

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: P243347

Luminaire Tested: **S123DR-H560D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243347
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-59)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DR-H560D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 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: 1956.3 lumens
Efficiency: N/A
Efficacy: 113.7 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

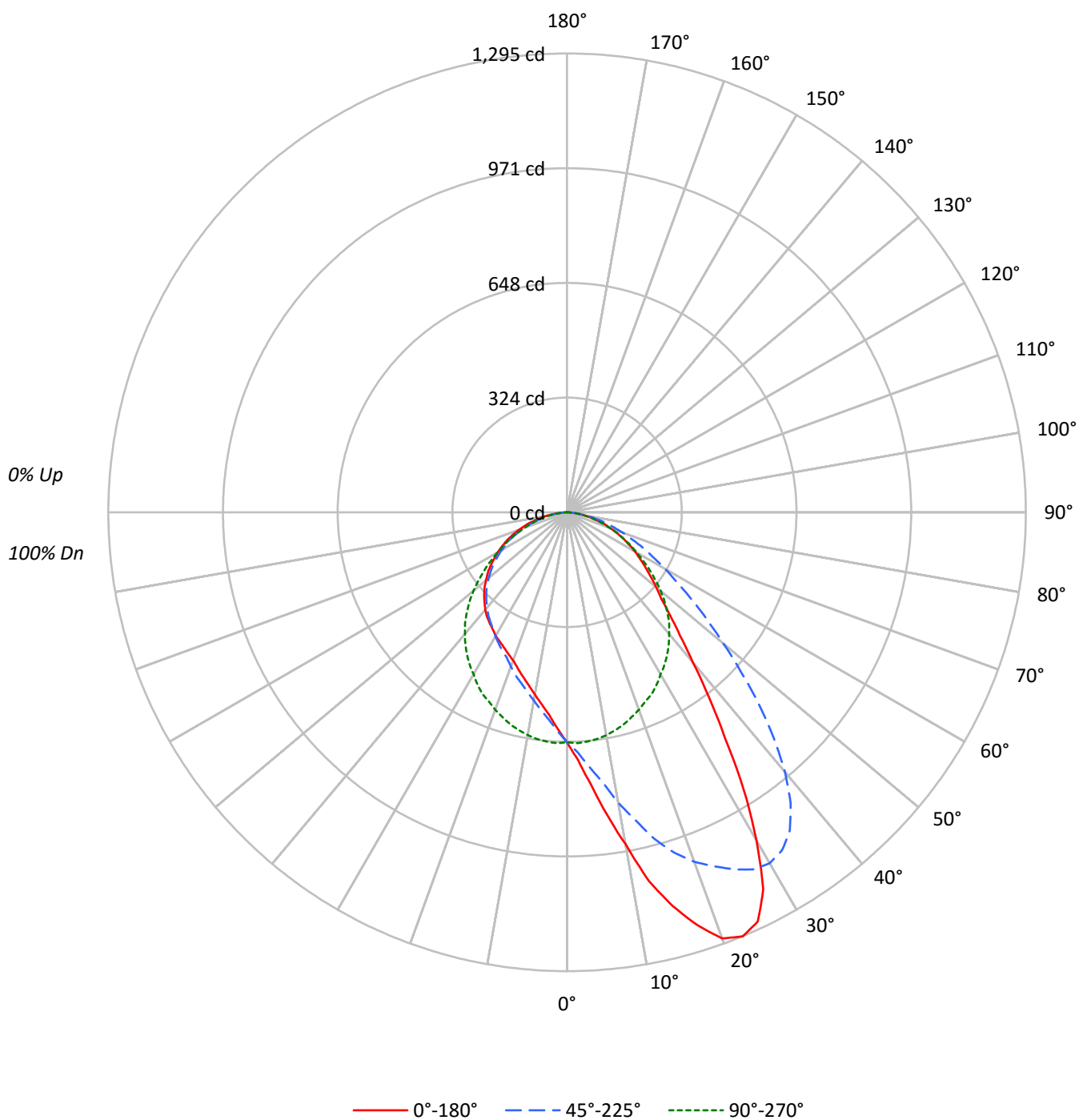
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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CATALOG NUMBER: S123DR-H560D940-X4F0-XX-UDD-A-W

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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		100
1	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85		85
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74	72		72
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62		62
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53		53
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46		46
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41		41
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38	36		36
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	33		33
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29		29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	28	38	33	28	27		27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	7868	7868	7868
5°	9374	7905	6987
10°	11706	7858	6424
15°	14427	7773	6027
20°	16508	7649	5735
25°	17038	7564	5629
30°	14968	7384	5632
35°	11487	7274	5638
40°	8738	7097	5681
45°	7032	6869	5676
50°	6187	6502	5627
55°	5704	6023	5590
60°	5375	5513	5476
65°	4996	5039	5372
70°	4572	4519	5139
75°	4065	3939	4786
80°	3399	3260	4188
85°	2392	2350	3143

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.9	3.3
10°-20°	205.0	10.5
20°-30°	338.7	17.3
30°-40°	387.6	19.8
40°-50°	351.2	18.0
50°-60°	283.8	14.5
60°-70°	197.7	10.1
70°-80°	103.7	5.3
80°-90°	24.7	1.3
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°	607.6	31.1
0°-40°	995.2	50.9
0°-60°	1630.2	83.3
0°-90°	1956.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1956.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	649	649	649	649	649	
