

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: P242142

Luminaire Tested: **S121DR-S305D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242142
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-18)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121DR-S305D940-X4F0-XX-UDD-A-W
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1114.9 lumens
Efficiency: N/A
Efficacy: 96.1 lumens/watt
Spacing Criteria (0/90/45): 1.27 / 1.22 / 1.37
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

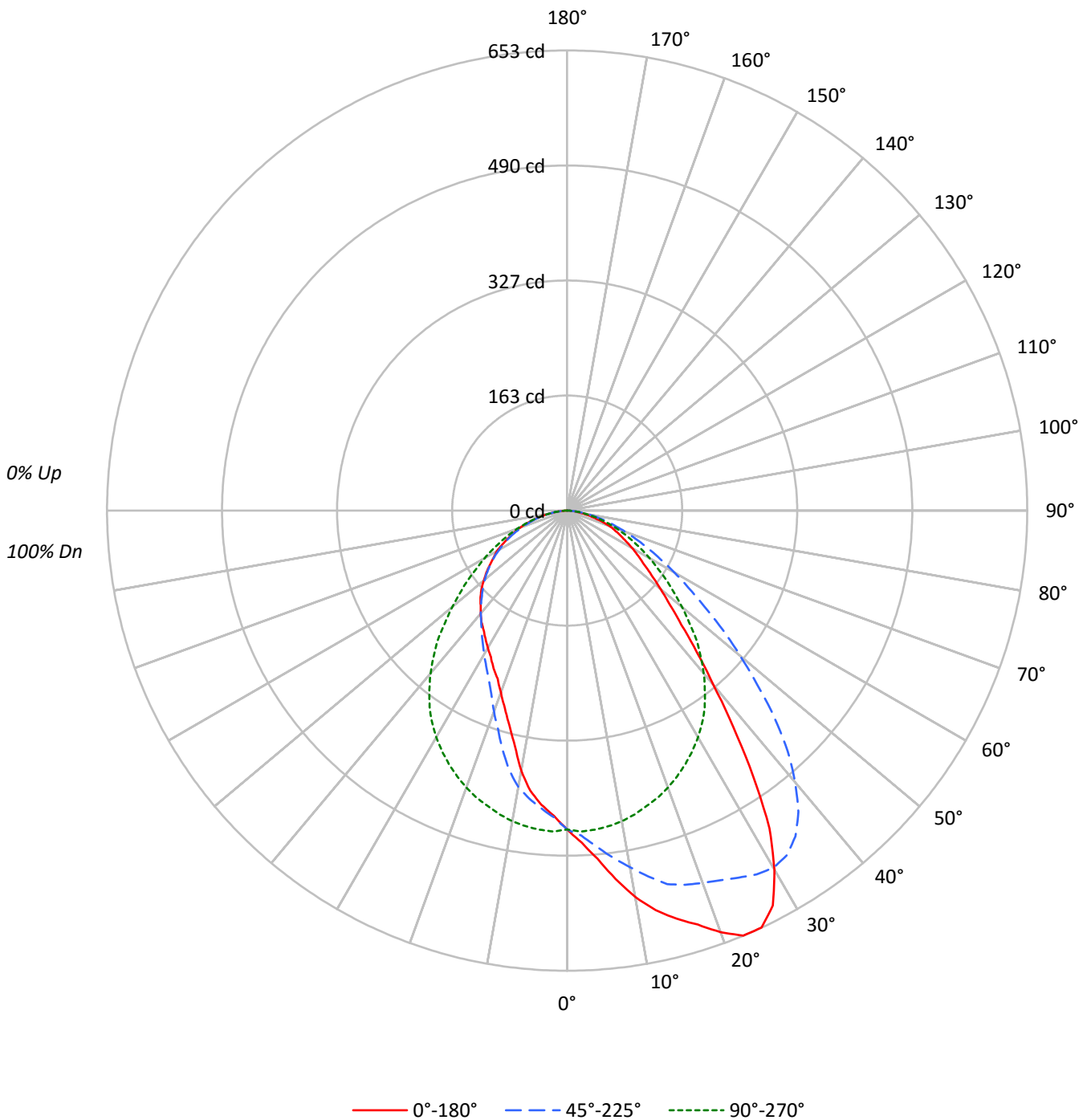
Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	110	105	102	98	107	103	100	96	99	96	93	95	93	91	92	90	88	86
2	101	93	87	82	98	91	85	81	88	83	79	85	80	77	82	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	73	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	52	45	40	51	45	40	50	44	40	38
8	63	50	42	36	62	50	42	36	48	41	36	47	41	36	46	40	36	34
9	59	46	38	33	58	46	38	33	44	38	33	43	37	33	42	37	32	31
10	56	43	35	30	54	42	35	30	41	34	30	40	34	30	39	34	30	28

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	13404	13404	13404
5°	14752	13515	12459
10°	16752	13467	11271
15°	18393	13316	9687
20°	20073	13186	8668
25°	21345	12976	8072
30°	20128	12707	7698
35°	16632	12309	7477
40°	12470	11669	7380
45°	9608	10882	7291
50°	7970	9791	7126
55°	6881	8890	6917
60°	6323	8018	6827
65°	5840	7249	6443
70°	5536	6506	6177
75°	4545	5747	5484
80°	3583	4675	4522
85°	2788	3434	3060



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	43.5	3.9
10°-20°	126.9	11.4
20°-30°	194.3	17.4
30°-40°	221.7	19.9
40°-50°	198.9	17.8
50°-60°	156.1	14.0
60°-70°	106.2	9.5
70°-80°	54.7	4.9
80°-90°	12.6	1.1
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°	364.7	32.7
0°-40°	586.4	52.6
0°-60°	941.4	84.4
0°-90°	1114.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1114.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	452	452	452	452	452	
5°	496	478	454	424	419	49
15°	600	549	434	353	316	171
25°	653	575	397	263	247	294
35°	460	565	340	211	207	285
45°	229	417	260	171	174	182
55°	133	238	172	132	134	121
65°	83	126	103	90	92	83
75°	40	56	50	46	48	43
