

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: P243090

Luminaire Tested: **S121RDR-H305D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243090
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-H305D840-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 988.3 lumens
Efficiency: N/A
Efficacy: 88.2 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

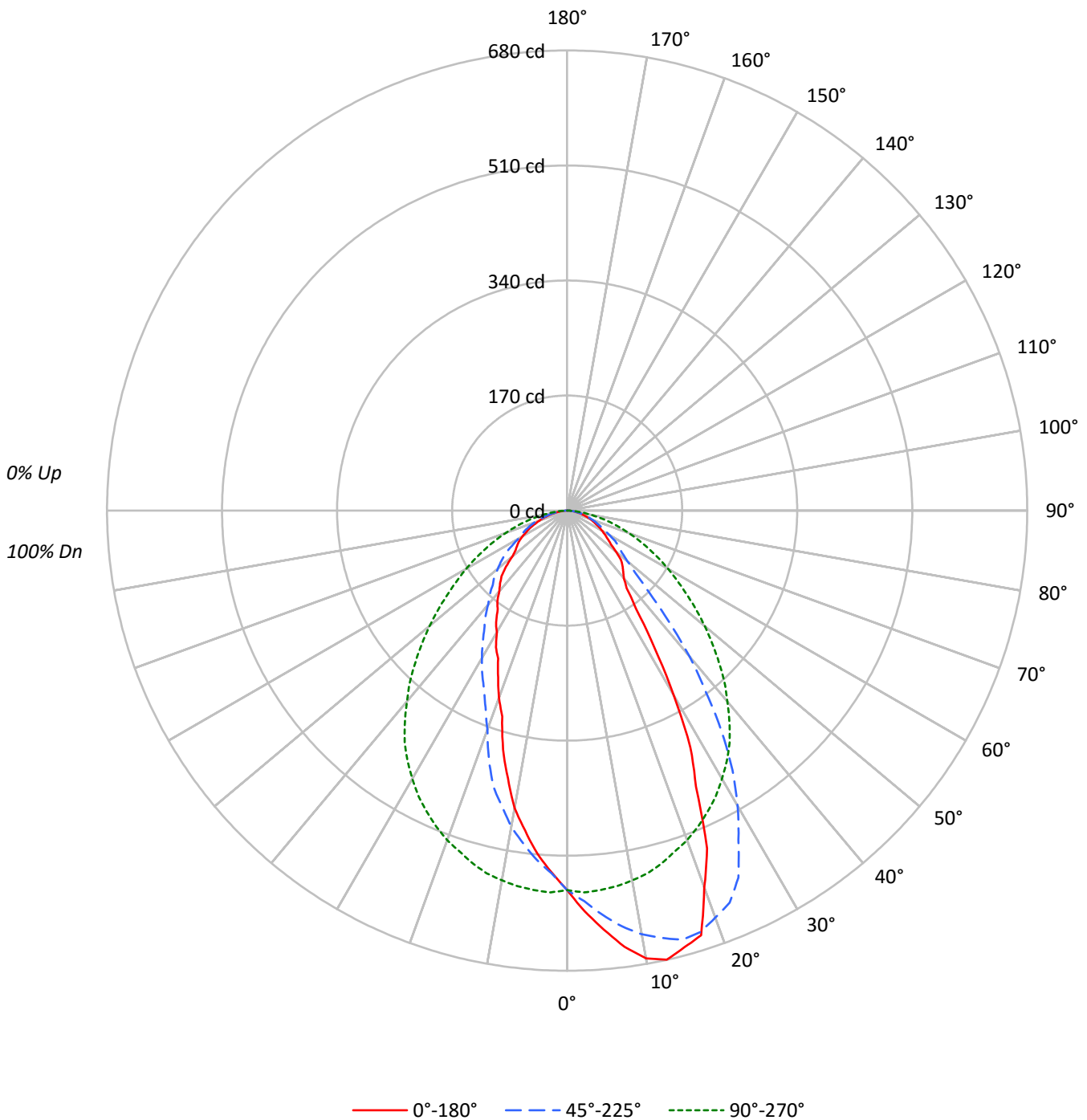
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	16610	16610	16610
5°	18485	16742	15127
10°	20212	16695	13434
15°	20503	16555	11218
20°	18689	16343	9280
25°	14722	16049	7892
30°	10764	15659	7116
35°	6424	15141	6467
40°	5036	14242	6034
45°	4852	13296	5741
50°	4328	12229	4872
55°	3776	11127	4654
60°	3532	10187	4510
65°	3288	9262	4179
70°	3110	8351	3812
75°	2851	7430	3389
80°	2594	6023	2952
85°	2448	4589	2142



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	53.5	5.4
10°-20°	149.3	15.1
20°-30°	198.5	20.1
30°-40°	189.4	19.2
40°-50°	157.2	15.9
50°-60°	116.9	11.8
60°-70°	75.7	7.7
70°-80°	38.5	3.9
80°-90°	9.4	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°	401.3	40.6
0°-40°	590.7	59.8
0°-60°	864.7	87.5
0°-90°	988.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	988.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	561	561	561	561	561	
5°	622	600	563	518	509	61
15°	668	657	540	422	366	186
25°	450	598	491	290	241	209
35°	178	398	419	213	179	121
45°	116	171	317	156	137	88
55°	73	93	215	112	90	66
65°	47	53	132	68	60	47
75°	25	27	65	34	30	26
85°	7	7	14	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°	560.6	560.6	560.6	560.6	560.6	560.6	560.6	560.6	560.6	560.6	560.6
2.5°	592.7	591.3	593.0	592.3	589.6	590.2	586.8	584.7	579.6	577.7	577.7
5°	621.5	623.6	622.3	622.8	620.0	618.3	614.7	610.7	604.4	599.7	598.0
7.5°	650.2	650.9	651.5	649.8	646.7	643.7	638.6	632.7	625.7	619.8	615.2
10°	671.8	673.3	672.4	669.9	667.6	663.1	657.6	651.3	643.7	635.9	630.2
12.5°	679.8	681.1	683.0	681.5	681.3	679.2	673.7	665.9	656.6	646.9	640.3
