

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: P242236

Luminaire Tested: **S121RDR-S490D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242236
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-28)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-S490D930-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1410.7 lumens
Efficiency: N/A
Efficacy: 75.0 lumens/watt
Spacing Criteria (0/90/45): 0.96 / 1.23 / 1.1
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

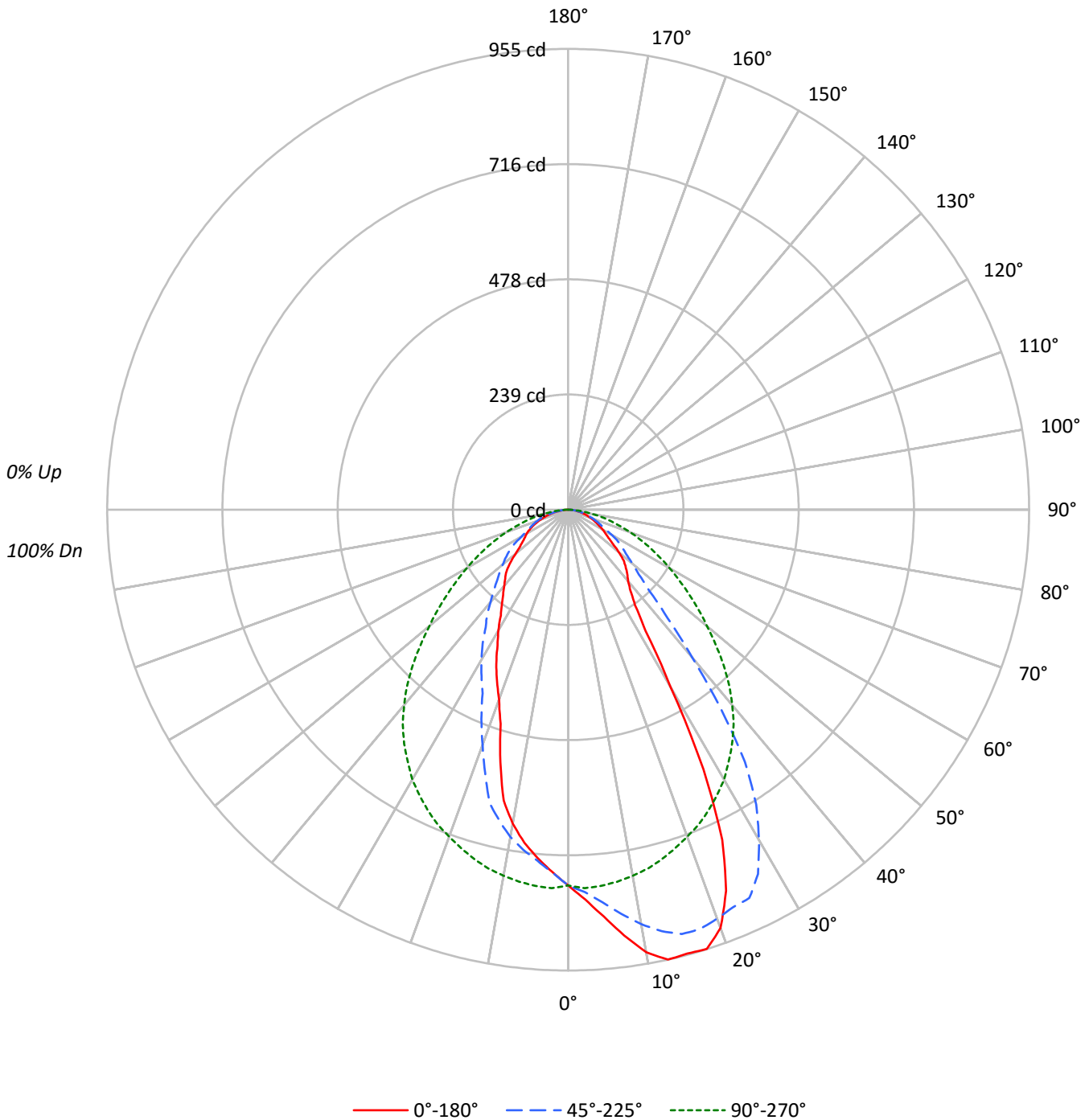
Input Watts (W): 18.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P242236

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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	82	87	83	80	84	81	78	76
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	68	67
4	88	77	69	64	85	76	69	63	73	67	62	71	66	61	69	65	61	59
5	81	70	62	56	79	69	62	56	67	60	55	65	59	55	63	58	54	52
6	76	64	56	50	74	63	56	50	61	55	50	60	54	49	58	53	49	47
7	71	59	51	45	69	58	51	45	57	50	45	55	49	45	54	48	44	43
8	67	54	47	41	65	54	46	41	52	46	41	51	45	41	50	45	40	39
9	63	50	43	38	61	50	43	38	49	42	37	48	42	37	47	41	37	35
10	59	47	40	35	58	46	39	35	45	39	35	44	39	34	44	38	34	33

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	23070	23070	23070
5°	25177	23271	21558
10°	28023	23179	19869
15°	29218	23003	16629
20°	29094	22734	13199
25°	24670	22480	11521
30°	14520	22092	9895
35°	8724	21421	8641
40°	7473	20449	7972
45°	7065	19062	7580
50°	6315	17314	6559
55°	5264	15802	5925
60°	4889	14400	5896
65°	4515	13111	5707
70°	4262	11817	5380
75°	4018	10452	4888
80°	3600	8736	4300
85°	3400	6867	3400



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	74.6	5.3
10°-20°	212.7	15.1
20°-30°	290.5	20.6
30°-40°	270.6	19.2
40°-50°	223.7	15.9
50°-60°	165.0	11.7
60°-70°	105.5	7.5
70°-80°	54.3	3.8
80°-90°	14.0	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°	577.8	41.0
0°-40°	848.4	60.1
0°-60°	1237.1	87.7
0°-90°	1410.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1410.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	779	779	779	779	779	
5°	846	817	782	730	725	83
15°	952	910	750	629	542	268
25°	755	888	688	420	352	328
35°	241	638	592	298	239	164
