

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: P243494

Luminaire Tested: **S124DR-H575D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243494
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-60)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DR-H575D830-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2207.2 lumens
Efficiency: N/A
Efficacy: 128.3 lumens/watt
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

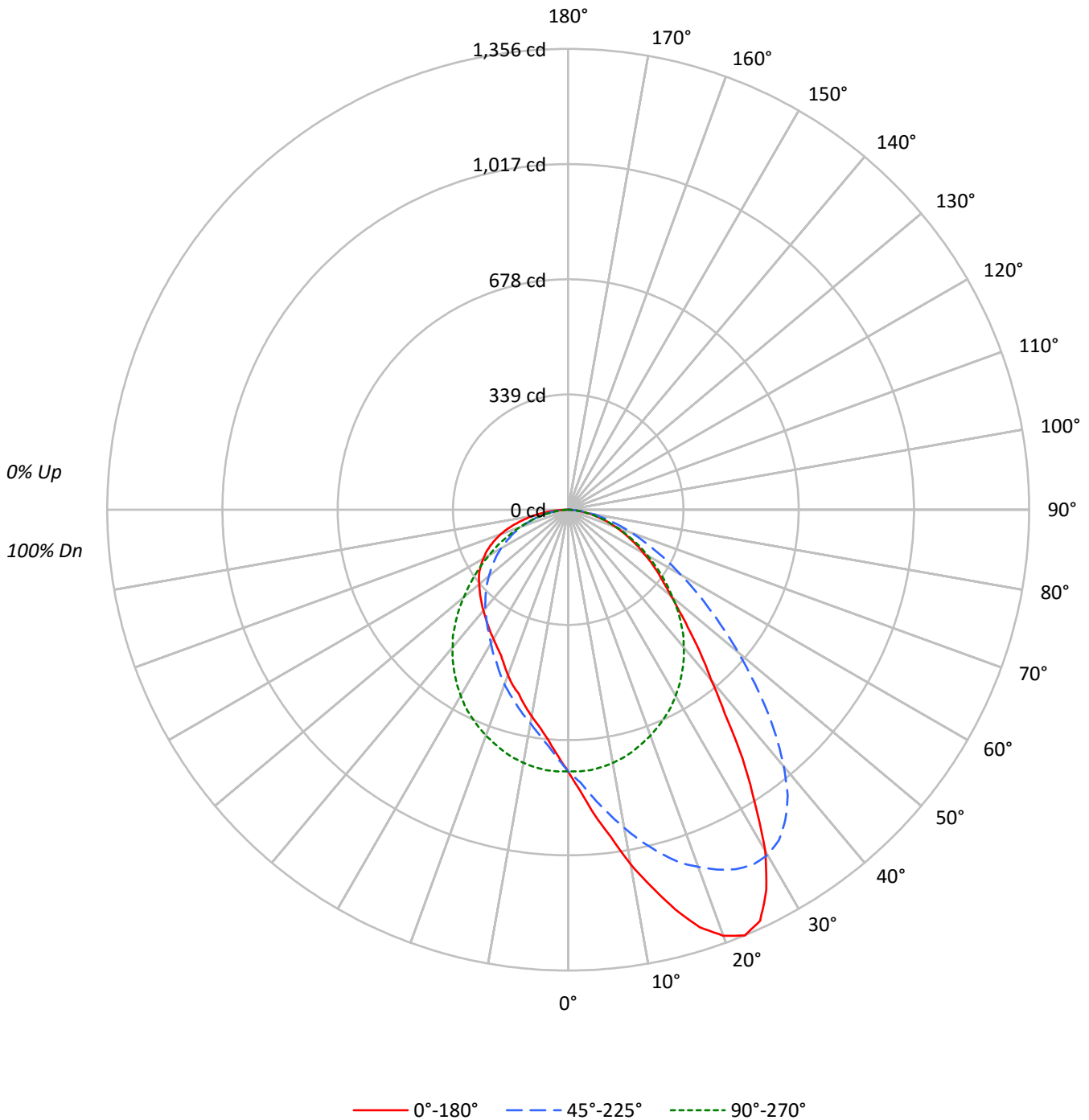
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	109	105	101	97	107	103	99	96	98	95	93	94	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63	61
4	84	73	64	58	82	71	63	57	69	62	56	66	60	56	64	59	55	53
5	78	65	56	50	75	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41
7	67	53	45	39	65	53	45	39	51	44	38	50	43	38	48	42	38	36
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	44	39	34	32
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	54	41	34	29	53	41	34	28	40	33	28	39	33	28	38	32	28	26