15°	668.4	667.6	672.7	671.4	671.0	670.1	671.6	669.9	665.0	656.6	648.6
17.5°	657.9	657.4	662.5	663.8	661.9	659.1	657.4	655.3	653.0	653.2	652.1
20°	592.7	605.6	608.2	614.9	629.3	638.8	648.3	647.9	641.2	640.1	639.7
22.5°	540.3	545.2	542.9	553.8	561.7	578.8	595.5	616.6	630.8	627.2	624.9
25°	450.3	465.5	472.5	486.2	506.1	527.8	537.4	559.8	581.5	598.5	611.3
27.5°	394.5	397.8	402.3	416.4	423.8	443.7	479.2	509.7	530.0	548.4	582.4
30°	314.6	316.0	331.5	339.3	361.1	380.5	411.4	435.9	476.7	504.0	530.2
32.5°	240.1	238.9	255.8	264.9	286.4	312.7	347.1	369.9	409.9	454.5	485.8
35°	177.6	177.4	186.4	192.8	216.5	236.5	280.3	310.1	353.9	397.6	438.0
37.5°	144.6	144.4	146.3	151.8	161.7	184.3	205.5	249.7	292.4	335.5	386.0
40°	130.2	131.3	131.7	134.2	137.6	144.4	157.3	188.1	230.0	281.4	332.1
42.5°	122.6	122.6	123.0	123.7	125.4	127.3	135.1	146.9	180.5	221.5	278.4
45°	115.8	116.1	116.5	116.9	116.5	117.5	121.1	126.0	139.1	171.4	226.4
47.5°	107.8	107.6	108.7	109.3	110.1	111.4	111.6	114.2	119.9	136.8	176.7
50°	93.9	94.1	95.1	97.7	100.4	102.7	104.2	105.9	107.8	115.8	137.0
52.5°	81.2	81.4	82.0	83.9	86.5	89.4	94.1	97.9	99.4	101.9	113.7
55°	73.1	73.1	74.0	75.0	75.7	77.8	81.0	85.2	90.7	92.8	97.9
57.5°	66.4	66.4	66.8	66.8	67.6	68.7	70.8	72.9	77.6	84.3	87.5
60°	59.6	59.6	60.0	60.0	61.1	61.5	63.0	64.3	66.8	71.5	77.8
62.5°	53.3	52.8	53.3	53.5	54.1	54.8	55.8	57.3	58.8	61.5	66.2
65°	46.9	46.7	47.1	47.6	48.0	48.8	49.5	50.5	51.8	53.3	55.6
67.5°	41.4	41.2	41.4	42.1	41.9	42.3	43.3	43.8	45.0	46.5	48.4
70°	35.9	35.5	35.9	35.9	36.1	36.8	36.8	37.8	38.9	39.7	41.4
72.5°	30.0	30.2	30.0	30.2	30.7	30.9	31.3	31.9	32.6	33.4	34.5
75°	24.9	24.9	25.2	25.4	25.8	25.8	26.0	26.4	26.8	27.3	28.5
77.5°	19.9	20.1	20.3	20.5	20.5	20.7	20.9	21.1	21.8	22.0	22.6
80°	15.2	15.4	15.4	15.4	15.9	15.4	15.9	16.3	16.3	16.5	16.9
82.5°	11.0	11.2	11.0	11.2	11.4	11.4	11.2	11.4	11.4	11.8	11.8
85°	7.2	6.8	6.8	6.8	6.8	6.8	7.0	7.2	7.0	7.0	7.2
87.5°	3.0	3.0	3.0	3.0	3.2	3.0	3.2	3.2	3.2	3.0	3.2