85°	8	11	10	10	9	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°	452.4	452.4	452.4	452.4	452.4	452.4	452.4	452.4	452.4	452.4	452.4
2.5°	471.5	471.5	472.3	472.1	471.3	470.0	468.8	467.4	463.9	461.6	463.7
5°	496.0	497.0	498.0	497.8	494.9	492.3	488.6	487.7	481.4	478.5	477.5
7.5°	527.2	527.0	527.4	524.1	521.5	519.0	514.1	508.1	500.7	496.6	492.7
10°	556.8	558.5	557.7	553.7	549.8	547.0	539.3	531.9	522.7	513.9	509.1
12.5°	580.9	579.9	583.3	579.4	574.7	569.6	562.0	555.4	543.5	531.7	521.7
15°	599.6	598.6	599.0	596.1	591.2	586.8	579.0	572.0	560.7	548.8	538.3
17.5°	616.0	616.9	615.2	611.7	605.1	599.8	590.1	580.5	568.7	556.8	546.5
20°	636.6	637.6	634.3	629.2	622.8	613.8	603.7	590.1	576.8	562.2	549.4
22.5°	652.9	652.4	651.2	646.3	639.5	631.1	616.5	601.6	585.8	567.7	551.1
25°	652.9	653.7	654.3	651.8	647.3	640.3	630.4	614.6	596.9	574.7	551.5
27.5°	631.9	635.4	638.0	638.0	637.0	636.8	630.9	621.0	604.5	582.1	556.4
30°	588.3	593.0	596.9	602.9	610.1	614.8	616.5	612.6	604.1	585.2	558.5
32.5°	534.6	534.2	542.2	551.9	566.1	576.0	586.0	591.8	591.4	580.1	557.9
35°	459.8	465.3	474.8	488.4	506.7	523.1	544.7	556.0	565.0	564.6	550.4
37.5°	387.0	387.8	398.5	417.2	433.4	458.7	486.9	510.4	532.1	539.1	534.4
40°	322.4	327.8	335.0	350.6	366.8	389.0	424.8	456.3	483.0	503.6	509.3
42.5°	272.5	275.5	282.5	296.1	310.5	337.0	363.3	396.9	430.6	463.5	480.5
45°	229.3	232.1	238.5	248.0	261.5	282.3	309.3	342.0	378.1	416.6	440.7
47.5°	197.8	198.8	203.6	210.8	223.5	238.7	260.5	292.2	328.6	366.2	401.6
50°	172.9	174.4	177.7	183.4	192.7	206.9	224.3	248.2	281.9	320.8	356.8
52.5°	151.1	152.2	156.1	159.2	166.4	178.5	193.5	215.3	243.7	278.8	316.0
55°	133.2	134.3	136.3	139.8	145.4	153.6	166.4	183.8	208.1	237.7	272.5
57.5°	119.5	120.1	120.5	122.8	127.3	133.9	144.8	158.5	177.4	204.4	235.4
60°	106.7	106.5	108.0	109.8	112.5	116.6	124.6	136.9	153.8	175.8	204.6
62.5°	93.8	94.8	95.8	97.1	98.9	101.2	107.7	116.8	130.2	149.1	172.9
65°	83.3	83.5	84.3	84.5	86.6	89.0	93.8	100.1	111.2	126.5	146.2
67.5°	73.2	73.4	73.2	73.8	74.8	76.7	79.2	84.3	92.9	105.3	122.5
70°	63.9	63.3	62.5	63.5	64.4	65.4	67.2	71.1	77.5	86.8	101.0
72.5°	51.4	51.8	52.2	52.6	52.8	54.1	55.7	58.4	63.5	70.7	81.6
75°	39.7	39.7	40.3	40.7	42.4	42.8	44.6	46.5	50.6	55.7	64.2
