

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: P243106

Luminaire Tested: **S121RDR-H490D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243106
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-H490D940-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1389.8 lumens
Efficiency: N/A
Efficacy: 80.8 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

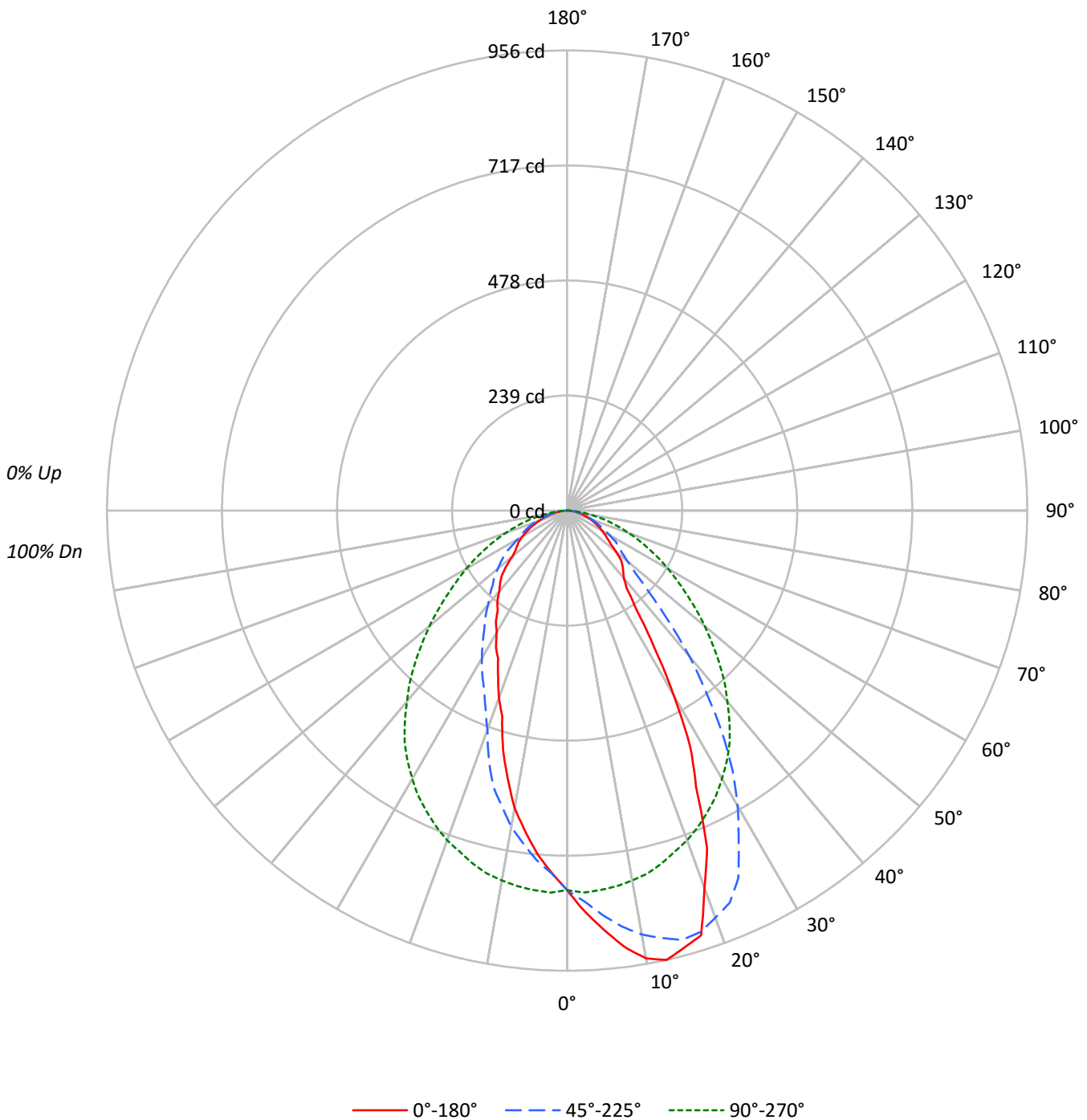
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	23357	23357	23357
5°	25992	23544	21272
10°	28423	23477	18888
15°	28831	23279	15776
20°	26281	22983	13048
25°	20701	22565	11099
30°	15133	22020	10007
35°	9032	21290	9097
40°	7082	20028	8486
45°	6826	18697	8070
50°	6085	17198	6850
55°	5316	15647	6540
60°	4966	14323	6341
65°	4627	13026	5875
70°	4375	11747	5354
75°	4018	10452	4762
80°	3651	8463	4163
85°	3434	6459	3026



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	75.3	5.4
10°-20°	209.9	15.1
20°-30°	279.1	20.1
30°-40°	266.3	19.2
40°-50°	221.0	15.9
50°-60°	164.3	11.8
60°-70°	106.4	7.7
70°-80°	54.2	3.9
80°-90°	13.3	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°	564.4	40.6
0°-40°	830.6	59.8
0°-60°	1216.0	87.5
0°-90°	1389.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1389.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	788	788	788	788	788	
5°	874	843	792	729	715	86
15°	940	923	759	593	514	262
25°	633	842	690	408	340	294
35°	250	559	589	300	252	170
45°	163	241	446	219	193	124
55°	103	130	303	158	127	93
65°	66	75	186	95	84	66
75°	35	38	91	47	42	37
85°	10	10	19	10	9	11
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°	788.3	788.3	788.3	788.3	788.3	788.3	788.3	788.3	788.3	788.3	788.3
2.5°	833.5	831.4	833.8	832.9	829.1	830.0	825.2	822.2	815.1	812.4	812.4
5°	873.9	876.9	875.1	875.7	871.9	869.5	864.4	858.8	849.9	843.3	841.0
7.5°	914.4	915.3	916.2	913.8	909.3	905.2	898.0	889.7	879.9	871.6	865.0
10°	944.7	946.8	945.6	942.0	938.8	932.5	924.8	915.9	905.2	894.2	886.1
12.5°	956.0	957.8	960.5	958.4	958.1	955.1	947.4	936.4	923.3	909.6	900.4