45°	169	238	455	208	181	129
55°	102	136	306	149	115	94
65°	64	74	187	87	81	64
75°	35	38	91	48	43	37
85°	10	10	20	11	10	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°	778.6	778.6	778.6	778.6	778.6	778.6	778.6	778.6	778.6	778.6	778.6
2.5°	808.5	807.9	808.8	808.2	807.6	806.1	805.0	801.5	796.2	793.3	796.2
5°	846.5	848.9	848.0	846.8	844.2	841.9	836.6	833.4	824.0	816.7	818.7
7.5°	889.9	892.8	889.0	886.4	884.9	878.2	872.3	863.2	853.0	844.8	840.1
10°	931.4	932.3	931.1	928.8	923.8	916.5	908.0	897.8	884.9	872.3	863.8
12.5°	954.9	956.3	958.1	954.0	950.2	944.3	935.5	925.3	909.5	894.8	885.2
15°	952.5	953.7	956.9	955.4	953.7	951.0	946.1	937.6	926.5	910.4	896.6
17.5°	954.3	955.1	956.6	951.3	948.4	945.2	938.8	932.9	923.5	910.9	900.7
20°	922.7	937.0	935.2	942.3	945.2	944.9	938.8	927.6	914.7	901.9	897.2
22.5°	854.7	866.2	867.6	878.5	891.9	902.7	916.2	921.2	911.2	891.9	885.5
25°	754.6	762.8	771.0	786.5	800.9	831.0	858.5	879.3	890.7	888.1	875.5
27.5°	606.5	597.7	630.2	648.1	688.2	732.1	770.7	808.8	826.9	851.2	863.5
30°	424.4	423.6	448.2	479.2	539.2	579.6	651.9	713.1	760.8	790.6	824.0
32.5°	298.0	302.4	320.5	339.6	372.6	438.5	493.8	578.1	659.5	724.8	765.8
35°	241.2	241.8	245.9	257.3	277.5	314.1	357.1	439.1	549.4	638.1	699.3
37.5°	211.3	213.1	214.3	220.7	228.0	243.5	270.8	327.6	418.9	517.8	624.1
40°	193.2	194.7	195.8	197.9	202.3	209.6	227.4	254.7	307.4	398.4	516.6
42.5°	180.9	180.3	182.9	183.8	186.2	190.3	198.2	212.8	243.2	305.0	406.9
45°	168.6	169.5	169.5	170.7	172.7	175.0	178.3	187.3	202.9	238.0	317.9
47.5°	155.7	155.4	157.2	158.1	160.1	162.2	164.5	169.2	178.3	198.8	245.0
50°	137.0	137.6	140.8	143.7	146.7	149.3	152.2	155.1	161.0	172.1	200.5
52.5°	117.1	117.1	120.6	122.6	126.7	133.2	138.2	142.6	146.4	151.9	168.9
55°	101.9	102.2	103.3	105.1	108.0	111.2	117.7	125.3	131.7	136.4	145.8
57.5°	91.3	91.6	91.9	93.4	94.8	96.0	99.8	105.7	114.2	122.6	128.2
60°	82.5	82.3	82.3	83.1	84.3	85.8	87.8	90.2	94.8	103.9	113.9
62.5°	72.6	73.2	73.2	74.1	74.9	76.4	77.3	79.6	82.3	86.4	96.6
65°	64.4	65.0	64.4	65.3	65.9	66.7	68.2	69.4	71.7	74.4	78.4
67.5°	56.2	56.5	57.1	57.4	58.0	58.3	59.4	60.9	62.3	64.1	67.3
70°	49.2	49.2	49.2	49.8	50.3	50.3	51.2	51.8	53.3	55.0	56.8
