

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: P242590

Luminaire Tested: **S123RDR-S560D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242590
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-30)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123RDR-S560D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED 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: 1862.1 lumens
Efficiency: N/A
Efficacy: 99.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.35
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

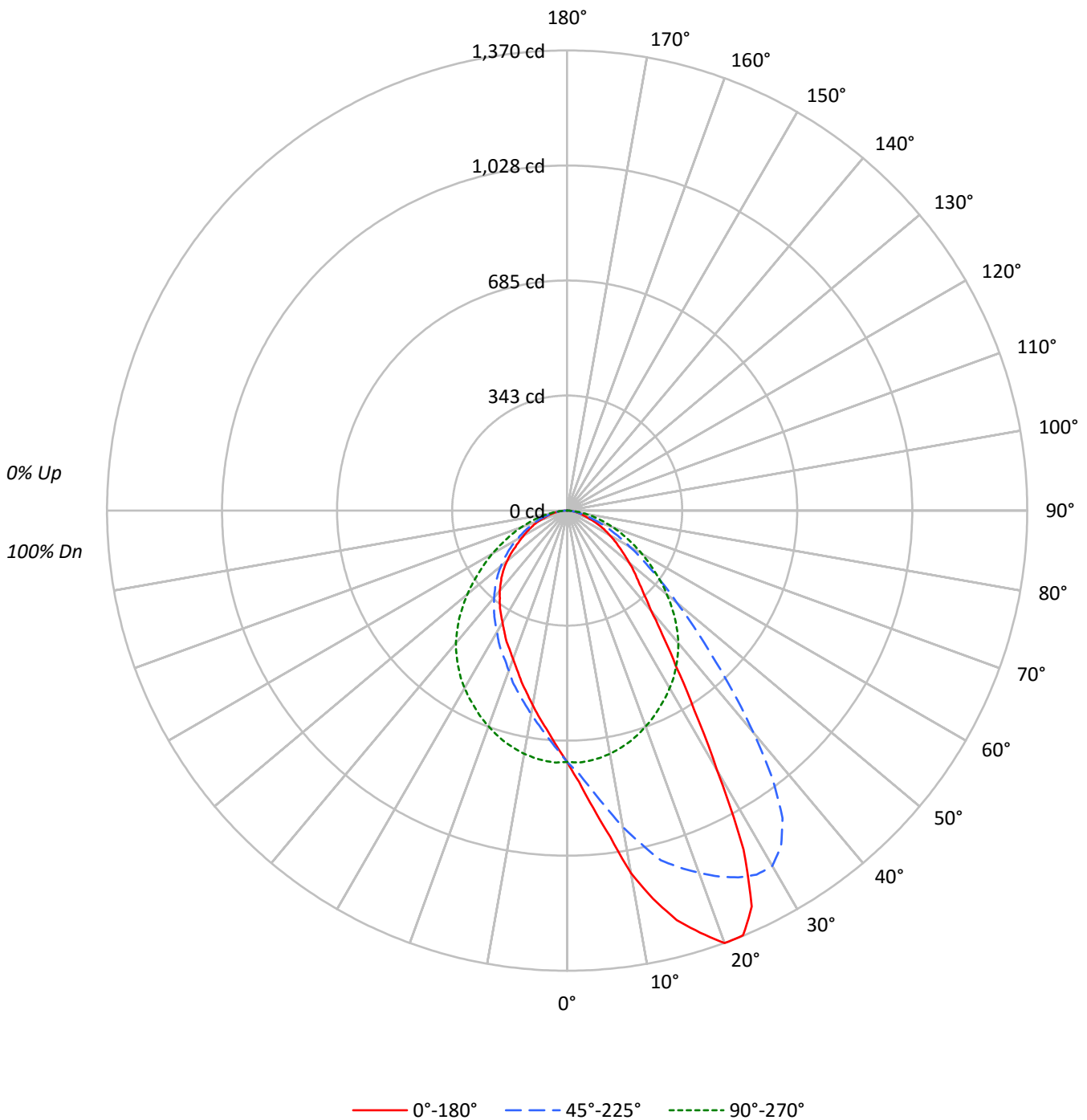
Input Watts (W): 18.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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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	106	102	99	108	104	100	97	100	97	94	96	93	91	92	90	89	87
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	74
3	93	84	76	71	91	82	75	70	79	74	69	77	72	68	74	70	66	64
4	86	75	67	61	84	74	66	61	71	65	60	69	64	59	67	62	58	56
5	80	68	60	53	78	67	59	53	65	58	53	63	57	52	61	56	52	50
6	74	62	53	47	72	61	53	47	59	52	47	57	51	46	56	50	46	44
7	69	56	48	42	67	55	48	42	54	47	42	53	46	42	51	46	41	39
8	64	52	44	38	63	51	43	38	50	43	38	48	42	38	47	42	37	36
9	60	48	40	35	59	47	40	35	46	39	34	45	39	34	44	38	34	32
10	57	44	37	32	55	44	36	32	43	36	31	42	36	31	41	35	31	29

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	9065	9065	9065
5°	10806	9104	8017
10°	13492	9051	7242
15°	15837	8959	6604
20°	17674	8820	6063
25°	17392	8675	5730
30°	12502	8541	5386
35°	8347	8366	5164
40°	6150	8155	4934
45°	5158	7788	4709
50°	4552	7305	4396
55°	3992	6752	3964
60°	3554	6225	3632
65°	3121	5656	3379
70°	2452	5149	3087
75°	2159	4496	2819
80°	1878	3818	2771
85°	1516	3074	2934



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	73.4	3.9
10°-20°	229.9	12.3
20°-30°	362.1	19.4
30°-40°	376.6	20.2
40°-50°	322.1	17.3
50°-60°	245.5	13.2
60°-70°	157.3	8.4
70°-80°	75.4	4.0
80°-90°	19.8	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°	665.4	35.7
0°-40°	1042.0	56.0
0°-60°	1609.7	86.4
0°-90°	1862.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1862.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	748	748	748	748	748	
5°	888	833	748	676	659	91
15°	1262	1078	714	561	526	358
