

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: P243337

Luminaire Tested: **S123DR-H560D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243337
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-H560D930-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1788.7 lumens
Efficiency: N/A
Efficacy: 104.0 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

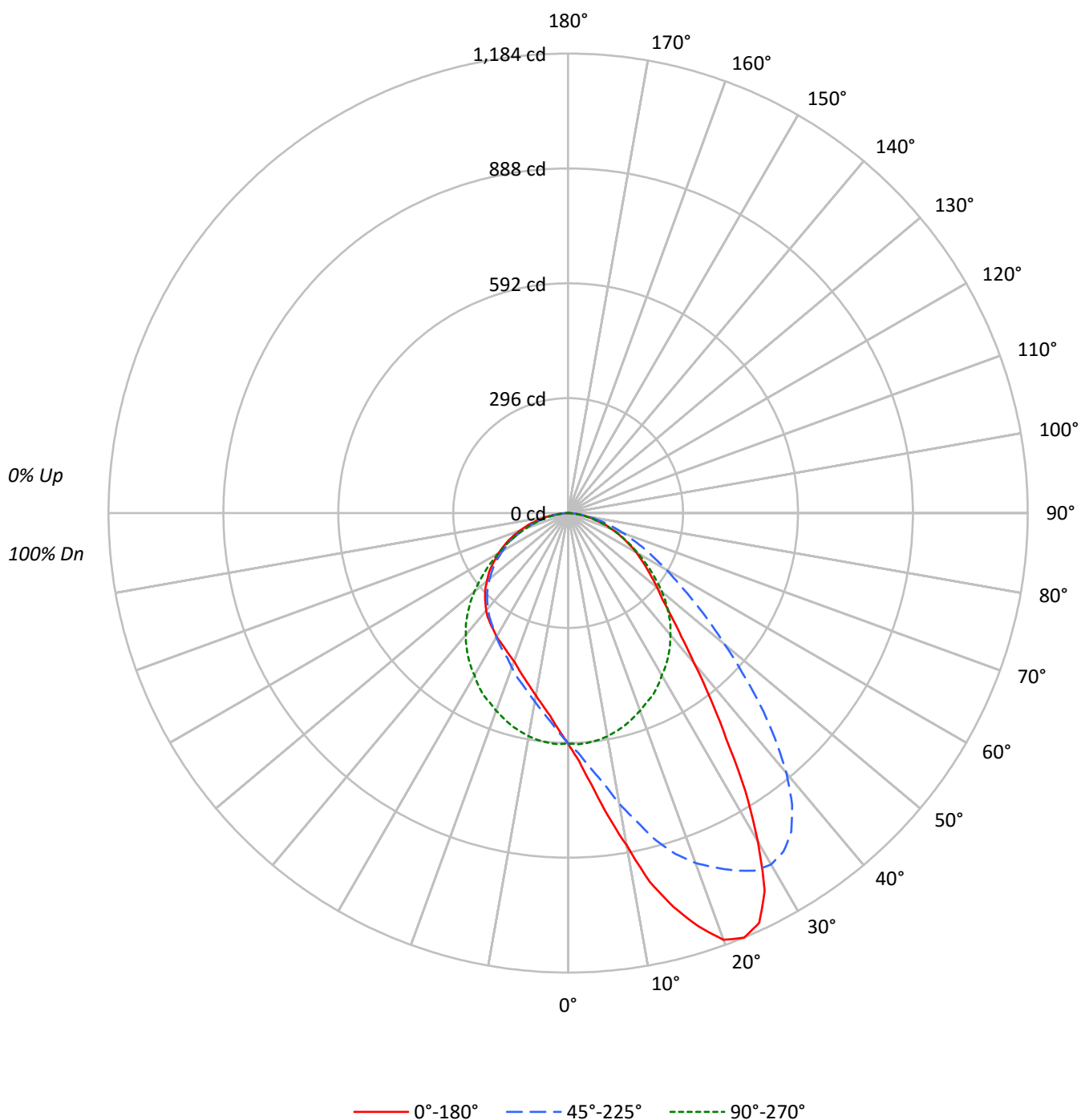
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	7194	7194	7194
5°	8571	7229	6388
10°	10703	7184	5873
15°	13190	7106	5511
20°	15095	6993	5243
25°	15577	6916	5146
30°	13686	6752	5151
35°	10503	6651	5155
40°	7989	6489	5195
45°	6428	6279	5189
50°	5657	5944	5144
55°	5216	5507	5112
60°	4914	5040	5006
65°	4566	4606	4910
70°	4178	4132	4699
75°	3719	3601	4379
80°	3113	2981	3832
85°	2197	2156	2879

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	58.4	3.3
10°-20°	187.5	10.5
20°-30°	309.6	17.3
30°-40°	354.4	19.8
40°-50°	321.1	18.0
50°-60°	259.5	14.5
60°-70°	180.8	10.1
70°-80°	94.8	5.3
80°-90°	22.6	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°	555.5	31.1
0°-40°	909.9	50.9
0°-60°	1490.5	83.3
0°-90°	1788.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1788.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	594	594	594	594	594	
5°	704	659	594	537	525	73
15°	1051	873	566	456	439	299
25°	1165	1017	517	394	385	520
35°	710	1002	450	345	348	450
45°	375	700	366	295	303	296
55°	247	393	261	232	242	222
65°	159	215	161	158	171	158
75°	79	98	77	80	94	85
85°	16	20	16	17	21	20
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°	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5
2.5°	639.2	640.5	638.3	639.7	636.4	634.5	631.6	630.2	623.7	619.1	617.4
5°	704.4	704.4	704.9	701.7	697.9	691.1	682.1	676.4	669.9	658.7	653.0
7.5°	786.5	782.4	779.7	773.7	768.5	757.4	747.6	735.9	720.7	702.2	692.4
10°	869.6	874.0	871.2	865.0	851.7	833.5	819.1	802.2	778.6	760.6	735.1
12.5°	973.4	967.7	963.4	953.9	939.2	919.9	897.6	872.6	842.2	812.5	784.0
15°	1051.1	1052.0	1051.7	1039.2	1024.8	998.7	978.0	936.5	897.9	872.9	825.6