15°	939.9	938.8	945.9	944.1	943.5	942.3	944.4	942.0	935.2	923.3	912.0
17.5°	925.1	924.5	931.6	933.4	930.7	926.9	924.5	921.5	918.2	918.5	917.1
20°	833.5	851.7	855.2	864.7	884.9	898.3	911.7	911.1	901.6	900.1	899.5
22.5°	759.8	766.6	763.4	778.8	789.8	813.9	837.4	867.1	887.0	882.0	878.7
25°	633.2	654.6	664.4	683.7	711.6	742.3	755.6	787.1	817.8	841.5	859.7
27.5°	554.7	559.4	565.7	585.6	596.0	624.0	673.9	716.7	745.2	771.1	819.0
30°	442.3	444.4	466.1	477.1	507.7	535.1	578.5	613.0	670.3	708.7	745.5
32.5°	337.7	335.9	359.7	372.5	402.8	439.6	488.1	520.2	576.4	639.1	683.1
35°	249.7	249.4	262.2	271.1	304.4	332.6	394.2	436.1	497.6	559.1	615.9
37.5°	203.3	203.0	205.7	213.4	227.4	259.2	288.9	351.1	411.1	471.8	542.8
40°	183.1	184.6	185.2	188.8	193.5	203.0	221.2	264.6	323.4	395.7	467.0
42.5°	172.4	172.4	173.0	173.9	176.3	179.0	189.9	206.6	253.9	311.5	391.5
45°	162.9	163.2	163.8	164.4	163.8	165.3	170.3	177.2	195.6	241.1	318.4
47.5°	151.6	151.3	152.8	153.7	154.9	156.7	157.0	160.5	168.5	192.3	248.5
50°	132.0	132.3	133.8	137.3	141.2	144.5	146.5	148.9	151.6	162.9	192.6
52.5°	114.1	114.4	115.3	118.0	121.6	125.7	132.3	137.6	139.7	143.3	159.9
55°	102.9	102.9	104.0	105.5	106.4	109.4	113.9	119.8	127.5	130.5	137.6
57.5°	93.3	93.3	93.9	93.9	95.1	96.6	99.6	102.6	109.1	118.6	123.1
60°	83.8	83.8	84.4	84.4	85.9	86.5	88.6	90.4	93.9	100.5	109.4
62.5°	74.9	74.3	74.9	75.2	76.1	77.0	78.5	80.6	82.6	86.5	93.0
65°	66.0	65.7	66.3	66.9	67.5	68.7	69.6	71.0	72.8	74.9	78.2
67.5°	58.3	58.0	58.3	59.2	58.9	59.5	60.9	61.5	63.3	65.4	68.1
70°	50.5	49.9	50.5	50.5	50.8	51.7	51.7	53.2	54.7	55.9	58.3
72.5°	42.2	42.5	42.2	42.5	43.1	43.4	44.0	44.9	45.8	47.0	48.5
75°	35.1	35.1	35.4	35.7	36.3	36.3	36.6	37.2	37.8	38.3	40.1
77.5°	27.9	28.2	28.5	28.8	28.8	29.1	29.4	29.7	30.6	30.9	31.8
80°	21.4	21.7	21.7	21.7	22.3	21.7	22.3	22.9	22.9	23.2	23.8
82.5°	15.5	15.8	15.5	15.8	16.1	16.1	15.8	16.1	16.1	16.6	16.6
85°	10.1	9.5	9.5	9.5	9.5	9.5	9.8	10.1	9.8	9.8	10.1
87.5°	4.2	4.2	4.2	4.2	4.5	4.2	4.5	4.5	4.5	4.2	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°	788.3	788.3	788.3	788.3	788.3	788.3	788.3	788.3	788.3	788.3	788.3