25°	1300	1205	649	464	428	565
35°	564	1118	565	378	349	367
45°	301	607	454	299	275	236
55°	189	303	320	216	188	171
65°	109	149	197	135	118	107
75°	46	54	96	68	60	49
85°	11	12	22	20	21	13
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°	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9
2.5°	808.7	810.0	805.8	805.2	800.4	799.1	799.1	792.4	788.2	782.7	779.5
5°	888.1	893.2	890.6	884.9	875.3	873.0	866.9	857.3	846.5	833.0	826.6
7.5°	979.0	989.6	987.6	978.7	968.4	962.0	945.1	931.3	910.5	891.6	876.9
10°	1096.2	1088.8	1083.0	1074.4	1065.1	1050.1	1032.1	1007.5	979.0	956.6	931.6
12.5°	1183.9	1184.2	1176.5	1167.6	1153.5	1139.4	1116.3	1085.0	1050.7	1015.8	986.4
15°	1262.0	1263.9	1259.1	1249.8	1231.3	1206.0	1172.7	1160.2	1112.8	1077.6	1042.4
17.5°	1317.7	1318.0	1317.1	1304.6	1284.4	1267.1	1236.1	1206.9	1162.1	1114.4	1067.4
20°	1370.2	1367.0	1367.6	1353.2	1339.2	1318.3	1288.3	1240.6	1205.3	1148.0	1099.0
22.5°	1368.9	1368.9	1371.8	1369.2	1360.0	1345.2	1323.1	1284.7	1237.3	1179.4	1122.7
25°	1300.4	1297.9	1312.9	1317.1	1333.4	1336.3	1329.2	1307.1	1264.6	1205.0	1136.8
27.5°	1137.1	1127.9	1159.2	1190.3	1231.6	1257.8	1284.7	1290.8	1270.6	1222.0	1150.6
30°	893.2	923.3	937.4	988.0	1044.3	1111.5	1170.4	1226.5	1240.2	1221.7	1165.6
32.5°	703.7	729.0	740.2	781.8	833.3	915.0	1010.7	1095.8	1162.4	1184.8	1156.7
35°	564.1	564.4	591.3	610.5	659.2	740.2	826.0	932.3	1037.9	1117.9	1126.3
37.5°	465.5	466.8	484.1	503.3	542.3	587.8	667.5	757.1	884.2	1003.6	1065.8
40°	388.7	391.5	403.7	422.6	448.8	481.2	540.1	623.3	725.1	861.8	973.6
42.5°	339.4	344.5	349.3	362.7	376.5	406.3	451.1	510.6	600.9	728.3	861.5
45°	300.9	303.5	308.3	315.0	329.7	350.9	382.9	426.1	502.9	607.0	736.0
47.5°	271.5	269.9	275.3	281.1	291.0	306.4	328.8	366.2	423.9	510.9	622.7
50°	241.4	241.1	244.6	248.8	258.0	268.6	286.2	312.8	356.3	425.5	525.7
52.5°	213.2	214.8	217.1	222.5	228.6	236.6	252.0	269.2	305.1	362.4	441.8
55°	188.9	189.8	193.4	196.2	201.0	209.7	219.6	235.6	261.2	302.9	371.7
57.5°	167.8	167.4	171.0	171.3	177.4	184.7	192.7	205.2	224.7	257.7	305.7
60°	146.6	145.7	148.5	150.8	153.7	159.4	165.8	178.0	192.7	215.5	255.2
62.5°	127.4	127.1	129.0	131.3	133.5	138.6	143.7	152.4	163.3	181.5	211.0
65°	108.8	109.8	110.8	111.7	113.0	116.2	121.3	127.7	135.7	149.2	171.9
