

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: P243450

Luminaire Tested: **S123RDR-H560D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243450
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-69)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123RDR-H560D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 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: 1793.7 lumens
Efficiency: N/A
Efficacy: 104.3 lumens/watt
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

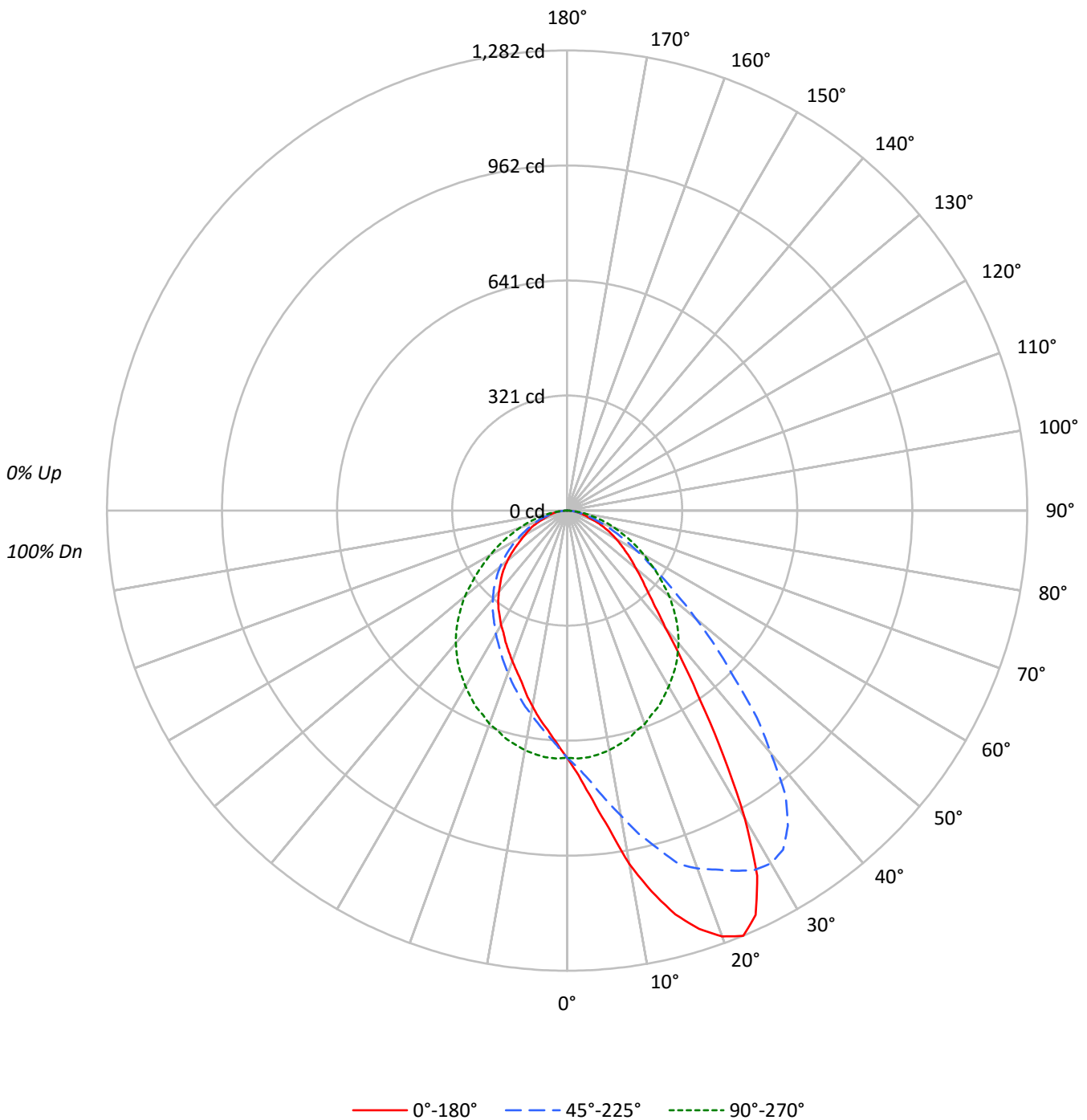
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	107	104	100	97	99	97	94	96	93	91	92	90	89	87
2	101	94	88	83	99	92	86	82	89	84	80	85	81	78	82	79	76	74
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66	64
4	86	75	67	61	84	74	66	60	71	65	59	69	63	59	67	62	58	56
5	79	68	59	53	77	66	59	53	64	57	52	62	56	52	61	55	51	49
6	74	61	53	47	72	60	52	47	59	52	46	57	51	46	55	50	46	44
7	69	56	48	42	67	55	47	42	54	47	41	52	46	41	51	45	41	39
8	64	51	43	38	62	51	43	37	49	42	37	48	42	37	47	41	37	35
9	60	47	39	34	59	47	39	34	45	39	34	44	38	34	43	38	33	32
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31	29

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	8344	8344	8344
5°	9837	8391	7472
10°	12314	8341	6819
15°	14614	8258	6177
20°	16286	8159	5750
25°	16624	8058	5414
30°	13854	7921	5151
35°	9571	7811	4935
40°	6725	7633	4674
45°	5401	7362	4423
50°	4709	7011	4092
55°	4220	6488	3643
60°	3818	5995	3299
65°	3341	5524	3086
70°	2697	4972	2612
75°	2337	4327	2562
80°	2157	3693	2576
85°	1905	2976	2239



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	67.5	3.8
10°-20°	212.6	11.9
20°-30°	340.6	19.0
30°-40°	369.8	20.6
40°-50°	316.8	17.7
50°-60°	240.2	13.4
60°-70°	153.5	8.6
70°-80°	73.4	4.1
80°-90°	19.3	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°	620.8	34.6
0°-40°	990.6	55.2
0°-60°	1547.6	86.3
0°-90°	1793.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1793.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	688	688	688	688	688	
5°	808	759	690	627	614	83
15°	1165	973	658	528	492	330
25°	1243	1107	602	438	405	552
35°	647	1072	528	358	334	415
45°	315	656	430	284	258	249
55°	200	322	307	203	172	180
65°	116	155	193	123	108	116