17.5°	1116.9	1120.4	1116.4	1097.6	1084.8	1069.3	1043.0	996.8	961.7	921.2	869.1
20°	1170.2	1170.7	1164.2	1150.3	1135.7	1118.3	1083.5	1048.2	1013.9	959.6	909.8
22.5°	1184.3	1185.7	1184.3	1178.3	1166.4	1147.9	1121.8	1089.2	1046.0	988.1	941.9
25°	1164.7	1163.9	1168.5	1165.0	1164.5	1158.5	1141.4	1115.0	1072.3	1016.6	957.9
27.5°	1096.3	1090.5	1102.2	1117.4	1119.6	1129.1	1129.4	1117.2	1086.5	1038.9	975.1
30°	977.8	983.2	988.9	1020.7	1038.4	1063.1	1084.6	1092.4	1080.8	1045.7	985.9
32.5°	849.0	866.3	882.4	904.4	930.2	972.1	1006.0	1035.9	1048.7	1033.2	985.9
35°	709.8	719.1	744.3	772.3	809.6	842.2	909.6	953.0	991.9	1002.0	973.4
37.5°	601.1	609.5	618.2	640.0	681.8	736.2	791.9	849.0	906.6	947.9	946.2
40°	504.9	506.8	514.4	533.2	568.0	616.3	674.8	743.5	818.2	874.5	898.1
42.5°	431.0	431.0	440.5	462.3	482.4	517.7	574.2	634.8	716.6	788.9	839.4
45°	375.0	375.6	383.2	398.7	414.4	442.1	484.0	541.1	625.3	700.0	770.4
47.5°	329.4	334.5	338.9	347.0	362.8	387.2	417.7	466.3	526.4	607.9	690.0
50°	300.0	301.1	304.4	309.3	321.5	337.5	363.9	400.8	454.1	526.4	609.3
52.5°	271.2	271.2	274.5	280.4	287.5	300.6	319.6	350.3	390.2	455.7	530.2
55°	246.8	247.6	248.1	253.0	259.0	268.8	283.7	303.8	340.5	393.0	457.9
57.5°	222.8	225.8	225.0	228.8	233.2	240.2	250.8	268.2	296.2	336.2	394.6
60°	202.7	202.2	203.5	205.2	208.2	213.1	222.8	235.6	259.0	292.4	340.2
62.5°	179.9	179.4	181.0	182.9	185.6	189.7	196.7	206.5	225.0	250.0	291.6
65°	159.2	158.7	159.5	160.6	163.6	166.9	172.3	180.4	192.7	214.7	246.5
67.5°	138.6	138.6	139.1	140.2	142.1	144.6	148.9	153.8	166.0	180.7	205.7
70°	117.9	118.2	118.2	119.3	120.9	122.8	126.4	130.7	138.3	151.4	171.5
72.5°	100.0	100.0	99.5	100.0	101.1	101.9	104.1	108.2	113.9	123.4	138.6
75°	79.4	80.7	80.4	80.2	81.0	82.3	84.2	87.5	91.0	97.8	109.2
77.5°	60.9	61.7	61.7	62.0	62.8	63.9	64.4	67.7	70.9	75.0	83.4
80°	44.6	45.1	44.6	44.8	45.4	46.5	47.6	48.1	50.5	54.1	58.2
82.5°	29.9	29.1	30.2	29.9	30.4	30.7	31.3	31.5	33.2	35.3	38.0
85°	15.8	17.1	16.8	17.4	16.8	17.1	17.4	18.5	18.8	20.1	21.7
87.5°	6.0	6.5	6.5	6.5	6.5	6.5	7.1	7.3	7.9	8.2	8.7