72.5°	41.6	41.9	41.9	41.6	42.7	43.0	43.3	43.9	45.1	46.5	48.0
75°	35.1	34.5	34.5	34.8	35.7	35.7	36.0	36.3	37.2	38.3	39.2
77.5°	27.5	27.5	27.8	28.1	28.4	28.4	29.0	29.0	30.2	30.7	31.3
80°	21.1	21.7	22.0	21.7	21.7	22.0	22.0	22.5	22.8	23.1	23.7
82.5°	15.8	16.1	15.5	15.5	15.8	15.8	16.1	16.1	16.4	16.7	16.7
85°	10.0	10.0	10.2	10.0	10.2	10.0	10.0	10.5	10.2	10.2	10.5
87.5°	4.7	5.0	4.7	5.0	4.7	5.0	5.0	5.0	5.0	5.0	4.7
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°	778.6	778.6	778.6	778.6	778.6	778.6	778.6	778.6	778.6	778.6	778.6
2.5°	795.3	795.0	793.6	790.3	788.0	783.6	783.6	785.1	777.5	772.2	771.9
5°	813.8	810.8	805.9	799.7	794.1	786.5	783.6	782.4	772.2	764.3	761.7
7.5°	833.4	826.1	817.6	807.6	798.2	787.4	781.9	777.5	764.3	754.6	748.8
10°	853.9	842.2	829.0	814.6	801.8	787.1	778.0	770.4	755.2	741.8	735.0
12.5°	872.0	855.6	838.9	820.2	802.6	784.2	771.6	761.7	743.8	727.7	719.5
15°	880.5	862.9	849.2	823.4	799.7	781.0	764.9	749.9	730.9	713.1	700.5
17.5°	887.8	868.5	850.4	826.1	798.5	774.2	754.9	735.9	715.4	696.7	681.2
20°	885.8	869.4	847.1	821.4	795.3	767.2	745.3	721.0	695.5	676.5	660.1
22.5°	874.1	860.6	837.5	812.9	787.7	757.6	732.7	706.3	675.0	654.2	635.8
25°	859.1	846.3	823.4	798.0	773.1	743.8	714.5	687.6	653.9	629.1	605.3
27.5°	847.4	828.1	805.3	776.9	752.9	725.1	694.3	667.1	630.8	603.3	575.8
30°	834.0	812.0	783.9	753.8	728.3	702.8	673.0	645.7	605.6	574.3	540.1
32.5°	795.3	795.6	762.2	728.6	701.4	674.1	647.5	618.5	578.7	541.8	506.7
35°	745.0	764.6	740.0	701.4	667.7	642.5	620.6	592.2	548.0	509.9	470.1
37.5°	677.6	712.2	715.1	675.0	637.8	608.3	586.6	562.9	518.4	477.4	437.9
40°	610.3	656.0	674.1	646.3	605.9	572.0	550.3	528.7	486.8	442.6	406.0
42.5°	527.8	601.8	624.4	616.2	572.9	536.3	513.4	493.8	453.1	409.8	373.5
45°	434.7	534.8	567.6	576.1	539.5	500.3	473.9	454.9	419.2	381.1	343.4
47.5°	349.2	459.3	513.4	522.2	502.9	464.8	434.7	414.8	386.4	353.6	316.1
50°	266.4	379.1	456.6	470.1	465.4	426.8	399.0	375.6	353.9	324.6	289.5
52.5°	211.9	303.0	395.2	420.3	421.8	391.4	362.1	340.7	319.6	296.5	264.6
55°	169.2	234.2	327.6	370.3	374.4	353.3	326.4	305.9	290.1	268.4	241.5
57.5°	142.6	181.2	262.3	319.9	321.7	315.8	290.1	273.1	259.9	241.2	217.5