75°	50	61	92	58	55	54
85°	14	14	21	17	16	16
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°	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4
2.5°	737.7	738.6	737.1	736.8	736.5	731.8	730.3	727.9	719.6	717.5	716.0
5°	808.5	806.1	808.8	803.7	798.1	794.8	789.4	777.6	767.2	758.8	753.5
7.5°	892.3	893.2	890.5	885.8	874.5	869.7	855.1	840.9	827.2	810.0	797.2
10°	1000.5	993.4	994.8	980.0	968.1	953.8	933.9	911.0	886.9	862.6	844.4
12.5°	1086.7	1091.7	1088.2	1081.0	1058.1	1044.2	1026.0	992.8	954.7	922.0	894.4
15°	1164.6	1157.7	1158.6	1141.4	1133.1	1120.3	1090.2	1057.3	1032.6	973.4	940.7
17.5°	1221.6	1221.0	1220.1	1205.6	1195.5	1168.7	1138.1	1104.2	1073.3	1032.3	991.3
20°	1262.6	1267.1	1265.9	1254.0	1236.2	1210.3	1191.9	1149.7	1098.9	1061.4	1011.2
22.5°	1282.3	1282.6	1283.2	1277.5	1265.6	1249.0	1222.8	1188.9	1143.8	1082.5	1026.6
25°	1243.0	1244.5	1252.2	1257.0	1260.3	1252.8	1239.2	1208.5	1169.6	1107.2	1049.2
27.5°	1146.7	1151.5	1160.1	1188.6	1200.2	1216.3	1221.9	1209.7	1180.9	1128.9	1062.9
30°	989.8	1003.2	1011.5	1043.9	1089.4	1132.2	1152.4	1172.3	1169.6	1135.1	1068.3
32.5°	810.3	818.9	843.0	877.7	913.7	976.4	1046.6	1094.7	1121.8	1120.0	1072.7
35°	646.8	659.3	679.8	706.2	755.9	821.0	900.3	976.1	1043.9	1072.1	1055.2
37.5°	524.9	526.1	545.4	582.9	613.8	671.2	742.8	836.4	925.3	999.0	1015.3
40°	425.0	433.4	443.5	467.0	503.5	558.5	606.1	698.2	790.3	882.8	948.8
42.5°	362.0	362.0	373.3	388.2	412.6	445.6	502.3	585.8	668.8	782.3	856.6
45°	315.1	318.0	323.1	332.6	349.8	375.4	419.4	476.2	560.9	656.3	768.0
47.5°	281.2	280.9	285.3	291.0	304.4	323.7	349.5	395.6	458.3	561.2	659.9
50°	249.7	250.9	254.1	258.9	267.8	281.5	297.8	332.6	385.5	467.0	570.4
52.5°	225.3	225.0	227.7	230.7	237.5	245.2	259.8	285.6	322.2	387.0	472.9
55°	199.7	200.9	204.2	206.0	211.6	216.7	228.9	243.4	272.9	321.6	399.8
57.5°	177.7	179.2	181.0	182.8	186.7	191.7	201.8	210.7	232.1	267.2	329.6
60°	157.5	156.9	159.0	162.0	164.1	168.5	174.2	183.4	198.3	223.2	269.0
62.5°	137.3	137.6	137.9	139.7	143.6	147.4	152.5	159.3	168.2	186.7	219.1
65°	116.5	116.8	117.4	119.2	123.1	125.4	130.8	136.7	143.9	154.9	177.4
67.5°	98.1	99.3	99.3	100.8	102.2	104.6	108.5	112.9	118.9	126.9	141.5
70°	76.1	75.8	77.3	80.3	81.7	85.9	88.6	91.5	96.9	102.0	114.4
