

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: P242462

Luminaire Tested: **S123DR-S560D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242462
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-20)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DR-S560D830-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2108.0 lumens
Efficiency: N/A
Efficacy: 112.1 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

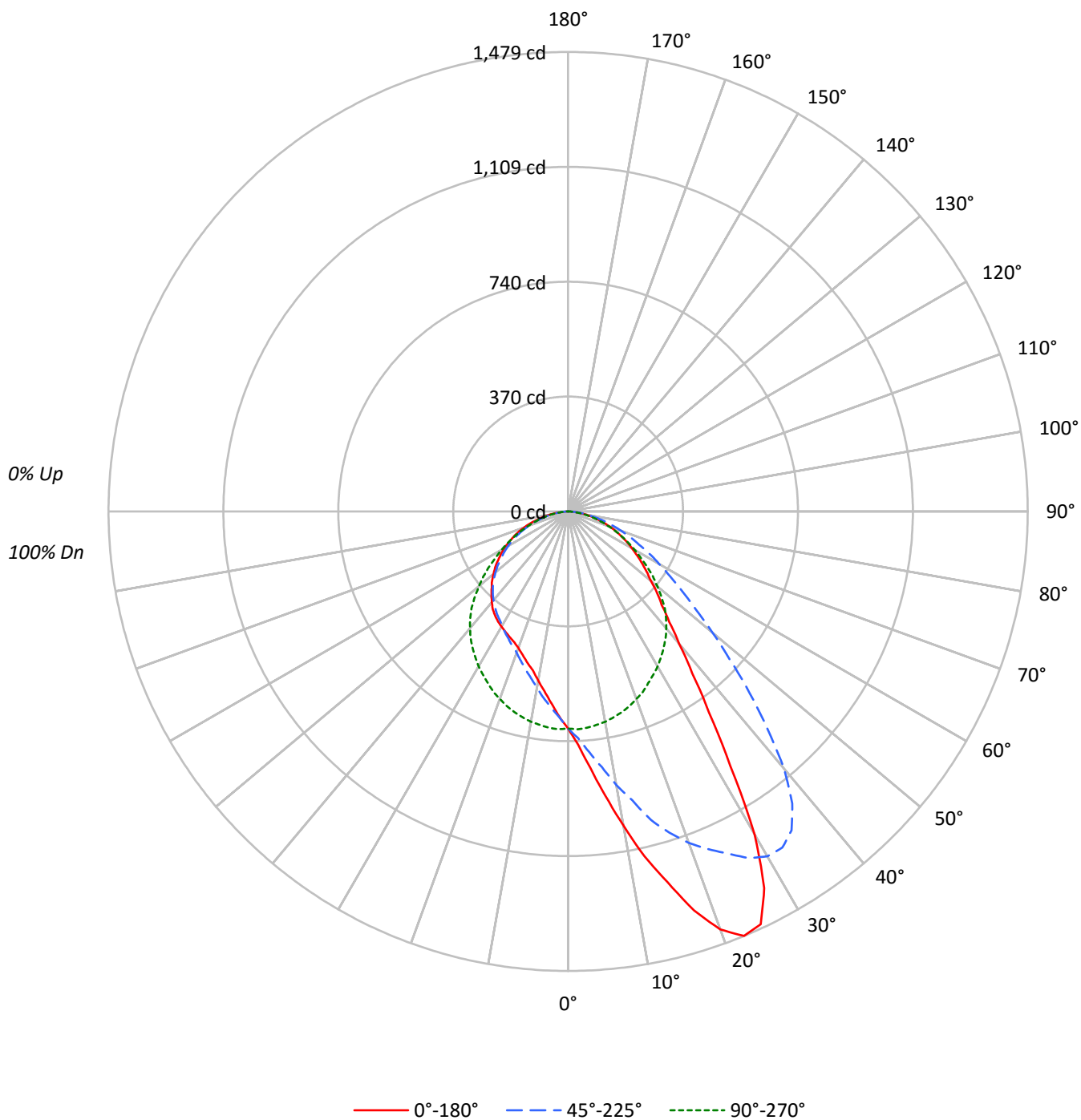
Input Watts (W): 18.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	74	72		
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62		
4	84	73	65	58	82	72	64	58	69	62	57	67	61	56	65	60	56	53		
5	78	66	57	51	76	64	56	50	62	55	50	60	54	49	59	53	49	47		
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	43	41		
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36		
8	62	49	41	35	61	49	41	35	47	40	35	46	39	35	45	39	35	33		
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	36	31	29		
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	8465	8465	8465
5°	10095	8501	7534
10°	12636	8458	6805
15°	15499	8390	6335
20°	18463	8284	6032
25°	19604	8154	5965
30°	16803	8061	5996
35°	11687	7925	6058
40°	8802	7769	6040
45°	7308	7534	5962
50°	6547	7056	5908
55°	6120	6543	5835
60°	5743	6005	5775
65°	5395	5472	5590
70°	5061	4869	5323
75°	4533	4262	4880
80°	3965	3497	4202
85°	3101	2545	2823

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	68.7	3.3
10°-20°	220.6	10.5
20°-30°	371.2	17.6
30°-40°	419.5	19.9
40°-50°	375.8	17.8
50°-60°	303.3	14.4
60°-70°	211.3	10.0
70°-80°	110.9	5.3
80°-90°	26.6	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°	660.5	31.3
0°-40°	1080.0	51.2
0°-60°	1759.1	83.5
0°-90°	2108.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2108.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	698	698	698	698	698	
5°	830	778	699	633	619	85
15°	1235	1028	669	527	505	356
25°	1466	1215	610	453	446	648
35°	790	1253	536	400	409	510
45°	426	826	440	342	348	336
55°	290	448	310	265	276	260
65°	188	251	191	180	195	187
75°	97	119	91	90	104	103
85°	22	26	18	18	20	27
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°	698.4	698.4	698.4	698.4	698.4	698.4	698.4	698.4	698.4	698.4	698.4