60°	121.8	143.7	202.3	269.6	278.4	278.4	257.9	243.0	230.4	216.3	193.8
62.5°	105.4	117.4	153.4	214.3	236.8	240.3	227.4	214.3	204.9	190.9	170.1
65°	88.7	97.8	118.8	165.7	196.7	203.1	196.7	187.0	179.7	165.1	148.7
67.5°	72.9	81.7	94.8	125.6	159.5	167.4	166.3	161.3	153.7	142.8	125.6
70°	60.3	65.6	75.2	93.1	125.3	137.3	140.8	136.4	129.7	118.0	105.4
72.5°	49.8	53.9	58.5	71.4	93.7	109.5	115.3	113.0	108.0	96.9	86.4
75°	40.7	43.3	46.5	52.7	67.3	85.2	91.9	91.3	86.4	77.0	68.5
77.5°	32.8	33.7	36.0	39.8	47.1	63.2	68.5	70.3	66.4	58.5	51.8
80°	24.6	25.8	26.9	29.0	32.5	41.9	48.6	51.2	48.0	43.3	36.6
82.5°	17.3	17.6	18.7	19.9	21.7	25.5	32.5	35.4	32.5	27.5	25.5
85°	10.8	10.5	10.8	11.1	12.9	13.8	18.1	20.2	19.6	16.7	14.3
87.5°	5.0	5.0	4.7	5.0	4.7	5.6	6.4	9.4	7.0	6.1	5.6
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°	778.6	778.6	778.6	778.6	778.6	778.6	778.6	778.6	778.6	778.6	778.6
2.5°	769.6	768.7	765.8	761.7	758.1	752.3	752.3	753.8	753.5	754.0	753.5
5°	757.3	753.2	748.8	743.2	737.9	730.3	729.5	730.0	729.7	729.5	727.7
7.5°	741.5	736.8	731.2	724.2	718.3	711.0	709.0	708.4	706.0	705.2	702.8
10°	726.2	720.7	713.4	704.9	697.0	688.5	683.2	680.3	676.5	672.4	668.9
12.5°	709.3	701.9	692.6	682.3	669.2	659.8	651.9	646.9	641.6	634.6	629.6
15°	691.1	676.2	665.1	648.4	632.3	629.1	617.1	601.2	600.1	565.8	553.8
17.5°	666.8	654.5	633.7	612.1	590.1	572.3	572.6	529.8	516.6	516.4	495.3
20°	641.6	624.7	600.7	578.7	555.6	518.7	489.4	475.4	454.0	445.8	433.8
22.5°	612.1	589.8	561.7	531.9	499.7	469.8	441.1	427.7	416.8	407.8	402.8
25°	577.0	554.4	520.7	483.6	447.6	419.8	404.0	397.8	379.4	372.9	366.8
27.5°	541.5	516.9	473.0	437.3	407.8	388.7	372.3	362.1	353.3	336.9	329.6
30°	507.9	468.4	432.1	399.3	377.0	359.2	347.2	326.4	314.1	306.5	303.3
32.5°	471.3	429.1	396.3	367.9	345.1	329.6	311.7	297.7	292.1	282.2	267.8
35°	433.8	395.5	361.2	338.4	318.8	297.7	286.6	273.1	259.1	251.4	250.3
37.5°	397.5	361.2	336.6	312.6	288.9	276.6	260.2	245.9	240.9	233.9	226.3
40°	364.7	333.7	310.9	283.4	269.0	250.0	237.4	230.1	218.1	215.4	213.1
42.5°	337.8	311.2	285.4	260.8	244.1	228.9	217.8	209.3	205.5	199.0	197.0
45°	310.6	286.0	259.6	240.3	221.3	208.4	200.8	193.5	189.1	187.3	183.8
47.5°	286.0	262.0	237.7	214.0	201.1	192.6	184.1	180.3	177.7	173.9	171.8