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°	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5
2.5°	618.5	616.1	612.5	608.7	604.7	600.6	598.7	596.2	591.3	586.4	582.6
5°	648.4	641.6	632.4	625.6	615.8	606.6	599.2	594.1	586.2	576.7	570.4
7.5°	681.8	669.6	654.9	640.0	625.3	611.4	600.0	590.2	578.0	566.3	556.8
10°	721.2	697.6	677.2	655.5	633.7	614.2	597.9	583.7	568.0	553.8	542.1
12.5°	756.0	728.6	700.3	669.6	640.3	615.0	594.1	575.6	556.6	540.2	528.3
15°	794.3	755.7	716.6	681.8	646.2	615.2	587.8	566.3	544.6	526.1	512.3
17.5°	838.4	786.7	737.5	687.5	656.0	616.1	582.4	554.1	531.8	513.3	495.4
20°	864.4	813.1	752.8	701.4	649.2	608.2	570.7	542.1	516.1	494.9	480.2
22.5°	878.6	824.5	761.5	708.7	647.9	601.9	562.0	528.3	500.3	479.1	462.5
25°	898.4	824.5	766.1	702.8	650.0	594.6	549.5	517.1	487.8	463.3	445.9
27.5°	907.4	831.8	766.6	691.3	637.0	580.7	535.1	500.8	468.2	444.3	429.4
30°	914.7	833.2	755.7	682.4	621.8	565.2	520.7	482.4	451.9	429.1	413.3
32.5°	915.3	829.7	741.1	665.5	601.4	547.0	503.6	467.4	435.6	411.4	395.9
35°	910.4	821.0	724.2	639.7	577.7	528.3	484.8	449.5	417.1	394.0	378.3
37.5°	897.9	811.2	708.5	615.5	549.8	501.7	464.7	431.0	398.9	375.8	362.8
40°	871.2	795.4	687.8	589.7	521.5	473.4	441.1	410.1	381.5	357.6	344.6
42.5°	835.9	771.8	662.8	562.3	490.0	443.5	415.0	390.0	360.9	340.2	326.9
45°	785.9	739.7	637.8	533.5	458.7	413.1	387.0	366.3	341.3	320.7	309.0
47.5°	729.4	701.1	605.5	501.1	425.8	382.9	358.2	341.6	320.4	302.7	291.0
50°	665.8	655.2	569.9	468.5	395.1	351.1	328.3	315.2	297.3	283.2	273.1
52.5°	596.8	603.3	532.4	435.3	365.5	320.9	299.2	287.2	275.8	263.9	254.4
55°	526.7	542.1	487.0	399.2	331.5	292.7	271.5	260.6	252.2	242.1	235.3
57.5°	460.9	485.1	440.0	360.6	300.3	263.1	242.9	233.4	227.2	221.8	215.5
60°	397.0	425.0	391.6	324.5	269.0	235.1	217.1	207.9	204.9	200.8	194.8
62.5°	340.5	369.0	344.0	287.2	237.5	208.4	192.1	184.5	180.2	178.8	175.3
65°	287.5	314.1	295.1	248.4	207.6	181.8	167.4	160.6	158.2	157.9	155.2
67.5°	241.6	267.4	250.0	210.6	176.1	155.2	144.3	138.9	136.4	136.7	134.8
70°	199.2	217.4	207.1	176.1	149.5	131.0	122.6	116.6	114.7	114.7	114.1