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	6843	6843	6843
5°	8051	6860	6055
10°	9569	6829	5575
15°	11207	6768	5164
20°	12619	6690	4898
25°	13096	6601	4610
30°	11893	6488	4508
35°	9703	6335	4479
40°	7598	6136	4499
45°	6358	5889	4582
50°	5457	5544	4718
55°	4985	5171	4947
60°	4569	4788	5127
65°	4190	4381	5326
70°	3854	3953	5486
75°	3431	3476	5481
80°	2861	2846	5467
85°	2183	2152	5130



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	74.9	3.4
10°-20°	232.1	10.5
20°-30°	372.8	16.9
30°-40°	426.2	19.3
40°-50°	392.3	17.8
50°-60°	320.9	14.5
60°-70°	228.7	10.4
70°-80°	125.7	5.7
80°-90°	33.8	1.5
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°	679.8	30.8
0°-40°	1105.9	50.1
0°-60°	1819.1	82.4
0°-90°	2207.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2207.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	770	770	770	770	770	
5°	902	851	769	695	679	91
15°	1218	1046	736	592	561	347
25°	1335	1167	673	498	470	599
35°	894	1114	584	415	413	556
45°	506	821	468	342	364	395
55°	322	505	334	267	319	289
65°	199	280	208	187	253	199
75°	100	129	101	103	160	107
85°	21	26	21	29	50	26
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°	769.8	769.8	769.8	769.8	769.8	769.8	769.8	769.8	769.8	769.8	769.8
2.5°	828.8	826.3	825.1	823.5	823.2	821.6	818.5	814.1	808.4	802.4	802.4
5°	902.3	901.7	897.0	897.3	891.4	884.8	879.7	873.4	861.2	850.8	843.6
7.5°	972.7	979.3	977.8	972.7	963.9	954.5	944.4	935.7	913.0	900.5	890.1
10°	1060.1	1062.6	1058.2	1051.0	1043.1	1024.9	1011.7	996.9	972.4	951.0	932.2
12.5°	1136.7	1142.7	1134.8	1127.9	1109.4	1095.9	1082.7	1053.2	1027.4	1000.4	973.0
15°	1217.8	1211.5	1215.6	1198.6	1185.4	1172.5	1138.9	1108.8	1079.6	1046.2	1017.7
17.5°	1288.2	1288.2	1280.6	1269.6	1255.8	1231.6	1198.0	1164.7	1132.3	1088.7	1048.1
20°	1334.0	1337.5	1328.7	1317.1	1300.4	1275.3	1248.6	1212.5	1169.4	1118.5	1072.6
22.5°	1356.0	1356.7	1353.5	1343.8	1330.3	1308.9	1281.6	1246.4	1200.8	1146.2	1098.1
25°	1335.3	1338.8	1337.8	1337.2	1330.3	1318.0	1296.0	1263.4	1221.9	1167.2	1115.4
27.5°	1262.4	1270.9	1278.1	1281.3	1288.8	1289.4	1282.8	1263.0	1229.1	1177.6	1119.8
30°	1158.7	1154.3	1173.8	1183.5	1209.3	1224.7	1235.7	1234.4	1215.0	1173.2	1118.2
32.5°	1020.5	1032.4	1046.2	1069.2	1099.7	1135.5	1162.5	1182.6	1180.7	1153.4	1107.5
35°	894.2	894.2	911.8	940.1	972.4	1015.5	1060.7	1098.1	1121.0	1114.1	1081.7
37.5°	757.2	765.7	785.8	807.8	847.4	888.8	948.5	998.2	1046.2	1060.7	1044.0
40°	654.8	658.5	679.9	698.4	739.0	782.0	832.0	895.4	950.7	986.2	988.4
42.5°	578.7	578.4	587.2	603.9	636.5	674.9	728.9	791.1	855.8	906.1	929.7
45°	505.8	505.2	514.3	531.3	554.5	588.5	635.3	697.5	763.8	821.0	858.0
47.5°	444.3	449.9	454.0	467.2	486.4	515.3	555.5	605.1	668.9	733.0	783.0
50°	394.6	397.1	405.9	412.2	433.6	453.7	486.0	530.7	585.3	652.6	706.6
52.5°	355.0	356.6	361.9	370.1	382.4	400.0	425.7	466.9	516.2	574.6	630.6
55°	321.7	320.8	324.2	329.6	340.3	355.0	373.9	405.3	448.3	504.6	556.1
57.5°	289.1	289.1	292.2	296.0	301.9	314.2	332.7	357.5	392.1	442.1	487.6
