.5	16.9	16.4	16.2
85°	12.1	13.5	13.5	12.8	11.5	10.6	10.1	9.7	9.6	9.4	9.2
87.5°	4.3	5.4	4.9	5.0	4.5	4.3	4.1	4.1	4.3	4.0	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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	447.7	447.7	447.7	447.7	447.7	447.7	447.7	447.7	447.7	447.7	447.7
2.5°	439.8	438.9	436.2	433.6	431.7	427.3	426.4	426.8	426.8	427.0	425.0
5°	429.1	425.4	421.0	417.1	414.0	409.1	406.4	405.7	405.2	404.1	402.1
7.5°	417.1	412.7	406.6	403.0	396.5	391.1	387.3	384.8	383.2	380.8	377.6
10°	404.8	398.5	391.7	384.4	378.0	370.7	364.8	361.9	358.5	356.1	352.5
12.5°	392.6	383.7	374.3	366.1	357.2	348.8	342.6	338.7	332.5	329.1	325.3
15°	376.5	365.7	357.8	343.3	339.0	326.8	319.4	316.3	310.4	309.3	303.3
17.5°	361.4	348.9	337.2	325.1	313.6	305.1	298.8	294.9	290.2	287.3	283.3
20°	342.4	329.5	315.4	302.8	293.1	284.1	280.1	275.0	272.3	269.5	266.6
22.5°	324.4	308.6	294.5	284.2	274.3	266.9	262.6	259.2	256.8	254.0	252.0
25°	305.1	290.4	277.4	266.7	257.2	251.4	247.8	245.8	244.4	242.2	241.0
27.5°	286.8	271.8	259.0	250.9	243.1	238.1	236.3	234.5	232.7	232.0	231.8
30°	267.1	253.4	243.0	235.9	228.9	226.2	225.3	223.5	223.9	224.0	223.5
32.5°	250.5	237.2	229.3	223.3	217.9	215.9	215.7	215.0	215.2	216.1	215.7
35°	233.4	223.5	215.6	210.7	207.3	205.8	206.0	206.2	207.3	207.5	208.2
37.5°	218.8	209.3	204.0	199.3	197.7	197.7	197.9	198.1	199.0	200.1	200.4
40°	204.4	196.6	192.1	189.1	188.2	188.2	188.9	189.8	190.3	191.4	191.6
42.5°	191.4	184.9	181.5	178.4	178.8	179.7	179.9	180.4	181.9	182.0	182.4
45°	178.6	173.7	170.3	169.4	169.4	170.1	171.0	171.4	172.5	172.7	173.0
47.5°	167.6	162.6	160.0	159.1	159.7	160.6	161.9	162.4	163.3	163.1	164.0
50°	155.4	151.2	149.2	148.9	149.2	150.9	151.4	152.7	153.6	154.1	154.5
52.5°	143.6	140.4	139.5	139.3	140.0	141.1	141.8	143.1	144.2	144.2	144.0
55°	132.5	129.6	128.5	129.4	130.3	130.9	132.3	133.0	134.1	134.3	134.1
57.5°	121.1	118.6	118.2	118.6	120.4	121.5	122.4	122.4	122.9	123.1	123.6
60°	109.4	107.8	107.4	108.3	110.3	111.0	111.6	111.7	112.5	112.1	113.2
62.5°	98.4	96.8	97.5	98.4	99.1	100.2	100.6	101.5	101.3	101.7	102.2
65°	87.1	86.2	86.3	87.4	88.3	89.8	89.8	89.8	90.7	90.7	91.0
67.5°	76.1	75.5	76.2	77.1	77.3	78.2	78.0	79.1	79.8	80.2	80.6
70°	65.4	65.1	65.1	66.0	66.9	67.2	67.6	68.3	68.5	69.0	69.9
72.5°	55.3	54.3	54.4	55.7	55.7	56.4	57.3	57.3	58.4	58.6	59.5
75°	44.3	44.0	44.3	45.1	46.0	45.8	46.9	46.7	47.0	48.3	48.5
77.5°	34.6	34.1	35.0	35.3	35.5	35.7	36.0	36.9	37.7	38.2	38.4
80°	24.9	24.7	25.6	26.0	25.8	26.1	26.7	27.6	27.6	27.9	28.5
82.5°	16.8	16.4	16.9	17.5	17.8	18.0	18.0	18.4	18.6	18.9	18.9
85°	9.6	9.6	9.9	10.1	10.5	10.3	10.6	10.5	10.8	11.2	11.0
87.5°	4.1	4.1	4.1	4.1	4.3	4.3	4.5	4.5	4.3	4.5	4.1
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°	447.7	447.7	447.7	447.7
2.5°	424.3	424.6	423.7	422.8
5°	401.9	400.7	399.4	399.0
7.5°	376.9	376.9	373.8	374.5
10°	350.0	348.9	346.6	346.8
12.5°	323.9	323.0	321.7	321.2
15°	300.3	300.8	301.7	296.7
17.5°	281.7	280.3	279.5	278.6
20°	265.1	264.4	263.0	262.8
22.5°	252.3	250.7	250.3	250.5
25°	240.1	240.1	240.1	239.0
27.5°	231.4	231.4	230.9	231.1
30°	223.9	224.2	223.7	223.9
32.5°	216.6	216.8	216.5	216.3
35°	208.5	209.1	208.9	209.1
37.5°	200.8	201.1	200.8	200.8
40°	192.0	192.9	192.7	192.1
42.5°	183.1	183.1	183.7	183.5
45°	173.9	173.6	173.6	174.1
47.5°	164.2	164.9	164.6	164.7
50°	155.2	155.0	154.5	154.3
52.5°	144.5	144.9	144.7	143.8
55°	134.3	134.3	134.1	134.1
57.5°	123.3	123.8	123.6	123.6
60°	112.8	113.2	113.4	113.2
62.5°	102.2	102.4	102.2	102.4
65°	91.9	91.9	91.7	92.3
67.5°	80.7	80.9	80.7	81.1
70°	70.1	70.5	70.7	70.3
72.5°	60.0	59.7	59.8	59.5
75°	48.8	49.0	48.8	49.0
77.5°	38.4	38.6	38.4	38.6
80°	28.3	28.3	28.5	28.1
82.5°	19.1	19.1	19.6	19.1
85°	11.2	11.2	10.8	11.5
87.5°	4.3	4.3	4.3	4.3
90°	0.0	0.0	0.0	0.0

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