72.5°	61.2	61.2	61.2	62.4	62.7	63.6	65.4	71.6	75.8	80.8	87.7
75°	49.9	50.2	50.2	50.5	50.8	51.7	52.3	54.1	55.3	60.6	64.8
77.5°	39.8	40.1	40.1	40.4	40.7	41.0	42.2	42.2	43.1	44.3	46.1
80°	30.9	30.6	30.6	30.9	30.9	31.8	31.8	32.4	32.7	33.3	34.2
82.5°	22.0	21.7	22.0	21.7	22.0	22.3	22.9	22.6	23.2	23.8	24.1
85°	13.7	14.0	14.0	14.6	14.3	14.0	14.3	14.3	14.3	14.3	14.9
87.5°	5.9	6.5	6.5	6.2	6.5	6.5	5.9	6.5	6.5	6.5	6.8
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°	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4
2.5°	715.1	714.0	709.5	705.3	699.1	696.4	692.8	691.4	686.6	680.1	677.1
5°	748.4	739.5	730.9	720.5	711.9	701.8	696.1	689.6	679.5	670.3	663.7
7.5°	783.8	770.7	754.7	737.4	722.0	707.4	694.9	684.5	671.4	658.7	648.6
10°	822.7	800.4	774.6	752.6	730.3	709.2	693.4	677.7	660.7	644.7	632.5
12.5°	864.6	833.1	801.9	768.9	735.7	711.3	687.8	667.6	648.6	631.6	617.1
15°	908.0	864.9	825.1	788.0	741.6	708.9	683.0	658.1	634.3	613.5	599.2
17.5°	939.0	889.6	839.4	786.8	746.9	706.5	674.4	642.9	620.9	599.5	580.2
20°	967.5	911.6	851.9	802.8	747.2	697.9	662.8	632.5	601.9	579.0	562.7
22.5°	979.7	929.1	868.8	800.7	745.2	694.6	649.5	615.3	587.9	563.0	541.6
25°	982.1	925.6	863.8	798.1	737.1	682.4	636.7	602.5	566.8	541.0	524.3
27.5°	992.5	915.2	854.5	789.2	727.3	670.3	622.1	584.1	550.8	523.1	501.7
30°	995.1	910.7	834.9	772.5	708.9	653.0	604.3	565.9	529.7	501.4	482.1
32.5°	996.3	904.8	814.4	746.1	685.4	632.8	588.2	546.6	512.1	482.4	462.5
35°	992.2	896.5	789.7	716.0	657.8	606.1	564.7	527.9	489.5	461.6	440.5
37.5°	975.8	883.4	775.8	681.0	625.4	576.6	541.6	505.3	469.9	439.6	417.9
40°	944.9	864.4	749.6	651.5	588.5	544.8	512.1	482.4	446.7	417.6	396.2
42.5°	895.6	838.5	725.5	618.2	552.0	510.6	483.3	457.7	425.6	398.0	374.5
45°	822.4	802.2	693.4	584.4	512.1	473.2	449.4	429.5	400.4	375.1	353.4
47.5°	743.4	747.8	661.0	549.9	475.9	438.7	417.9	400.4	378.4	351.3	331.4
50°	652.1	676.5	615.6	515.1	439.6	403.0	382.5	371.8	351.3	328.7	310.0
52.5°	568.6	607.2	569.5	477.1	403.9	368.0	349.0	338.3	324.6	305.9	286.8
55°	482.1	531.2	503.8	436.0	367.7	331.4	315.4	307.0	295.7	281.2	263.9
57.5°	410.5	462.8	445.6	392.9	332.3	299.6	285.3	275.8	269.0	255.6	241.7