72.5°	159.8	174.2	166.3	142.7	121.7	107.6	100.3	96.7	95.1	94.8	95.1
75°	125.0	137.5	130.4	112.0	96.2	85.6	79.4	76.9	76.1	75.5	75.8
77.5°	93.5	101.4	97.0	85.1	72.0	64.7	61.7	59.2	58.4	58.7	59.2
80°	66.0	70.4	67.9	60.3	51.6	46.7	44.6	42.7	41.8	42.7	42.7
82.5°	41.8	45.1	42.9	38.0	33.7	30.4	28.3	27.7	27.4	26.9	27.7
85°	22.8	24.5	23.4	21.7	18.8	17.4	15.8	15.5	15.5	15.5	15.5
87.5°	9.0	10.1	8.7	8.7	8.2	6.8	6.8	6.5	6.3	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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5
2.5°	581.0	577.5	575.3	572.3	568.8	564.2	562.3	564.2	563.1	561.2	562.0
5°	565.0	560.4	554.4	549.5	544.0	537.3	535.1	534.0	532.4	531.5	530.2
7.5°	549.2	542.4	535.1	528.3	520.4	514.4	511.7	509.8	509.3	505.2	503.6
10°	532.9	524.5	517.1	507.9	501.1	493.2	490.0	487.8	485.4	482.6	480.7
12.5°	515.8	507.4	498.1	489.4	482.6	473.9	469.6	467.1	465.2	463.3	461.2
15°	500.8	492.4	479.6	473.1	465.0	456.3	453.6	448.1	448.7	445.4	443.2
17.5°	485.1	472.6	463.6	453.8	447.8	441.6	436.4	430.7	429.9	427.5	426.7
20°	467.4	454.4	448.1	438.1	429.9	423.7	419.0	418.5	416.9	413.3	412.0
22.5°	450.0	439.4	430.7	421.5	414.2	406.0	403.8	404.6	401.7	400.8	397.8
25°	434.3	425.0	414.2	405.5	399.5	394.3	391.3	390.2	389.2	388.3	387.0
27.5°	417.4	407.6	398.4	391.3	385.6	382.1	380.2	377.7	377.5	377.5	376.9
30°	400.6	391.9	385.6	376.6	371.5	369.3	367.7	366.9	367.7	367.7	368.0
32.5°	385.1	376.6	369.3	363.1	357.9	356.3	356.0	356.0	357.1	357.1	357.9
35°	369.0	360.6	353.8	349.5	345.1	344.9	345.1	345.7	347.0	347.3	348.4
37.5°	351.6	345.1	340.0	334.5	333.4	334.0	334.5	335.1	335.6	337.8	337.8
40°	335.6	330.7	325.6	322.0	320.1	321.5	322.3	322.6	324.2	325.6	326.6
42.5°	319.9	315.2	311.2	308.2	307.4	308.4	309.3	310.1	311.7	312.8	314.7
45°	302.2	299.2	295.7	293.2	293.5	295.1	295.1	297.8	298.9	299.5	300.8
47.5°	285.9	282.6	280.2	279.1	278.8	280.2	281.0	283.2	283.7	285.6	286.7
50°	268.5	266.0	264.1	262.8	263.1	263.6	265.5	267.7	268.2	270.4	272.3
52.5°	250.3	248.1	246.5	247.0	247.8	247.8	249.7	251.1	252.5	254.1	256.0