5°	770	720	650	588	574	79
15°	1150	955	619	499	480	327
25°	1274	1112	566	431	421	569
35°	776	1096	492	377	381	492
45°	410	766	401	323	331	323
55°	270	430	285	253	264	242
65°	174	235	176	173	187	173
75°	87	107	84	87	102	93
85°	17	22	17	19	23	22
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°	649.1	649.1	649.1	649.1	649.1	649.1	649.1	649.1	649.1	649.1	649.1
2.5°	699.1	700.6	698.2	699.7	696.1	694.0	690.7	689.3	682.1	677.1	675.3
5°	770.4	770.4	771.0	767.4	763.3	755.8	746.0	739.8	732.7	720.5	714.2
7.5°	860.2	855.7	852.7	846.2	840.5	828.4	817.7	804.9	788.2	768.0	757.3
10°	951.1	955.9	952.9	946.1	931.5	911.6	895.8	877.4	851.5	831.9	804.0
12.5°	1064.7	1058.4	1053.7	1043.3	1027.2	1006.1	981.7	954.4	921.1	888.7	857.5
15°	1149.7	1150.5	1150.3	1136.6	1120.8	1092.3	1069.7	1024.2	982.0	954.7	903.0
17.5°	1221.6	1225.4	1221.0	1200.5	1186.5	1169.6	1140.7	1090.2	1051.9	1007.6	950.5
20°	1279.8	1280.4	1273.3	1258.1	1242.1	1223.1	1185.0	1146.4	1108.9	1049.5	995.1
22.5°	1295.3	1296.8	1295.3	1288.8	1275.7	1255.5	1226.9	1191.3	1144.0	1080.7	1030.2
25°	1273.9	1273.0	1278.1	1274.2	1273.6	1267.1	1248.3	1219.5	1172.8	1111.9	1047.7
27.5°	1199.0	1192.8	1205.5	1222.2	1224.6	1235.0	1235.3	1221.9	1188.3	1136.3	1066.4
30°	1069.4	1075.4	1081.6	1116.4	1135.7	1162.7	1186.2	1194.8	1182.1	1143.7	1078.3
32.5°	928.5	947.5	965.1	989.2	1017.4	1063.2	1100.3	1133.0	1147.0	1130.0	1078.3
35°	776.3	786.5	814.1	844.7	885.4	921.1	994.8	1042.4	1084.9	1095.9	1064.7
37.5°	657.5	666.7	676.2	700.0	745.7	805.2	866.1	928.5	991.5	1036.7	1034.9
40°	552.2	554.3	562.6	583.2	621.2	674.1	738.0	813.2	894.9	956.5	982.3
42.5°	471.4	471.4	481.8	505.6	527.6	566.2	628.0	694.3	783.8	862.8	918.1
45°	410.2	410.8	419.1	436.0	453.3	483.6	529.4	591.8	683.9	765.6	842.6
47.5°	360.2	365.9	370.6	379.6	396.8	423.5	456.8	510.0	575.7	664.9	754.6
50°	328.1	329.3	332.9	338.2	351.6	369.2	398.0	438.4	496.7	575.7	666.4
52.5°	296.6	296.6	300.2	306.7	314.5	328.7	349.5	383.1	426.8	498.4	579.9
55°	269.9	270.8	271.4	276.7	283.3	294.0	310.3	332.3	372.4	429.8	500.8
57.5°	243.7	247.0	246.1	250.3	255.0	262.7	274.3	293.4	324.0	367.7	431.6
60°	221.7	221.1	222.6	224.4	227.7	233.0	243.7	257.7	283.3	319.8	372.1
62.5°	196.8	196.2	198.0	200.0	203.0	207.5	215.2	225.9	246.1	273.4	318.9
65°	174.2	173.6	174.5	175.7	178.9	182.5	188.4	197.4	210.7	234.8	269.6