2.5°	751.9	751.2	749.5	750.8	748.1	744.4	744.1	740.7	730.9	730.2	727.5
5°	829.7	827.0	826.6	826.3	821.6	815.1	803.0	801.9	785.7	777.6	767.8
7.5°	923.8	922.7	920.0	917.0	901.1	893.3	881.8	866.9	848.0	829.7	818.2
10°	1026.6	1037.8	1023.9	1014.4	1005.6	989.1	969.8	945.7	921.7	893.6	872.3
12.5°	1136.9	1141.0	1141.0	1132.2	1117.3	1089.9	1052.0	1024.9	1003.3	951.8	933.6
15°	1235.1	1255.7	1242.5	1212.0	1212.7	1188.7	1144.0	1095.0	1068.9	1028.0	972.1
17.5°	1346.0	1349.8	1345.7	1317.3	1303.4	1268.6	1228.3	1182.6	1133.5	1083.8	1025.9
20°	1431.3	1429.3	1417.4	1404.2	1375.1	1349.4	1304.4	1252.0	1184.3	1135.6	1070.9
22.5°	1478.7	1475.0	1470.9	1460.4	1437.4	1409.3	1370.1	1311.5	1247.9	1176.2	1099.0
25°	1465.8	1470.2	1470.9	1467.9	1459.4	1442.8	1411.0	1365.3	1301.0	1214.8	1136.9
27.5°	1366.3	1377.5	1391.7	1401.2	1416.4	1426.6	1416.4	1387.7	1334.9	1257.7	1162.0
30°	1200.5	1187.0	1220.5	1262.8	1291.6	1342.3	1370.7	1372.4	1345.7	1281.8	1189.0
32.5°	970.4	992.4	1002.6	1057.1	1128.5	1187.0	1250.6	1307.1	1320.3	1283.1	1204.9
35°	789.8	808.4	835.4	862.5	930.2	988.4	1087.9	1174.5	1243.5	1252.7	1202.9
37.5°	656.4	667.3	683.8	712.6	759.0	831.0	909.9	1022.6	1117.6	1184.6	1177.9
40°	556.3	559.0	578.3	598.9	634.8	691.6	761.0	857.8	977.6	1081.4	1124.7
42.5°	481.2	487.9	493.3	513.0	539.7	579.0	642.2	718.0	825.3	948.8	1043.9
45°	426.3	433.1	438.2	451.4	471.7	500.5	545.5	618.5	702.1	825.6	939.7
47.5°	388.5	387.8	392.2	402.7	417.2	440.2	473.4	522.1	602.3	705.5	824.9
50°	347.2	352.6	353.9	361.7	372.5	388.5	414.8	454.8	517.7	605.7	713.3
52.5°	318.1	318.7	323.1	328.2	337.4	348.9	370.9	400.0	446.0	517.7	614.5
55°	289.6	289.6	293.4	297.8	303.2	314.3	329.6	352.6	390.1	448.3	530.2
57.5°	263.3	264.6	268.0	269.0	273.7	281.5	294.7	313.0	341.8	388.8	456.5
60°	236.9	239.9	239.6	242.3	246.3	252.1	262.9	277.1	302.2	338.0	392.8
62.5°	213.9	212.8	212.8	216.2	220.3	225.7	231.8	243.6	263.9	294.7	339.4
65°	188.1	187.5	189.8	191.9	193.2	197.3	202.7	213.5	227.7	251.4	287.6
67.5°	165.8	163.8	165.5	166.1	168.5	171.9	177.3	184.1	195.6	215.5	244.6
70°	142.8	141.1	140.8	141.4	143.5	145.8	149.6	156.0	166.5	181.7	201.7
72.5°	119.1	118.1	118.1	119.8	120.5	121.8	124.2	129.9	137.7	148.2	166.5