77.5°	29.2	29.0	30.0	30.2	31.1	32.3	33.3	35.2	38.4	42.6	48.3
80°	21.0	21.2	21.0	21.0	21.6	22.4	23.8	24.7	26.9	29.6	33.7
82.5°	14.0	14.0	14.2	14.2	14.8	14.8	15.6	16.4	17.7	19.5	22.4
85°	8.2	8.2	8.0	8.0	8.2	8.2	9.0	9.5	9.7	10.9	11.9
87.5°	3.5	3.5	3.3	3.5	3.3	3.5	3.3	3.7	3.9	4.1	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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	452.4	452.4	452.4	452.4	452.4	452.4	452.4	452.4	452.4	452.4	452.4
2.5°	463.1	462.6	462.4	460.2	458.1	455.5	455.2	455.9	452.6	448.5	448.3
5°	475.2	473.1	470.0	465.9	462.4	457.7	455.3	454.4	449.3	443.5	442.3
7.5°	488.6	483.4	477.7	471.5	465.3	458.5	454.2	451.7	444.6	437.4	434.5
10°	501.5	494.7	486.1	476.6	467.8	458.5	452.0	447.6	439.0	430.0	425.6
12.5°	516.3	505.0	492.9	481.0	470.3	458.3	448.5	441.7	431.8	422.3	415.6
15°	527.0	510.6	501.3	484.4	470.9	456.3	444.4	434.1	423.2	412.7	406.1
17.5°	535.4	522.5	506.2	487.5	469.4	453.6	438.8	427.3	412.9	401.4	394.2
20°	538.1	525.0	508.3	487.9	469.8	449.5	432.0	418.2	402.8	388.8	378.8
22.5°	537.1	522.3	505.2	485.1	466.8	442.9	424.6	408.0	390.9	375.9	362.3
25°	535.0	517.8	499.0	480.1	459.6	436.1	415.1	396.9	376.3	360.0	343.6
27.5°	533.8	511.4	490.2	469.8	450.3	427.5	404.9	384.7	361.9	342.0	321.0
30°	533.4	506.7	480.1	456.3	438.4	415.2	392.9	371.4	344.8	322.4	301.0
32.5°	532.6	502.9	471.5	443.1	422.6	401.8	378.1	356.8	326.7	303.3	280.3
35°	527.4	496.0	461.6	429.3	405.3	383.7	362.5	340.3	309.0	283.8	261.8
37.5°	516.1	488.6	451.8	415.4	386.8	364.8	345.2	321.0	290.7	263.2	242.8
40°	499.3	477.0	441.3	401.8	368.1	344.0	323.2	301.7	270.4	244.1	225.6
42.5°	477.5	460.2	426.7	385.8	350.0	323.0	301.7	280.5	251.7	226.4	209.9
45°	448.9	438.2	408.8	368.5	332.5	301.2	278.2	259.7	233.0	209.9	194.7
47.5°	417.2	412.5	388.0	349.3	311.3	280.9	254.1	234.6	213.8	194.1	180.7
50°	378.8	382.5	363.3	327.6	290.8	259.7	233.4	212.4	194.3	179.1	167.2
52.5°	343.0	351.8	336.2	302.3	269.4	237.1	210.6	191.4	177.2	164.7	154.4
55°	303.1	315.8	306.4	277.2	244.5	215.9	189.4	172.1	159.8	150.3	141.5
57.5°	264.8	282.7	275.9	249.6	221.7	193.9	169.0	151.8	143.1	136.1	128.7
60°	230.7	247.0	246.1	223.7	195.8	171.1	150.7	135.3	127.5	122.8	116.4