67.5°	151.6	151.6	152.2	153.4	155.4	158.1	162.9	168.2	181.6	197.7	225.0
70°	129.0	129.3	129.3	130.5	132.3	134.3	138.2	143.0	151.3	165.6	187.5
72.5°	109.4	109.4	108.8	109.4	110.6	111.5	113.8	118.3	124.5	134.9	151.6
75°	86.8	88.3	88.0	87.7	88.6	90.1	92.1	95.7	99.6	107.0	119.5
77.5°	66.6	67.5	67.5	67.8	68.7	69.8	70.4	74.0	77.6	82.0	91.2
80°	48.7	49.3	48.7	49.0	49.6	50.8	52.0	52.6	55.3	59.1	63.6
82.5°	32.7	31.8	33.0	32.7	33.3	33.6	34.2	34.5	36.3	38.6	41.6
85°	17.2	18.7	18.4	19.0	18.4	18.7	19.0	20.2	20.5	22.0	23.8
87.5°	6.5	7.1	7.1	7.1	7.1	7.1	7.7	8.0	8.6	8.9	9.5
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°	649.1	649.1	649.1	649.1	649.1	649.1	649.1	649.1	649.1	649.1	649.1
2.5°	676.5	673.8	669.9	665.8	661.3	656.9	654.8	652.1	646.8	641.4	637.2
5°	709.2	701.7	691.6	684.2	673.5	663.4	655.4	649.7	641.1	630.7	623.9
7.5°	745.7	732.4	716.3	700.0	683.9	668.8	656.3	645.6	632.2	619.4	609.0
10°	788.8	763.0	740.7	716.9	693.1	671.7	653.9	638.4	621.2	605.7	593.0
12.5°	826.9	796.9	765.9	732.4	700.3	672.6	649.7	629.5	608.7	590.9	577.8
15°	868.8	826.6	783.8	745.7	706.8	672.9	642.9	619.4	595.6	575.4	560.3
17.5°	916.9	860.5	806.7	752.0	717.5	673.8	636.9	606.0	581.7	561.5	541.8
20°	945.5	889.3	823.3	767.1	710.1	665.2	624.2	593.0	564.4	541.2	525.2
22.5°	960.9	901.8	832.8	775.2	708.6	658.3	614.7	577.8	547.2	524.0	505.9
25°	982.6	901.8	837.9	768.6	711.0	650.3	601.0	565.6	533.5	506.8	487.7
27.5°	992.4	909.8	838.5	756.1	696.7	635.2	585.2	547.8	512.1	486.0	469.6
30°	1000.5	911.3	826.6	746.3	680.0	618.2	569.5	527.6	494.3	469.3	452.1
32.5°	1001.0	907.4	810.5	727.9	657.8	598.3	550.8	511.2	476.4	450.0	433.1
35°	995.7	897.9	792.1	699.7	631.9	577.8	530.2	491.6	456.2	431.0	413.7
37.5°	982.0	887.2	774.9	673.2	601.3	548.7	508.3	471.4	436.3	411.1	396.8
40°	952.9	870.0	752.3	645.0	570.4	517.8	482.4	448.5	417.3	391.1	376.9
42.5°	914.3	844.1	724.9	615.0	535.9	485.1	453.9	426.5	394.7	372.1	357.6
45°	859.6	809.0	697.6	583.4	501.7	451.8	423.2	400.7	373.3	350.7	337.9
47.5°	797.7	766.8	662.2	548.1	465.7	418.8	391.7	373.6	350.4	331.1	318.3
50°	728.2	716.6	623.3	512.4	432.2	384.0	359.0	344.8	325.2	309.7	298.7
52.5°	652.7	659.8	582.3	476.2	399.8	351.0	327.2	314.2	301.7	288.6	278.2
55°	576.0	593.0	532.6	436.6	362.6	320.1	296.9	285.0	275.8	264.8	257.4