75°	96.8	96.8	96.8	97.1	98.1	99.5	101.5	104.6	111.0	119.1	131.6
77.5°	76.5	76.8	76.1	75.8	77.5	78.2	78.5	81.9	85.6	91.7	101.5
80°	56.8	55.2	55.8	56.8	57.5	57.9	58.9	59.6	62.6	65.6	72.1
82.5°	38.6	37.2	37.2	38.9	38.9	39.3	40.3	41.3	42.0	44.7	47.4
85°	22.3	22.3	22.7	22.7	23.0	22.7	23.7	24.0	24.0	25.7	27.7
87.5°	10.2	9.5	9.8	10.2	9.8	10.2	10.5	10.8	11.2	11.5	11.8
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°	698.4	698.4	698.4	698.4	698.4	698.4	698.4	698.4	698.4	698.4	698.4
2.5°	725.5	722.8	720.1	715.3	711.3	705.5	703.8	701.8	695.7	690.3	686.2
5°	764.0	755.9	744.1	733.3	724.5	712.6	705.8	698.7	688.6	679.4	672.0
7.5°	800.9	786.7	770.1	752.2	734.9	718.4	705.2	693.3	680.1	667.3	657.5
10°	846.6	823.6	797.9	770.1	746.4	723.4	704.2	687.2	669.0	653.1	639.9
12.5°	898.7	861.8	823.9	788.7	759.6	725.5	701.1	678.4	657.1	637.2	621.9
15°	937.6	894.3	852.4	806.0	763.4	723.4	695.7	668.6	644.6	625.0	606.0
17.5°	976.2	928.8	875.4	819.5	769.5	723.4	685.5	656.4	627.0	603.3	585.0
20°	1008.0	952.2	889.6	831.0	774.2	721.4	678.8	642.2	609.7	584.4	563.0
22.5°	1035.4	967.7	902.4	838.8	773.9	716.0	666.3	628.4	592.5	567.8	544.8
25°	1052.7	974.5	909.5	836.1	765.4	706.5	652.4	609.7	574.6	545.5	522.1
27.5°	1068.9	973.5	900.1	820.9	755.2	696.7	638.5	592.8	555.9	524.5	500.5
30°	1085.2	975.2	883.5	805.3	739.0	678.1	621.9	575.9	536.7	504.5	482.2
32.5°	1095.3	974.2	868.3	783.7	713.3	661.2	604.0	555.9	515.3	483.9	462.6
35°	1098.0	968.4	850.3	752.2	685.2	632.8	585.0	535.6	493.3	463.9	439.5
37.5°	1092.3	957.9	830.7	723.8	651.4	599.3	557.6	515.3	474.7	441.9	420.6
40°	1073.7	947.8	807.0	693.3	616.2	566.4	532.3	491.0	451.0	420.3	400.6
42.5°	1038.1	927.1	781.0	659.5	579.6	529.9	499.1	466.3	429.1	400.6	381.0
45°	975.9	895.3	754.9	625.6	543.8	492.3	464.6	439.5	405.4	377.3	360.4
47.5°	896.3	852.4	717.3	590.1	506.2	456.5	427.4	406.7	380.0	357.3	340.7
50°	812.8	796.9	679.1	553.6	468.6	420.3	392.5	374.2	356.3	333.6	318.7
52.5°	716.3	732.6	634.4	515.7	430.4	383.0	357.3	343.8	327.9	310.3	297.8
55°	627.0	662.5	581.7	472.4	392.5	347.2	322.5	309.6	300.1	286.3	275.1
57.5°	540.4	585.7	526.8	428.7	355.3	315.7	291.3	276.8	270.7	262.9	253.8
60°	464.9	509.6	467.3	384.7	317.7	280.5	259.5	247.7	241.6	236.5	229.1