62.5°	200.1	216.7	215.1	194.9	172.9	149.9	132.6	118.6	112.9	107.9	103.8
65°	169.0	183.2	184.0	169.0	147.8	129.3	114.5	103.4	98.3	95.2	92.3
67.5°	140.8	154.6	155.9	144.1	125.4	109.4	98.3	89.0	84.5	81.8	79.6
70°	116.0	127.3	129.8	119.9	104.2	91.7	82.3	75.1	72.2	69.5	68.7
72.5°	94.0	103.2	104.9	95.8	84.1	74.8	67.6	62.1	60.0	57.2	56.7
75°	74.8	81.2	81.4	75.3	66.6	59.4	53.5	50.2	47.9	45.9	45.6
77.5°	54.3	60.0	61.7	57.2	50.0	44.0	40.7	38.2	36.6	35.6	35.4
80°	39.3	43.0	43.8	39.9	35.6	31.9	29.6	27.4	26.5	25.5	25.1
82.5°	24.5	27.8	28.0	25.3	23.2	20.6	18.7	17.9	17.3	16.7	16.7
85°	13.2	15.0	14.8	13.6	12.7	11.3	10.5	10.1	9.7	9.3	9.3
87.5°	5.1	5.6	5.6	5.8	5.1	4.5	4.1	4.3	4.1	4.1	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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	452.4	452.4	452.4	452.4	452.4	452.4	452.4	452.4	452.4	452.4	452.4
2.5°	447.0	446.2	444.3	441.1	439.4	435.5	435.7	436.5	436.7	436.1	435.9
5°	439.0	436.7	433.5	429.7	426.9	424.0	422.1	423.2	422.6	422.4	421.5
7.5°	430.2	427.1	423.2	419.3	416.2	412.3	410.8	409.4	407.8	407.7	406.9
10°	421.5	417.6	413.1	407.5	403.2	398.3	393.6	391.1	388.2	386.0	381.6
12.5°	411.2	404.5	399.5	393.6	385.8	378.1	372.8	365.6	361.7	357.8	352.6
15°	399.3	390.7	382.0	370.3	363.5	352.6	344.8	339.5	333.5	329.6	325.1
17.5°	382.3	373.4	362.3	349.1	337.0	325.9	320.2	313.4	310.9	302.3	301.6
20°	365.6	352.2	338.3	324.9	311.5	303.5	296.3	291.8	287.1	281.7	279.9
22.5°	346.7	329.2	314.6	302.1	289.9	281.1	277.6	272.5	268.1	265.0	262.0
25°	323.7	307.6	292.8	281.1	270.0	263.4	258.9	255.2	253.3	249.8	248.6
27.5°	302.5	286.4	274.5	263.6	254.6	248.8	244.9	241.6	239.1	238.5	237.1
30°	280.9	267.1	255.8	246.5	238.5	235.4	231.7	230.1	228.6	227.8	226.2
32.5°	261.5	249.2	239.3	230.3	225.6	222.7	220.8	219.2	218.0	217.6	217.3
35°	243.7	232.4	224.3	217.8	214.3	211.2	210.3	208.9	208.3	208.1	207.9
37.5°	228.2	217.6	211.4	205.8	203.2	200.3	200.5	199.9	199.5	198.4	199.2
40°	212.4	204.2	197.8	193.3	191.6	190.6	190.2	189.8	190.0	190.0	189.8
42.5°	198.0	190.8	186.7	182.4	181.6	180.9	180.9	180.3	180.5	181.4	181.8
45°	184.9	179.3	175.6	172.1	172.1	171.1	171.9	171.7	172.3	172.9	173.3
47.5°	171.9	166.8	164.1	162.4	161.6	161.6	162.2	163.1	163.5	163.7	164.1