57.5°	504.1	530.5	481.2	394.4	328.4	287.7	265.7	255.3	248.5	242.5	235.7
60°	434.2	464.9	428.3	354.9	294.3	257.1	237.5	227.4	224.1	219.6	213.1
62.5°	372.4	403.6	376.3	314.2	259.8	228.0	210.1	201.8	197.1	195.6	191.7
65°	314.5	343.6	322.8	271.7	227.1	198.8	183.1	175.7	173.0	172.7	169.7
67.5°	264.2	292.5	273.4	230.3	192.6	169.7	157.8	151.9	149.2	149.5	147.4
70°	217.9	237.8	226.5	192.6	163.5	143.3	134.0	127.5	125.4	125.4	124.8
72.5°	174.8	190.5	181.9	156.0	133.2	117.7	109.7	105.8	104.0	103.7	104.0
75°	136.7	150.4	142.7	122.5	105.2	93.6	86.8	84.1	83.2	82.6	82.9
77.5°	102.2	110.9	106.1	93.0	78.8	70.7	67.5	64.8	63.9	64.2	64.8
80°	72.2	77.0	74.3	66.0	56.5	51.1	48.7	46.7	45.8	46.7	46.7
82.5°	45.8	49.3	47.0	41.6	36.9	33.3	30.9	30.3	30.0	29.4	30.3
85°	25.0	26.8	25.6	23.8	20.5	19.0	17.2	16.9	16.9	16.9	16.9
87.5°	9.8	11.0	9.5	9.5	8.9	7.4	7.4	7.1	6.8	7.1	7.1
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	649.1	649.1	649.1	649.1	649.1	649.1	649.1	649.1	649.1	649.1	649.1
2.5°	635.5	631.6	629.2	626.0	622.1	617.0	615.0	617.0	615.8	613.8	614.7
5°	617.9	612.9	606.3	601.0	595.0	587.6	585.2	584.0	582.3	581.4	579.9
7.5°	600.7	593.3	585.2	577.8	569.2	562.6	559.7	557.6	557.0	552.5	550.8
10°	582.9	573.6	565.6	555.5	548.1	539.5	535.9	533.5	530.8	527.9	525.8
12.5°	564.1	554.9	544.8	535.3	527.9	518.4	513.6	510.9	508.8	506.8	504.4
15°	547.8	538.6	524.6	517.5	508.5	499.0	496.1	490.1	490.7	487.1	484.8
17.5°	530.5	516.9	507.1	496.4	489.8	483.0	477.3	471.1	470.2	467.5	466.6
20°	511.2	497.0	490.1	479.1	470.2	463.4	458.3	457.7	455.9	452.1	450.6
22.5°	492.2	480.6	471.1	461.0	453.0	444.1	441.7	442.6	439.3	438.4	435.1
25°	475.0	464.9	453.0	443.5	436.9	431.3	428.0	426.8	425.6	424.7	423.2
27.5°	456.5	445.8	435.7	428.0	421.8	417.9	415.8	413.1	412.8	412.8	412.2
30°	438.1	428.6	421.8	412.0	406.3	403.9	402.1	401.3	402.1	402.1	402.4
32.5°	421.2	412.0	403.9	397.1	391.4	389.7	389.4	389.4	390.6	390.6	391.4
35°	403.6	394.4	387.0	382.2	377.5	377.2	377.5	378.1	379.6	379.9	381.0
37.5°	384.6	377.5	371.8	365.9	364.7	365.3	365.9	366.5	367.1	369.4	369.4
40°	367.1	361.7	356.1	352.2	350.1	351.6	352.5	352.8	354.6	356.1	357.3
42.5°	349.8	344.8	340.3	337.1	336.2	337.3	338.2	339.1	340.9	342.1	344.2
45°	330.5	327.2	323.4	320.7	321.0	322.8	322.8	325.8	326.9	327.5	329.0