67.5°	89.6	90.9	91.2	93.5	96.0	97.6	100.5	106.6	112.7	124.9	138.3
70°	69.2	68.8	69.2	70.1	73.6	77.2	81.3	85.5	89.0	97.0	107.9
72.5°	57.0	56.3	57.3	57.3	58.6	58.9	61.1	65.0	69.8	74.6	81.6
75°	46.1	46.1	46.1	46.1	47.4	48.0	49.0	49.9	51.5	54.1	59.9
77.5°	35.9	35.9	36.5	36.8	37.1	37.5	38.1	39.1	39.7	41.0	43.9
80°	26.9	27.2	26.9	27.2	27.2	27.9	28.2	29.1	29.5	31.1	32.0
82.5°	18.6	18.2	18.6	18.9	18.9	19.5	19.5	20.2	20.2	20.8	21.8
85°	10.9	10.2	10.9	10.6	11.2	10.6	10.9	11.5	11.5	11.8	13.1
87.5°	3.2	3.8	3.2	3.5	3.5	3.8	3.8	3.8	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°	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9
2.5°	778.3	777.3	772.8	767.7	761.0	756.5	753.0	751.1	745.3	738.2	733.4
5°	819.9	810.3	800.0	787.5	776.0	764.2	756.8	748.2	737.6	725.8	717.4
7.5°	861.2	844.5	826.3	807.4	788.2	771.2	755.5	742.7	726.7	710.4	699.2
10°	910.2	882.6	854.1	825.0	798.4	773.5	754.3	735.4	715.2	695.7	680.9
12.5°	954.7	916.2	882.3	844.9	809.0	777.9	748.2	725.1	699.8	678.7	661.4
15°	990.8	953.7	914.0	859.6	814.4	776.7	743.1	713.9	684.5	658.9	642.5
17.5°	1028.6	972.3	920.1	877.8	818.9	773.1	733.8	699.8	667.8	641.6	621.1
20°	1050.4	996.3	938.3	880.4	822.8	769.9	722.2	683.8	650.2	619.5	600.9
22.5°	1063.5	1000.4	938.7	875.3	813.2	757.8	710.7	667.5	630.4	601.5	577.5
25°	1073.1	1000.1	932.9	871.4	809.0	749.5	693.4	648.6	609.2	578.2	553.8
27.5°	1080.8	996.3	919.1	852.2	789.2	728.6	678.1	630.0	590.7	558.3	531.8
30°	1082.7	991.5	902.8	828.8	764.5	710.1	655.7	610.2	567.9	533.0	508.7
32.5°	1085.3	979.6	880.7	801.0	734.7	680.9	632.9	590.0	546.5	512.2	487.3
35°	1076.3	976.8	858.3	768.0	702.1	649.9	605.4	565.4	522.8	489.5	464.2
37.5°	1049.1	961.1	835.9	731.2	663.0	615.0	577.9	541.4	502.0	465.5	442.1
40°	1003.3	935.5	809.0	698.2	626.2	576.6	543.9	515.4	477.7	444.0	418.4
42.5°	935.1	900.6	783.4	663.7	584.6	537.2	510.9	484.7	452.7	418.4	394.7
45°	848.7	854.1	746.6	626.5	546.8	498.8	472.9	454.3	424.8	396.7	372.0
47.5°	743.7	789.2	707.2	587.5	505.8	460.7	438.0	421.0	400.5	371.4	348.6
50°	641.2	713.9	657.9	548.1	467.7	422.9	400.5	387.4	370.1	348.3	326.9
52.5°	546.8	626.2	598.3	504.2	426.4	386.4	364.6	354.4	341.6	321.4	302.5
55°	461.3	540.4	532.7	460.0	385.1	348.3	331.7	319.5	310.2	294.9	279.5