60°	340.3	388.8	381.9	343.3	297.2	266.0	255.0	247.3	241.7	231.8	218.2
62.5°	274.6	321.6	325.8	295.4	263.1	234.8	224.7	219.4	214.9	207.2	194.7
65°	217.9	259.2	267.8	244.6	227.1	205.7	195.9	192.6	189.3	180.4	170.9
67.5°	170.6	203.0	214.3	201.2	188.7	176.3	168.5	164.1	161.7	156.3	149.8
70°	130.5	158.4	167.9	162.3	154.0	149.2	143.3	140.3	137.9	131.1	127.5
72.5°	97.8	116.8	128.7	126.9	125.1	121.9	118.3	117.4	113.8	109.4	106.1
75°	71.6	82.6	93.3	97.2	96.6	97.8	93.9	92.4	90.4	87.1	84.4
77.5°	51.4	58.0	65.4	70.1	72.5	72.8	72.8	71.9	70.4	68.1	66.0
80°	35.7	37.2	44.0	48.4	50.8	52.6	52.6	52.9	51.4	50.5	49.0
82.5°	24.7	25.6	27.0	30.6	33.6	35.7	36.0	35.7	35.1	34.8	32.7
85°	15.5	15.2	15.2	16.1	18.4	20.5	20.8	21.4	21.1	20.8	18.7
87.5°	6.5	6.5	6.8	6.5	7.4	7.7	8.3	9.8	9.5	8.0	7.4
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°	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4
2.5°	675.3	671.4	667.9	664.0	659.3	654.8	654.2	653.6	655.1	652.1	650.9
5°	658.7	651.2	645.6	638.5	633.4	626.9	623.3	622.4	622.1	620.3	617.9
7.5°	640.5	632.5	624.5	616.5	608.1	601.3	597.4	595.4	593.6	590.6	588.2
10°	623.6	613.5	604.9	593.9	585.0	576.0	572.5	569.5	567.7	563.6	560.3
12.5°	604.6	591.8	582.3	570.4	562.4	554.6	549.0	543.3	539.2	532.9	530.3
15°	587.9	574.6	558.5	551.4	540.1	528.5	522.2	522.2	513.6	508.6	505.3
17.5°	565.6	554.0	542.7	528.2	512.1	505.3	498.2	491.9	486.0	484.5	478.5
20°	546.0	532.3	520.8	505.0	490.4	482.4	474.1	467.2	462.8	458.6	455.4
22.5°	526.7	513.0	495.2	479.7	469.9	459.2	450.3	444.4	440.5	434.3	431.3
25°	506.5	490.1	474.1	458.9	446.7	437.5	428.3	425.0	418.2	414.9	410.8
27.5°	486.3	466.7	451.5	438.4	424.7	415.8	409.6	403.6	397.7	395.9	393.5
30°	463.7	445.6	431.0	418.2	405.1	397.4	390.0	384.6	379.6	375.7	373.0
32.5°	441.1	425.9	412.0	397.1	385.2	376.9	370.6	365.9	363.5	357.0	354.6
35°	420.3	404.8	390.0	376.0	366.5	358.5	352.8	348.4	343.3	339.1	336.8
37.5°	398.9	384.9	369.8	357.9	347.2	340.6	334.4	328.4	324.6	322.2	319.2
40°	378.1	363.2	351.6	338.5	329.0	321.6	315.1	310.6	305.9	303.8	299.9
42.5°	358.5	344.2	330.8	318.9	310.3	303.2	296.9	291.9	288.0	284.2	282.1
45°	335.9	323.4	311.2	299.3	291.3	283.6	276.7	272.3	266.9	263.6	262.5
47.5°	316.8	303.8	290.7	279.7	271.4	263.1	257.4	252.1	247.6	244.3	242.5