47.5°	312.7	309.1	306.4	305.2	305.0	306.4	307.3	309.7	310.3	312.4	313.6
50°	293.7	291.0	288.9	287.4	287.7	288.3	290.4	292.8	293.4	295.7	297.8
52.5°	273.7	271.4	269.6	270.2	271.1	271.1	273.1	274.6	276.1	277.9	280.0
55°	254.1	250.9	251.2	250.3	251.2	253.2	254.1	256.5	257.7	258.6	261.6
57.5°	232.7	232.1	231.2	230.3	232.1	233.0	234.5	236.0	238.1	239.3	241.3
60°	210.7	209.8	209.8	211.0	211.6	213.4	215.8	216.7	217.3	219.6	222.3
62.5°	190.5	189.6	189.3	191.1	191.1	192.9	193.8	195.3	197.7	198.5	202.1
65°	168.8	168.2	168.2	169.7	170.0	173.3	173.3	173.3	174.8	178.0	179.8
67.5°	146.2	146.5	147.4	148.3	149.5	150.4	150.7	152.5	154.9	156.9	160.5
70°	123.6	125.1	126.9	126.6	127.5	129.0	129.3	131.1	133.2	135.8	140.0
72.5°	103.4	104.3	106.1	106.1	107.3	108.2	109.7	110.9	113.5	115.9	117.7
75°	83.2	83.5	85.0	85.9	86.8	87.4	88.9	91.0	92.4	94.5	97.2
77.5°	65.4	64.8	66.0	66.3	66.9	68.1	69.3	71.3	72.5	74.9	75.8
80°	46.4	47.6	47.9	48.2	48.7	50.2	51.1	52.0	53.2	55.3	56.2
82.5°	30.6	31.2	32.1	32.4	33.0	33.3	33.6	35.1	36.0	36.6	39.5
85°	17.8	18.7	18.1	18.1	18.7	19.0	20.2	20.2	21.4	20.8	22.3
87.5°	7.7	7.4	7.4	7.7	7.4	7.1	8.0	8.0	7.7	8.0	8.0
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°	649.1	649.1	649.1	649.1
2.5°	613.2	613.2	610.8	611.7
5°	576.9	578.1	575.1	574.2
7.5°	550.2	549.0	546.9	546.9
10°	524.0	522.8	521.9	521.9
12.5°	501.4	500.2	498.4	499.9
15°	481.2	481.5	480.3	480.3
17.5°	465.7	463.1	462.2	461.9
20°	447.3	447.9	446.7	444.6
22.5°	435.7	434.2	433.1	432.8
25°	423.8	422.4	422.1	420.9
27.5°	412.0	412.2	411.4	411.4
30°	402.1	403.0	402.1	402.4
32.5°	392.3	392.3	392.3	391.1
35°	381.6	381.9	381.6	381.0
37.5°	370.6	370.6	370.9	371.5
40°	358.5	358.5	359.0	359.0
42.5°	343.9	345.4	346.3	344.8
45°	330.8	331.1	331.4	331.1
47.5°	316.2	315.4	315.7	316.2
50°	298.1	300.2	300.2	298.4
52.5°	280.6	281.2	282.4	282.4
55°	263.3	263.6	263.9	264.5
57.5°	243.7	244.0	244.0	243.7
60°	224.1	225.9	225.6	225.9
62.5°	203.0	205.7	206.6	206.3
65°	183.1	183.7	185.2	187.3
67.5°	162.0	163.5	165.9	165.3
70°	141.2	143.3	143.9	145.0
72.5°	120.4	123.1	123.6	124.2
75°	100.2	101.4	102.5	102.2
77.5°	78.2	80.0	82.0	80.8
80°	58.6	58.9	60.6	60.0
82.5°	38.6	41.0	41.0	39.8
85°	22.6	22.6	22.6	22.6
87.5°	7.7	7.4	8.0	7.7
90°	0.0	0.0	0.0	0.0

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