57.5°	387.1	463.6	465.2	411.1	349.3	311.8	297.4	287.8	281.4	269.2	254.2
60°	317.6	386.4	399.9	361.4	310.2	278.2	264.1	256.8	252.0	242.7	231.8
62.5°	260.0	316.0	331.7	306.7	272.8	243.3	233.1	226.0	223.1	215.5	206.2
65°	207.8	256.4	271.2	255.8	236.3	212.3	203.3	197.2	194.3	189.8	182.8
67.5°	163.9	201.7	217.7	204.9	197.5	180.6	174.5	171.0	168.4	165.2	159.1
70°	125.5	151.7	168.4	165.5	159.8	151.7	147.6	145.3	142.8	140.2	135.1
72.5°	94.8	110.8	126.1	128.7	124.2	124.2	120.7	120.1	118.8	115.6	113.3
75°	66.9	79.4	90.3	94.4	96.4	98.0	96.4	96.0	95.7	93.2	91.6
77.5°	46.4	54.4	61.8	69.2	71.7	74.0	74.3	75.6	74.6	73.0	72.4
80°	33.6	35.2	40.0	46.1	50.9	52.8	54.1	54.7	54.4	54.1	52.8
82.5°	22.1	23.4	25.0	28.8	32.7	36.2	36.8	36.5	37.5	37.8	36.8
85°	13.1	13.4	14.1	14.7	17.0	20.5	21.4	22.1	22.7	22.7	20.8
87.5°	5.1	4.8	5.4	5.4	6.4	6.7	8.6	10.2	10.6	9.3	9.3
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°	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9
2.5°	731.8	727.7	724.8	718.4	714.2	709.8	705.3	708.2	707.8	707.5	707.5
5°	710.4	703.0	696.3	687.7	682.2	675.5	670.4	669.7	671.0	666.5	664.0
7.5°	690.2	680.6	671.0	662.1	652.1	644.4	639.6	637.7	634.2	631.3	628.8
10°	668.8	656.9	647.6	635.8	624.9	615.3	609.2	605.1	602.8	600.6	596.4
12.5°	646.7	635.2	622.7	608.9	598.7	587.1	583.0	578.2	573.4	570.8	564.7
15°	625.2	610.2	597.7	583.6	572.1	561.2	554.8	545.5	544.2	541.0	535.3
17.5°	604.4	587.8	569.5	559.9	548.4	536.9	526.6	523.8	514.1	510.9	505.5
20°	578.8	563.8	550.6	536.9	518.0	507.4	499.7	495.6	488.2	483.7	480.5
22.5°	556.7	541.4	525.7	509.0	494.3	482.1	477.0	470.0	466.8	460.0	456.5
25°	535.9	519.3	501.0	483.7	472.5	463.6	454.6	448.8	443.1	440.2	433.8
27.5°	510.6	494.0	476.4	462.9	450.1	441.2	432.5	427.7	420.3	415.5	412.0
30°	490.5	470.0	455.2	443.4	425.8	417.5	411.4	405.0	399.9	394.7	391.2
32.5°	467.1	448.8	435.1	419.7	407.2	397.9	389.6	384.2	380.0	375.2	371.7
35°	442.4	426.7	412.3	397.6	387.7	378.4	369.1	364.3	360.2	355.7	352.5
37.5°	420.0	405.3	391.9	377.8	365.6	357.6	349.9	346.7	341.0	337.8	334.5
40°	399.5	385.1	370.4	357.0	344.2	338.4	331.7	326.2	321.1	318.9	315.3
42.5°	377.1	362.7	350.9	336.1	326.2	317.9	311.8	305.7	302.2	298.7	297.1
45°	355.0	342.2	330.1	315.7	305.7	299.0	292.0	286.5	283.0	280.8	277.2