62.5°	397.6	442.9	409.1	340.1	280.8	247.0	229.4	217.9	213.5	211.5	205.4
65°	337.0	375.9	352.2	293.4	246.0	215.5	199.0	190.8	186.4	185.4	181.4
67.5°	284.6	314.7	296.4	252.1	213.5	185.8	171.2	164.1	160.4	160.0	156.7
70°	233.1	260.9	247.7	208.4	176.3	155.7	143.5	137.4	135.3	135.0	133.3
72.5°	193.2	210.5	200.7	169.5	146.5	128.2	120.1	113.7	111.3	112.0	111.0
75°	148.9	163.4	157.3	134.7	114.7	102.5	95.1	91.0	89.0	90.0	88.7
77.5°	113.7	123.8	117.8	100.5	87.6	78.5	72.7	70.0	68.0	68.0	67.3
80°	80.9	86.3	83.2	73.8	63.6	56.2	51.8	50.1	49.1	48.7	48.4
82.5°	51.8	56.2	52.4	46.7	40.6	36.9	34.9	32.5	31.8	32.1	31.8
85°	29.1	30.8	29.4	25.4	22.7	20.6	19.3	18.3	17.6	17.9	17.3
87.5°	12.5	12.9	11.8	10.5	9.8	8.8	8.8	8.1	7.4	7.4	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°	698.4	698.4	698.4	698.4	698.4	698.4	698.4	698.4	698.4	698.4	698.4
2.5°	683.8	681.5	678.1	673.0	669.0	662.5	662.5	663.5	663.5	663.2	662.5
5°	665.9	660.8	654.7	647.6	640.2	632.8	631.4	628.7	626.7	625.3	623.6
7.5°	647.6	639.2	630.7	620.9	612.5	605.3	600.3	595.9	593.2	590.1	587.8
10°	629.0	617.9	607.4	596.9	585.4	576.2	570.5	566.4	563.4	560.7	559.3
12.5°	607.0	593.8	582.0	572.2	559.3	549.9	544.4	543.1	539.4	532.9	529.6
15°	585.7	573.9	560.0	544.8	538.7	527.2	520.8	517.7	515.7	511.3	509.9
17.5°	568.1	552.2	536.3	525.2	514.0	504.8	501.1	497.1	494.4	490.3	489.3
20°	546.1	532.3	518.0	505.9	494.0	483.9	480.8	478.1	475.4	473.7	472.4
22.5°	523.8	509.9	498.8	487.6	474.7	469.0	465.6	462.6	460.9	459.8	458.5
25°	503.2	491.0	477.8	467.6	457.5	453.1	451.0	449.4	448.0	446.3	446.0
27.5°	484.9	471.4	460.2	450.4	442.9	439.2	436.8	435.8	435.8	436.5	436.8
30°	463.9	451.7	442.9	434.8	428.0	424.7	424.3	424.3	425.7	426.0	426.7
32.5°	444.6	435.1	426.3	418.6	413.8	411.8	413.5	413.5	414.5	415.5	416.9
35°	426.0	417.2	410.4	403.7	399.3	400.3	401.0	401.6	403.3	405.4	406.7
37.5°	408.4	400.3	393.2	387.8	385.1	387.1	388.8	390.1	392.2	393.9	395.2
40°	389.1	383.4	376.6	371.9	372.5	373.6	374.9	376.6	378.3	379.3	380.7
42.5°	371.2	365.1	360.4	356.6	357.7	359.0	359.7	360.4	362.4	364.4	365.1
45°	352.9	348.2	343.4	341.1	341.8	342.4	343.1	344.1	345.8	347.2	347.5
47.5°	332.3	328.9	325.9	323.1	324.5	324.2	325.2	327.2	327.9	328.6	330.6