55°	232.3	229.4	229.6	228.8	229.6	231.5	232.3	234.5	235.6	236.4	239.1
57.5°	212.8	212.2	211.4	210.6	212.2	213.1	214.4	215.8	217.7	218.8	220.7
60°	192.7	191.9	191.9	192.9	193.5	195.1	197.3	198.1	198.7	200.8	203.3
62.5°	174.2	173.4	173.1	174.7	174.7	176.4	177.2	178.5	180.7	181.5	184.8
65°	154.4	153.8	153.8	155.2	155.4	158.4	158.4	158.4	159.8	162.8	164.4
67.5°	133.7	134.0	134.8	135.6	136.7	137.5	137.8	139.4	141.6	143.5	146.7
70°	113.0	114.4	116.0	115.8	116.6	117.9	118.2	119.8	121.7	124.2	128.0
72.5°	94.6	95.4	97.0	97.0	98.1	98.9	100.3	101.4	103.8	106.0	107.6
75°	76.1	76.4	77.7	78.5	79.4	79.9	81.3	83.2	84.5	86.4	88.9
77.5°	59.8	59.2	60.3	60.6	61.1	62.2	63.3	65.2	66.3	68.5	69.3
80°	42.4	43.5	43.8	44.0	44.6	45.9	46.7	47.6	48.6	50.5	51.4
82.5°	28.0	28.5	29.3	29.6	30.2	30.4	30.7	32.1	32.9	33.4	36.1
85°	16.3	17.1	16.6	16.6	17.1	17.4	18.5	18.5	19.6	19.0	20.4
87.5°	7.1	6.8	6.8	7.1	6.8	6.5	7.3	7.3	7.1	7.3	7.3
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):

	165°	170°	175°	180°
0°	593.5	593.5	593.5	593.5
2.5°	560.6	560.6	558.5	559.3
5°	527.5	528.6	525.8	525.0
7.5°	503.0	501.9	500.0	500.0
10°	479.1	478.0	477.2	477.2
12.5°	458.4	457.4	455.7	457.1
15°	440.0	440.2	439.2	439.2
17.5°	425.8	423.4	422.6	422.3
20°	409.0	409.5	408.4	406.5
22.5°	398.4	397.0	395.9	395.7
25°	387.5	386.2	385.9	384.8
27.5°	376.6	376.9	376.1	376.1
30°	367.7	368.5	367.7	368.0
32.5°	358.7	358.7	358.7	357.6
35°	348.9	349.2	348.9	348.4
37.5°	338.9	338.9	339.1	339.7
40°	327.7	327.7	328.3	328.3
42.5°	314.4	315.8	316.6	315.2
45°	302.5	302.7	303.0	302.7
47.5°	289.1	288.3	288.6	289.1
50°	272.6	274.5	274.5	272.8
52.5°	256.5	257.1	258.2	258.2
55°	240.8	241.0	241.3	241.9
57.5°	222.8	223.1	223.1	222.8
60°	204.9	206.5	206.3	206.5
62.5°	185.6	188.1	188.9	188.6
65°	167.4	167.9	169.3	171.2
67.5°	148.1	149.5	151.6	151.1
70°	129.1	131.0	131.5	132.6
72.5°	110.1	112.5	113.0	113.6
75°	91.6	92.7	93.8	93.5
77.5°	71.5	73.1	75.0	73.9
80°	53.5	53.8	55.4	54.9
82.5°	35.3	37.5	37.5	36.4
85°	20.7	20.7	20.7	20.7
87.5°	7.1	6.8	7.3	7.1
90°	0.0	0.0	0.0	0.0

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