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	560.6	560.6	560.6	560.6	560.6	560.6	560.6	560.6	560.6	560.6	560.6
2.5°	578.8	577.1	575.6	573.1	569.9	565.3	564.6	564.8	559.1	553.6	552.8
5°	594.4	591.7	587.0	581.5	576.5	568.6	565.3	562.9	554.3	546.9	543.9
7.5°	611.1	604.6	598.2	589.6	581.1	571.0	564.6	559.8	548.4	538.6	533.6
10°	624.2	616.2	607.1	596.1	584.5	572.0	562.5	554.9	541.2	529.1	522.8
12.5°	633.5	624.5	613.7	600.6	587.2	570.8	559.1	549.0	532.3	517.9	510.3
15°	638.4	628.7	615.4	601.0	587.2	569.9	554.5	539.7	523.2	505.2	495.7
17.5°	642.8	630.2	615.2	598.7	584.7	566.5	547.5	528.3	509.7	492.8	477.3
20°	639.7	628.9	612.2	595.1	579.4	558.3	538.2	518.3	495.1	475.4	460.0
22.5°	624.9	623.0	605.0	586.6	568.6	548.4	525.1	505.4	480.5	457.2	438.6
25°	607.5	605.2	595.5	575.8	555.5	534.4	513.5	490.9	462.1	438.0	416.7
27.5°	593.0	587.7	580.7	562.3	540.5	519.4	497.8	475.8	445.2	418.3	394.0
30°	563.4	568.4	560.6	547.9	522.8	502.3	481.6	457.7	427.2	396.4	371.4
32.5°	516.4	547.1	539.3	529.1	504.4	482.0	462.3	438.9	405.2	374.8	349.0
35°	475.0	501.4	519.2	506.9	485.1	459.1	439.1	418.6	383.5	352.4	327.7
37.5°	434.8	463.0	492.5	481.3	463.4	435.5	414.3	394.0	361.5	330.2	305.5
40°	382.2	423.2	451.7	456.2	437.8	409.7	389.2	368.2	339.5	308.4	282.0
42.5°	331.7	384.3	407.4	430.2	411.4	384.9	362.1	344.4	316.7	289.4	260.6
45°	278.8	338.7	372.7	390.2	383.5	359.4	334.4	317.3	294.0	268.7	241.4
47.5°	233.0	289.8	338.4	348.4	354.9	331.3	308.0	290.7	270.6	249.7	223.7
50°	184.8	243.7	295.7	313.7	326.2	304.6	280.3	265.3	248.4	229.6	206.5
52.5°	143.7	198.9	253.5	284.1	288.3	277.1	254.7	239.9	226.4	209.5	188.6
55°	114.2	156.9	211.4	247.1	251.1	248.4	228.3	215.4	205.5	191.3	173.8
57.5°	94.7	122.0	171.2	212.4	218.4	220.9	204.4	192.8	183.9	172.7	156.9
60°	81.8	96.2	133.8	174.2	190.5	194.9	180.3	171.9	164.5	154.3	139.5
62.5°	72.3	78.8	102.3	141.2	162.1	165.9	158.5	152.2	146.1	136.3	123.2
65°	60.2	67.2	78.8	109.1	134.9	136.8	138.3	132.1	127.3	119.2	107.6
67.5°	50.5	56.0	63.6	83.7	108.2	113.7	117.5	114.8	110.1	102.1	92.2