47.5°	333.9	320.8	308.6	295.8	286.2	278.5	271.2	267.6	262.8	260.3	257.7
50°	310.5	299.0	285.9	274.4	264.8	257.1	251.3	246.5	242.3	238.8	237.2
52.5°	289.1	276.6	265.7	255.2	244.9	235.9	230.8	225.7	222.8	218.7	216.7
55°	265.1	253.2	243.6	233.1	223.1	215.8	209.4	204.9	201.7	197.2	194.6
57.5°	243.0	232.7	220.9	211.6	201.0	195.3	189.8	183.4	179.6	176.1	173.5
60°	220.6	208.4	198.5	189.8	180.9	172.9	168.1	163.3	159.1	155.6	153.3
62.5°	197.2	187.0	177.7	168.1	160.1	153.3	147.6	143.7	140.2	138.3	136.1
65°	173.2	164.9	155.3	147.6	139.9	134.8	130.3	126.8	124.2	122.6	120.7
67.5°	151.1	143.1	134.5	126.5	121.3	117.2	114.0	110.8	109.5	107.6	106.3
70°	129.7	121.3	114.0	108.2	103.1	100.2	98.3	96.0	94.8	92.2	90.9
72.5°	106.3	100.8	96.0	91.6	87.7	85.2	82.6	79.7	77.5	74.6	73.3
75°	87.4	82.0	77.8	74.6	72.0	68.5	65.0	62.1	61.1	60.2	59.9
77.5°	68.2	64.7	61.5	58.9	55.4	52.2	51.2	50.6	50.3	49.6	49.6
80°	50.9	47.7	45.5	42.3	40.3	40.3	40.3	39.7	40.0	40.0	40.0
82.5°	34.6	31.7	30.7	30.1	30.1	30.4	30.4	30.7	30.4	31.1	30.7
85°	19.5	19.8	20.5	20.2	20.5	20.5	21.1	20.8	21.1	20.5	21.1
87.5°	9.0	9.9	10.2	10.6	10.9	10.6	10.9	10.9	11.2	11.2	11.2
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°	747.9	747.9	747.9	747.9
2.5°	703.7	703.4	703.7	702.4
5°	663.0	662.7	661.7	658.9
7.5°	626.2	625.6	623.0	623.6
10°	594.2	594.5	590.7	588.4
12.5°	563.1	561.2	558.3	555.8
15°	536.6	533.4	525.7	526.3
17.5°	503.6	501.0	500.7	496.2
20°	475.4	473.8	474.5	470.0
22.5°	453.3	451.7	448.2	447.6
25°	431.9	429.3	426.7	428.4
27.5°	410.1	408.2	405.3	405.3
30°	389.6	387.7	386.4	384.8
32.5°	368.8	368.8	366.2	366.2
35°	351.2	349.3	348.6	349.0
37.5°	334.2	331.7	330.4	329.1
40°	315.7	313.1	312.5	311.8
42.5°	294.9	294.2	293.9	292.6
45°	276.3	276.0	274.0	274.7
47.5°	256.4	254.8	253.9	254.8
50°	235.9	235.3	232.4	233.1
52.5°	215.5	212.6	211.9	211.3
55°	192.4	189.5	188.2	187.6
57.5°	169.7	168.7	167.4	168.4
60°	150.1	150.1	150.1	149.8
62.5°	135.1	134.1	133.8	134.5
65°	119.7	119.4	118.1	117.8
67.5°	105.6	104.4	104.4	103.7
70°	89.3	88.7	86.8	87.1
72.5°	71.7	71.1	71.1	70.4
75°	59.5	59.2	58.9	60.2
77.5°	49.6	49.6	49.9	49.3
80°	40.0	40.0	39.7	39.7
82.5°	30.1	30.4	30.7	30.1
85°	21.1	20.8	21.4	21.1
87.5°	11.8	11.2	11.2	11.5
90°	0.0	0.0	0.0	0.0

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