50°	312.7	309.6	305.9	305.2	305.2	305.2	305.5	308.3	308.3	309.6	311.0
52.5°	291.0	289.3	287.3	285.9	285.2	285.2	286.9	288.0	288.6	290.7	292.0
55°	269.7	267.7	265.6	264.6	263.9	264.6	267.3	268.0	269.7	270.7	271.7
57.5°	247.3	246.0	244.3	243.6	243.6	244.0	246.0	247.7	248.0	251.4	252.8
60°	225.4	223.0	221.6	221.6	221.0	224.0	223.3	226.7	227.4	229.4	231.8
62.5°	202.7	199.3	199.0	199.0	200.3	200.7	202.0	203.0	205.1	207.8	209.5
65°	178.0	176.3	178.7	178.3	177.6	179.7	179.7	181.4	183.4	185.8	189.5
67.5°	155.0	153.6	154.3	154.0	155.0	156.3	157.3	158.7	161.1	163.8	166.1
70°	131.6	132.6	130.9	132.3	133.3	133.7	134.3	136.4	139.1	140.8	143.5
72.5°	109.0	108.6	109.3	109.6	110.6	111.3	112.0	114.4	117.4	118.8	120.8
75°	87.3	87.0	88.0	88.0	89.7	90.3	91.0	92.0	94.7	96.8	98.5
77.5°	67.7	68.0	67.7	69.0	68.4	68.7	70.7	71.7	72.1	76.5	77.1
80°	48.0	48.7	49.1	49.4	49.7	49.1	51.4	52.4	52.4	54.8	56.5
82.5°	31.1	31.5	32.5	32.8	32.8	33.8	33.5	34.2	35.2	35.9	38.2
85°	17.3	18.3	18.6	18.3	18.6	17.9	18.9	19.3	19.6	19.6	19.6
87.5°	6.8	7.1	6.8	7.1	6.8	7.1	7.1	6.4	6.4	7.4	6.1
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):

	165°	170°	175°	180°
0°	698.4	698.4	698.4	698.4
2.5°	660.2	659.8	662.2	660.5
5°	621.6	622.6	619.2	619.2
7.5°	586.7	585.4	585.7	583.4
10°	555.3	553.2	552.6	552.9
12.5°	529.2	529.2	523.8	523.8
15°	509.9	503.5	502.8	504.8
17.5°	488.6	484.9	485.2	484.5
20°	472.4	470.3	470.0	467.6
22.5°	457.5	457.1	457.5	454.8
25°	445.6	447.3	446.0	446.0
27.5°	437.5	437.5	436.5	436.5
30°	428.0	427.7	428.4	428.4
32.5°	418.6	419.2	419.2	419.6
35°	408.8	409.1	410.1	409.4
37.5°	395.9	397.6	397.2	397.9
40°	381.0	382.0	381.7	381.7
42.5°	365.8	366.5	365.4	364.8
45°	348.9	348.2	349.2	347.8
47.5°	330.3	330.6	330.9	332.3
50°	311.6	313.7	313.7	313.3
52.5°	293.4	294.0	295.7	295.7
55°	274.4	275.1	275.8	276.1
57.5°	255.1	254.8	256.1	256.5
60°	234.5	234.5	237.2	238.2
62.5°	212.5	213.9	216.6	214.5
65°	191.2	193.9	193.5	194.9
67.5°	168.8	170.5	173.2	173.2
70°	146.2	147.9	149.2	150.2
72.5°	124.2	124.9	128.6	126.6
75°	100.8	103.2	105.2	104.2
77.5°	78.5	81.5	82.2	81.2
80°	58.9	58.5	60.6	60.2
82.5°	39.3	38.9	39.6	39.9
85°	21.0	22.0	20.6	20.3
87.5°	6.1	6.1	5.8	5.4
90°	0.0	0.0	0.0	0.0

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