70°	42.9	46.1	51.6	62.8	82.7	94.5	98.5	96.4	94.1	85.4	76.9
72.5°	35.7	38.3	41.4	48.2	62.4	75.0	81.0	79.9	77.4	70.8	63.8
75°	29.6	30.7	33.2	37.0	45.2	57.1	64.1	64.9	61.9	55.8	50.3
77.5°	23.3	24.3	25.8	28.1	33.4	41.4	47.1	49.3	47.4	42.9	37.4
80°	17.8	18.4	19.4	20.5	22.6	28.1	34.0	35.3	34.2	30.7	27.3
82.5°	11.8	12.3	13.1	14.0	15.0	17.5	22.6	23.5	23.3	20.1	17.8
85°	7.2	7.2	7.4	8.0	8.5	9.5	12.3	13.5	12.9	10.8	9.7
87.5°	3.0	3.2	3.0	3.0	3.0	3.2	4.0	5.5	4.2	3.2	3.0
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°	560.6	560.6	560.6	560.6	560.6	560.6	560.6	560.6	560.6	560.6	560.6
2.5°	550.5	549.6	546.5	543.5	540.1	536.1	536.3	536.9	535.5	535.0	536.5
5°	539.7	536.7	531.9	527.0	523.2	518.1	515.2	516.6	515.6	513.7	512.4
7.5°	528.3	524.0	517.1	510.9	505.9	496.4	494.2	491.7	489.6	485.4	484.5
10°	514.7	508.6	499.7	491.1	481.8	474.4	467.4	464.4	458.7	454.9	453.9
12.5°	500.8	490.6	480.7	468.0	457.5	446.7	440.5	436.3	430.6	421.3	416.9
15°	486.4	471.0	457.7	443.7	436.5	421.9	410.3	397.2	390.2	374.6	365.5
17.5°	467.2	449.4	431.5	420.0	405.0	384.7	365.3	358.5	348.0	337.8	327.7
20°	441.2	424.9	407.8	390.7	367.8	344.4	337.0	325.3	313.7	307.6	302.3
22.5°	417.3	399.7	379.5	356.8	333.4	315.0	305.3	296.8	289.6	284.1	278.0
25°	394.7	376.5	347.5	324.5	304.0	290.5	285.6	274.6	267.0	263.0	257.7
27.5°	369.7	344.8	321.5	297.6	279.5	271.9	260.6	252.0	243.9	236.1	234.2
30°	346.1	318.4	295.3	275.9	262.6	252.0	240.6	230.4	225.1	222.2	217.3
32.5°	322.6	294.5	272.9	257.7	243.3	232.1	221.3	216.0	208.0	201.5	197.2
35°	297.4	272.9	255.8	238.0	224.3	213.3	207.8	195.7	191.3	189.4	185.0
37.5°	275.2	253.5	236.1	222.6	207.6	198.7	187.9	185.2	179.3	174.2	172.7
40°	256.8	236.3	220.1	202.5	193.2	181.6	176.3	168.9	166.8	164.9	161.5
42.5°	236.8	219.2	200.6	188.8	175.0	169.7	161.5	159.4	154.3	152.4	151.1
45°	219.6	203.4	185.6	171.2	163.4	155.6	152.4	147.1	144.8	142.5	140.2
47.5°	202.9	186.0	171.9	158.3	149.7	146.1	140.4	136.6	134.0	131.7	129.4