2.5°	813.9	811.5	809.4	805.9	801.4	794.9	794.0	794.3	786.3	778.5	777.3
5°	835.9	832.0	825.5	817.8	810.6	799.6	794.9	791.6	779.4	769.0	764.9
7.5°	859.4	850.2	841.2	829.1	817.2	802.9	794.0	787.1	771.1	757.4	750.3
10°	877.8	866.5	853.7	838.3	821.9	804.4	791.0	780.3	761.0	744.0	735.1
12.5°	890.9	878.1	862.9	844.5	825.8	802.6	786.3	772.0	748.5	728.3	717.6
15°	897.7	884.1	865.3	845.1	825.8	801.4	779.7	758.9	735.7	710.5	697.1
17.5°	904.0	886.1	865.0	841.8	822.2	796.7	769.9	742.9	716.7	692.9	671.2
20°	899.5	884.4	860.9	836.8	814.8	785.1	756.8	728.9	696.2	668.5	646.8
22.5°	878.7	876.0	850.8	824.9	799.6	771.1	738.4	710.8	675.7	643.0	616.8
25°	854.3	851.1	837.4	809.7	781.2	751.5	722.0	690.2	649.8	615.9	585.9
27.5°	833.8	826.4	816.6	790.7	760.1	730.4	700.0	669.1	626.0	588.3	554.1
30°	792.2	799.3	788.3	770.5	735.1	706.3	677.2	643.6	600.8	557.4	522.3
32.5°	726.2	769.3	758.3	744.0	709.3	677.8	650.1	617.1	569.8	527.0	490.8
35°	667.9	705.1	730.1	712.8	682.2	645.7	617.4	588.6	539.2	495.5	460.8
37.5°	611.5	651.0	692.6	676.9	651.6	612.4	582.6	554.1	508.3	464.3	429.5
40°	537.4	595.1	635.2	641.5	615.6	576.1	547.3	517.8	477.4	433.7	396.5
42.5°	466.4	540.4	572.8	604.9	578.5	541.3	509.2	484.2	445.3	407.0	366.5
45°	392.1	476.2	524.1	548.7	539.2	505.3	470.3	446.2	413.5	377.8	339.5
47.5°	327.6	407.5	475.9	489.9	499.1	465.8	433.1	408.7	380.5	351.1	314.5
50°	259.8	342.7	415.9	441.1	458.7	428.4	394.2	373.1	349.3	322.8	290.4
52.5°	202.1	279.7	356.4	399.5	405.5	389.7	358.2	337.4	318.4	294.6	265.2
55°	160.5	220.6	297.3	347.5	353.1	349.3	321.0	302.9	288.9	269.0	244.3
57.5°	133.2	171.5	240.8	298.7	307.1	310.6	287.5	271.1	258.6	242.9	220.6
60°	115.0	135.3	188.2	244.9	267.8	274.1	253.6	241.7	231.3	217.0	196.2
62.5°	101.7	110.9	143.9	198.6	228.0	233.3	222.9	214.0	205.4	191.7	173.3
65°	84.7	94.5	110.9	153.4	189.7	192.3	194.4	185.8	179.0	167.7	151.3
67.5°	71.0	78.8	89.5	117.7	152.2	159.9	165.3	161.4	154.9	143.6	129.6
70°	60.3	64.8	72.5	88.3	116.2	132.9	138.5	135.6	132.3	120.1	108.2