50°	262.6	235.9	213.1	198.2	184.4	176.8	171.2	167.7	163.6	159.5	153.7
52.5°	238.9	216.0	194.1	178.3	168.0	163.0	157.8	154.0	145.8	137.9	132.9
55°	214.9	191.4	173.6	161.6	154.3	149.0	142.8	131.7	124.1	119.7	117.4
57.5°	193.2	172.1	156.3	146.4	141.1	132.3	121.5	114.5	110.6	108.9	107.7
60°	170.1	151.9	138.7	131.1	122.9	111.2	105.4	101.9	100.7	100.1	99.2
62.5°	150.2	134.1	123.8	115.3	103.6	97.5	94.3	92.5	92.5	91.6	91.0
65°	129.1	116.5	107.7	95.4	89.3	86.6	85.5	84.6	83.7	83.4	82.3
67.5°	111.8	100.7	89.3	82.8	79.0	77.6	76.4	76.1	74.9	74.1	73.2
70°	94.3	83.4	74.1	71.1	69.1	68.5	67.3	66.2	65.3	64.1	63.5
72.5°	76.7	66.4	63.2	61.8	59.7	58.8	57.4	56.5	55.0	54.4	53.9
75°	58.5	54.4	52.7	51.5	50.1	48.0	47.4	46.5	46.0	45.1	44.2
77.5°	46.5	44.2	42.2	40.7	39.5	38.1	36.9	36.6	36.0	35.1	34.8
80°	34.8	33.1	32.2	30.7	29.3	28.4	27.8	27.5	26.6	26.3	26.1
82.5°	24.0	22.5	22.0	20.2	19.6	19.6	19.3	18.7	18.1	17.9	17.6
85°	13.5	12.9	12.0	12.3	11.4	11.4	11.1	10.8	10.5	10.2	10.0
87.5°	5.3	5.0	4.7	4.4	4.4	3.5	3.5	3.5	3.8	3.5	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):

	165°	170°	175°	180°
0°	778.6	778.6	778.6	778.6
2.5°	754.3	754.9	752.9	751.7
5°	727.7	726.8	725.7	724.8
7.5°	700.5	699.6	699.6	696.1
10°	667.4	665.1	663.3	660.4
12.5°	625.2	621.7	620.6	617.1
15°	545.6	538.3	533.3	542.1
17.5°	490.3	471.3	472.7	465.4
20°	433.5	425.9	429.7	418.6
22.5°	396.6	392.0	387.6	385.2
25°	362.4	356.8	350.1	352.4
27.5°	319.4	319.4	315.0	316.7
30°	297.4	295.1	287.7	289.2
32.5°	263.2	260.2	259.3	259.9
35°	246.8	242.1	240.6	238.9
37.5°	223.9	222.2	222.5	221.3
40°	208.7	207.2	205.5	206.1
42.5°	195.5	194.7	192.9	193.2
45°	182.7	181.8	180.9	180.9
47.5°	168.3	166.6	165.1	163.3
50°	149.6	146.1	143.4	142.3
52.5°	129.4	127.6	125.9	125.9
55°	116.5	115.6	115.0	114.7
57.5°	107.4	106.8	106.8	106.0
60°	99.2	99.2	98.9	99.5
62.5°	91.3	90.5	90.7	90.7
65°	82.3	82.0	81.7	81.4
67.5°	72.6	72.3	72.6	72.0
70°	62.9	62.9	62.6	62.1
72.5°	53.0	53.6	53.0	52.7
75°	43.6	43.3	43.6	42.7
77.5°	34.8	33.7	34.2	34.5
80°	25.8	25.8	25.5	25.2
82.5°	17.3	17.6	17.0	17.0
85°	10.0	10.0	9.4	10.0
87.5°	2.9	2.9	2.9	3.5
90°	0.0	0.0	0.0	0.0

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