50°	187.5	170.4	154.5	144.8	138.7	133.6	130.0	126.8	123.2	118.2	112.9
52.5°	170.8	155.4	142.5	133.0	127.5	122.6	119.4	113.9	107.0	101.5	98.9
55°	154.1	139.5	128.3	120.7	116.9	112.2	105.1	97.0	92.6	91.7	91.1
57.5°	139.9	126.2	115.8	109.9	105.5	97.2	89.6	86.7	85.4	85.0	84.6
60°	124.1	111.8	104.4	98.1	90.7	82.9	80.5	80.1	78.8	78.2	77.8
62.5°	109.5	98.9	92.2	84.6	76.7	75.3	73.6	72.5	71.9	70.4	69.8
65°	95.3	86.9	79.5	71.5	68.7	67.6	66.2	64.7	63.0	61.9	61.1
67.5°	81.8	73.6	65.7	62.8	61.3	59.6	57.7	55.6	54.8	53.3	53.1
70°	68.5	60.9	56.7	54.8	52.0	50.5	48.4	47.6	46.1	45.4	44.8
72.5°	55.8	50.3	48.6	45.9	44.0	41.6	40.6	39.7	38.9	37.8	37.8
75°	43.5	42.1	38.9	36.8	34.9	33.6	33.2	31.7	31.5	30.9	30.4
77.5°	34.7	31.7	30.7	28.3	27.1	26.4	26.0	25.2	24.3	24.1	23.9
80°	24.5	23.0	21.8	20.7	19.7	19.2	18.8	18.6	18.2	17.8	17.5
82.5°	16.1	15.2	14.4	13.7	13.5	12.9	12.5	12.3	11.8	11.8	11.8
85°	8.7	8.5	8.0	7.6	7.2	7.2	7.0	6.8	6.8	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°	560.6	560.6	560.6	560.6
2.5°	534.8	534.8	534.0	534.8
5°	511.6	509.7	509.0	508.6
7.5°	482.0	480.3	478.6	476.9
10°	451.7	449.2	447.7	446.5
12.5°	412.4	409.3	403.3	405.0
15°	364.0	364.2	350.5	365.7
17.5°	324.5	325.5	320.0	319.2
20°	299.3	298.9	296.8	294.3
22.5°	273.5	271.6	270.8	266.8
25°	249.4	246.1	247.1	241.4
27.5°	231.9	229.2	228.3	227.9
30°	214.4	208.6	206.7	208.0
32.5°	196.6	196.2	195.5	195.7
35°	181.6	180.7	178.8	178.8
37.5°	171.2	171.4	170.4	169.5
40°	158.5	157.5	157.3	156.0
42.5°	149.5	147.3	146.5	146.7
45°	138.9	137.6	136.6	137.0
47.5°	126.4	125.1	122.8	122.2
50°	109.5	107.8	106.8	105.7
52.5°	96.8	96.6	96.2	96.0
55°	90.7	90.1	90.1	90.1
57.5°	84.3	83.9	83.7	84.1
60°	77.4	76.9	76.1	76.1
62.5°	68.7	68.3	68.1	67.2
65°	60.0	59.8	59.4	59.6
67.5°	52.0	51.8	51.8	51.2
70°	44.2	44.2	43.5	44.0
72.5°	37.0	36.8	36.8	36.8
75°	30.0	29.8	29.6	29.6
77.5°	23.7	23.7	23.3	23.3
80°	17.1	17.1	16.9	17.3
82.5°	11.4	11.8	11.4	11.4
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

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