72.5°	50.2	53.8	58.3	67.8	87.7	105.5	113.9	112.4	108.8	99.6	89.8
75°	41.6	43.1	46.7	52.0	63.6	80.3	90.1	91.3	87.1	78.5	70.7
77.5°	32.7	34.2	36.3	39.5	47.0	58.3	66.3	69.3	66.6	60.3	52.6
80°	25.0	25.9	27.3	28.8	31.8	39.5	47.9	49.6	48.2	43.1	38.3
82.5°	16.6	17.2	18.4	19.6	21.1	24.7	31.8	33.0	32.7	28.2	25.0
85°	10.1	10.1	10.4	11.3	11.9	13.4	17.2	19.0	18.1	15.2	13.7
87.5°	4.2	4.5	4.2	4.2	4.2	4.5	5.6	7.7	5.9	4.5	4.2
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	788.3	788.3	788.3	788.3	788.3	788.3	788.3	788.3	788.3	788.3	788.3
2.5°	774.1	772.9	768.4	764.3	759.5	753.9	754.2	755.0	753.0	752.4	754.4
5°	758.9	754.7	747.9	741.1	735.7	728.6	724.4	726.5	725.0	722.3	720.6
7.5°	742.9	736.9	727.1	718.5	711.3	698.0	695.0	691.4	688.5	682.5	681.3
10°	723.8	715.2	702.7	690.5	677.5	667.1	657.2	653.1	645.1	639.7	638.2
12.5°	704.2	689.9	676.0	658.1	643.3	628.1	619.5	613.5	605.5	592.4	586.2
15°	684.0	662.3	643.6	624.0	613.8	593.3	577.0	558.6	548.7	526.7	514.0
17.5°	656.9	632.0	606.7	590.7	569.6	541.0	513.7	504.2	489.3	475.0	460.8
20°	620.4	597.5	573.4	549.3	517.2	484.2	473.8	457.5	441.1	432.5	425.1
22.5°	586.8	562.1	533.6	501.8	468.8	442.9	429.2	417.4	407.2	399.5	390.9
25°	555.0	529.4	488.7	456.3	427.5	408.4	401.6	386.1	375.4	369.8	362.4
27.5°	519.9	484.8	452.1	418.5	393.0	382.3	366.5	354.3	343.0	332.0	329.4
30°	486.6	447.7	415.3	387.9	369.2	354.3	338.3	324.0	316.6	312.4	305.6
32.5°	453.6	414.1	383.8	362.4	342.1	326.4	311.2	303.8	292.5	283.3	277.3
35°	418.2	383.8	359.7	334.7	315.4	299.9	292.2	275.3	269.0	266.3	260.1
37.5°	387.0	356.4	332.0	313.0	291.9	279.4	264.3	260.4	252.1	244.9	242.9
40°	361.2	332.3	309.4	284.8	271.7	255.3	247.9	237.5	234.5	231.9	227.1
42.5°	332.9	308.3	282.1	265.5	246.1	238.7	227.1	224.1	217.0	214.3	212.5
45°	308.9	286.0	261.0	240.8	229.8	218.8	214.3	206.9	203.6	200.4	197.1
47.5°	285.4	261.6	241.7	222.6	210.5	205.4	197.4	192.0	188.5	185.2	181.9
50°	263.7	239.6	217.3	203.6	195.0	187.9	182.8	178.4	173.3	166.2	158.7
52.5°	240.2	218.5	200.4	187.0	179.2	172.4	168.0	160.2	150.4	142.7	139.1