50°	158.9	155.2	152.8	151.8	151.7	152.6	153.2	153.0	153.6	154.4	155.0
52.5°	147.4	144.1	142.5	142.1	142.1	142.9	143.1	143.7	144.1	144.1	144.8
55°	135.5	133.2	132.0	131.8	132.0	132.4	133.2	133.5	133.4	133.7	133.7
57.5°	123.6	121.9	121.3	121.9	121.9	122.6	122.6	122.6	122.5	123.2	123.0
60°	112.5	110.6	111.2	111.0	111.5	111.5	112.1	112.1	111.5	112.3	112.7
62.5°	101.4	101.0	100.3	100.3	100.8	101.0	100.5	101.0	101.2	101.8	102.2
65°	89.7	88.4	89.0	88.8	89.4	90.3	89.6	89.6	90.1	90.9	91.3
67.5°	78.6	77.5	78.1	78.3	78.3	78.6	78.1	78.5	79.2	80.2	80.8
70°	67.4	67.0	67.2	67.0	67.0	67.9	68.1	67.9	68.7	69.7	69.9
72.5°	55.9	56.3	55.9	56.3	56.7	56.1	56.3	56.8	57.6	58.2	59.2
75°	45.4	44.8	45.0	45.9	45.7	46.1	45.9	46.5	47.9	47.5	47.7
77.5°	35.0	34.8	35.0	35.2	35.4	36.0	35.8	36.8	37.0	37.2	37.6
80°	24.9	25.1	25.3	25.7	26.3	26.1	26.5	26.7	27.4	26.7	27.3
82.5°	16.9	16.7	17.1	17.1	17.7	18.1	17.5	17.5	17.5	17.3	17.3
85°	9.3	9.9	9.9	9.9	9.5	9.5	9.7	9.5	9.5	9.5	9.3
87.5°	4.1	4.1	3.9	3.7	3.9	3.7	3.7	3.5	3.3	3.3	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):

	165°	170°	175°	180°
0°	452.4	452.4	452.4	452.4
2.5°	434.7	435.7	434.5	433.7
5°	420.5	420.5	419.3	418.9
7.5°	404.5	404.7	402.6	401.0
10°	380.6	379.4	376.3	374.6
12.5°	348.7	350.4	345.7	342.2
15°	320.8	316.0	317.9	315.8
17.5°	297.5	295.9	293.8	294.0
20°	277.0	275.9	274.7	274.9
22.5°	260.9	259.9	259.5	258.1
25°	247.4	247.8	246.9	246.9
27.5°	236.3	235.8	235.2	234.4
30°	225.8	226.0	225.4	225.0
32.5°	216.5	216.7	216.3	215.7
35°	207.3	207.1	207.3	206.7
37.5°	199.0	198.8	199.0	199.7
40°	190.4	190.6	190.0	190.8
42.5°	182.0	182.2	182.2	181.8
45°	172.9	173.5	173.7	174.0
47.5°	163.9	164.9	164.5	164.7
50°	155.0	154.8	154.8	154.6
52.5°	145.0	144.5	144.3	144.5
55°	133.2	133.9	133.9	133.9
57.5°	123.4	123.6	124.2	123.4
60°	113.5	113.5	113.7	115.2
62.5°	102.4	102.6	103.0	103.2
65°	91.7	92.3	92.1	91.9
67.5°	81.2	81.2	81.4	81.0
70°	70.3	70.3	70.3	71.3
72.5°	59.0	59.0	59.2	59.6
75°	48.5	48.5	48.5	47.9
77.5°	37.0	37.2	37.2	37.4
80°	26.9	26.7	26.7	26.5
82.5°	16.9	17.1	16.9	16.7
85°	9.3	9.5	9.0	9.0
87.5°	3.3	3.3	3.1	3.5
90°	0.0	0.0	0.0	0.0

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