50°	294.3	282.1	271.4	260.4	252.4	243.4	236.6	231.5	226.5	224.1	221.1
52.5°	274.9	263.1	250.0	240.2	230.9	223.2	217.0	212.8	208.4	204.8	202.7
55°	250.9	239.3	228.9	218.5	209.3	203.0	198.0	190.8	187.0	183.4	177.7
57.5°	229.8	218.8	207.8	197.7	189.0	181.6	175.4	170.6	165.6	162.9	159.0
60°	207.5	195.9	185.8	178.0	168.5	160.5	156.3	150.7	146.5	142.4	141.2
62.5°	185.5	174.8	164.7	156.6	148.0	141.8	136.4	133.8	129.6	126.3	125.1
65°	162.6	153.7	144.2	135.2	129.9	122.8	119.8	115.3	112.9	111.5	111.2
67.5°	140.0	132.0	123.4	116.5	111.5	106.7	103.1	101.4	99.0	97.2	95.7
70°	119.5	111.8	104.3	98.7	94.8	91.3	88.9	85.6	83.2	80.8	77.6
72.5°	99.3	93.0	86.8	82.3	78.5	76.4	73.1	68.1	65.7	65.1	64.8
75°	80.6	73.7	69.3	66.9	63.3	58.3	56.2	55.6	55.3	54.7	54.7
77.5°	62.1	58.0	55.0	49.9	48.2	47.9	46.4	46.1	45.5	45.8	45.8
80°	45.2	42.8	39.2	37.7	37.2	37.5	36.9	37.2	36.6	36.9	36.3
82.5°	30.0	27.9	28.5	27.6	27.6	28.2	27.9	27.0	27.0	26.8	26.8
85°	17.8	17.5	18.1	18.1	17.8	16.9	17.5	17.2	16.3	16.6	16.6
87.5°	7.7	7.7	7.7	7.4	7.7	7.4	7.4	7.4	6.5	6.5	6.5
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):

	165°	170°	175°	180°
0°	688.4	688.4	688.4	688.4
2.5°	651.5	650.9	650.0	649.2
5°	617.9	615.3	615.0	614.1
7.5°	586.4	585.3	583.2	585.5
10°	557.6	558.5	556.4	554.0
12.5°	527.6	525.8	522.5	524.3
15°	501.1	498.2	496.4	492.2
17.5°	473.5	471.1	471.1	468.4
20°	449.4	447.0	447.6	445.8
22.5°	429.2	427.4	424.7	425.0
25°	410.2	407.5	404.5	404.8
27.5°	389.1	386.7	386.1	384.0
30°	370.4	368.3	368.0	368.0
32.5°	352.2	351.3	349.8	349.0
35°	336.5	335.3	332.9	333.5
37.5°	316.8	315.7	315.4	315.1
40°	298.4	297.5	295.2	295.4
42.5°	280.0	278.5	277.0	276.4
45°	260.1	259.8	257.4	258.0
47.5°	241.1	240.5	239.3	237.8
50°	220.0	219.7	218.8	217.0
52.5°	199.4	198.6	196.8	195.0
55°	176.3	173.6	173.9	172.4
57.5°	157.2	156.0	153.7	152.8
60°	138.8	137.6	137.3	136.1
62.5°	123.4	122.2	121.3	121.3
65°	109.4	107.9	107.6	107.6
67.5°	93.9	92.4	92.1	91.5
70°	74.6	74.3	73.7	73.7
72.5°	64.2	63.9	64.2	63.0
75°	54.7	54.4	54.4	54.7
77.5°	45.5	45.5	45.2	45.2
80°	36.0	36.3	36.0	36.9
82.5°	27.0	26.5	26.8	26.2
85°	16.6	16.6	16.1	16.1
87.5°	6.5	6.5	6.5	6.5
90°	0.0	0.0	0.0	0.0

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