55°	216.7	196.2	180.4	169.7	164.4	157.8	147.7	136.4	130.2	129.0	128.1
57.5°	196.8	177.5	162.9	154.6	148.3	136.7	126.0	121.9	120.1	119.5	118.9
60°	174.5	157.3	146.8	137.9	127.5	116.5	113.3	112.7	110.9	110.0	109.4
62.5°	154.0	139.1	129.6	118.9	107.9	105.8	103.4	102.0	101.1	99.0	98.1
65°	134.1	122.2	111.8	100.5	96.6	95.1	93.0	91.0	88.6	87.1	85.9
67.5°	115.0	103.4	92.4	88.3	86.2	83.8	81.2	78.2	77.0	74.9	74.6
70°	96.3	85.6	79.7	77.0	73.1	71.0	68.1	66.9	64.8	63.9	63.0
72.5°	78.5	70.7	68.4	64.5	61.8	58.6	57.1	55.9	54.7	53.2	53.2
75°	61.2	59.2	54.7	51.7	49.0	47.3	46.7	44.6	44.3	43.4	42.8
77.5°	48.8	44.6	43.1	39.8	38.0	37.2	36.6	35.4	34.2	33.9	33.6
80°	34.5	32.4	30.6	29.1	27.6	27.1	26.5	26.2	25.6	25.0	24.7
82.5°	22.6	21.4	20.2	19.3	19.0	18.1	17.5	17.2	16.6	16.6	16.6
85°	12.2	11.9	11.3	10.7	10.1	10.1	9.8	9.5	9.5	8.6	8.6
87.5°	3.9	3.9	3.6	3.6	3.0	3.3	3.0	3.0	2.7	3.0	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):

	165°	170°	175°	180°
0°	788.3	788.3	788.3	788.3
2.5°	752.1	752.1	750.9	752.1
5°	719.4	716.7	715.8	715.2
7.5°	677.8	675.4	673.0	670.6
10°	635.2	631.7	629.6	627.8
12.5°	580.0	575.5	567.2	569.6
15°	511.9	512.2	492.9	514.3
17.5°	456.3	457.8	450.1	448.9
20°	420.9	420.3	417.4	413.8
22.5°	384.7	382.0	380.8	375.1
25°	350.8	346.0	347.5	339.5
27.5°	326.1	322.2	321.0	320.4
30°	301.4	293.4	290.7	292.5
32.5°	276.5	275.9	275.0	275.3
35°	255.3	254.2	251.5	251.5
37.5°	240.8	241.1	239.6	238.4
40°	222.9	221.5	221.2	219.4
42.5°	210.2	207.2	206.0	206.3
45°	195.3	193.5	192.0	192.6
47.5°	177.8	176.0	172.7	171.8
50°	154.0	151.6	150.1	148.6
52.5°	136.1	135.8	135.3	135.0
55°	127.5	126.6	126.6	126.6
57.5°	118.6	118.0	117.7	118.3
60°	108.8	108.2	107.0	107.0
62.5°	96.6	96.0	95.7	94.5
65°	84.4	84.1	83.5	83.8
67.5°	73.1	72.8	72.8	71.9
70°	62.1	62.1	61.2	61.8
72.5°	52.0	51.7	51.7	51.7
75°	42.2	41.9	41.6	41.6
77.5°	33.3	33.3	32.7	32.7
80°	24.1	24.1	23.8	24.4
82.5°	16.1	16.6	16.1	16.1
85°	8.6	8.9	8.9	8.9
87.5°	2.7	2.4	2.4	2.4
90°	0.0	0.0	0.0	0.0

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