60°	257.0	259.2	260.5	264.2	269.3	278.4	292.2	311.7	340.9	381.7	427.0
62.5°	228.7	228.7	230.9	232.2	238.8	245.4	255.4	272.1	295.0	331.5	366.7
65°	199.2	201.1	201.1	203.6	209.2	214.3	222.1	234.7	253.5	279.6	312.6
67.5°	174.1	174.1	175.6	176.9	180.0	183.5	190.4	200.1	216.2	236.9	266.7
70°	148.3	149.2	148.6	150.2	152.1	155.5	160.6	168.7	180.3	198.3	220.2
72.5°	125.0	123.8	124.4	126.0	126.9	129.1	132.3	138.6	148.0	162.4	178.5
75°	99.9	99.3	101.5	100.9	102.4	104.3	107.1	111.9	119.1	129.1	141.4
77.5°	77.9	77.0	77.9	78.5	79.2	80.7	82.9	85.8	90.8	97.4	108.4
80°	55.9	55.6	56.2	56.9	57.2	59.7	60.3	63.2	65.4	70.4	75.7
82.5°	37.1	37.7	38.0	38.6	38.3	39.6	40.2	42.1	44.0	46.5	50.6
85°	21.4	20.4	21.4	21.4	21.4	22.9	22.6	23.9	25.1	26.4	29.2
87.5°	7.5	7.5	7.9	8.2	8.2	9.1	8.8	9.4	10.7	10.7	11.6
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°	769.8	769.8	769.8	769.8	769.8	769.8	769.8	769.8	769.8	769.8	769.8
2.5°	800.6	797.1	794.6	787.4	783.0	778.9	775.1	771.0	766.6	761.0	757.5
5°	836.1	828.5	817.5	807.5	796.2	786.1	777.9	768.8	758.8	748.4	739.3
7.5°	875.3	861.2	844.2	825.7	808.1	793.3	777.9	763.5	749.3	735.5	722.6
10°	914.6	890.1	867.8	842.3	819.1	796.8	776.7	756.6	739.0	720.7	704.4
12.5°	951.0	921.5	888.8	857.1	826.0	797.1	772.3	747.8	725.1	703.5	684.3
15°	979.0	941.9	903.3	865.6	829.8	799.6	767.2	735.5	712.0	685.6	664.5
17.5°	1011.1	967.1	928.7	883.5	838.9	790.2	755.9	721.4	693.1	667.6	646.6
20°	1032.4	984.0	928.7	877.5	831.7	788.0	746.8	707.2	677.4	647.9	622.4
22.5°	1049.4	999.4	938.5	885.1	827.6	774.8	730.2	691.2	656.0	628.1	603.9
25°	1058.2	997.2	939.1	874.4	816.9	766.3	716.0	673.0	637.5	606.4	585.6
27.5°	1058.5	996.0	927.2	863.1	801.5	746.8	697.2	654.8	614.9	585.0	560.2
30°	1056.9	987.8	915.2	845.2	783.9	728.0	676.1	632.1	595.7	564.0	540.4
32.5°	1046.9	976.5	897.3	823.8	757.2	701.0	653.2	609.5	570.6	541.7	516.8
35°	1024.3	951.7	872.2	796.5	733.3	674.9	627.7	583.8	548.9	517.5	492.0
37.5°	995.3	927.5	846.7	767.6	699.4	644.1	599.8	558.3	521.9	493.0	467.5
40°	958.9	895.1	815.6	733.3	665.1	609.2	567.4	528.8	497.7	468.1	443.3
42.5°	908.9	859.9	778.2	698.1	626.8	574.0	533.5	501.4	469.4	442.7	417.9
45°	855.5	810.9	738.3	658.9	590.4	536.0	498.0	468.5	441.1	414.1	394.0
47.5°	796.5	760.0	692.8	615.2	547.6	499.6	462.2	435.8	410.6	389.9	369.8
50°	726.1	706.9	644.1	573.7	508.0	458.7	427.9	400.9	382.4	362.3	343.4
52.5°	660.7	645.3	594.1	525.0	465.3	422.0	389.0	367.6	349.4	334.6	319.5
55°	589.7	581.9	538.5	478.8	424.8	381.4	353.1	333.7	319.2	305.4	294.4
57.5°	524.4	523.8	485.4	434.2	381.4	344.7	317.6	301.6	289.1	279.3	269.9
60°	457.5	462.8	431.4	384.6	342.8	308.2	283.7	269.3	260.8	251.7	243.8
62.5°	396.8	405.0	376.4	339.6	298.5	270.2	251.4	240.4	230.9	224.3	218.4
65°	338.7	349.1	325.8	292.8	261.4	234.7	218.7	208.3	201.1	197.3	193.2
67.5°	287.5	293.1	277.4	251.7	225.6	202.3	189.1	180.0	173.7	172.2	167.5
70°	236.3	242.9	231.9	208.3	188.2	171.2	159.3	152.1	148.3	146.1	143.0
72.5°	195.1	197.9	186.9	170.6	154.6	140.4	131.6	126.3	121.9	121.0	119.4
75°	152.7	156.8	148.0	135.4	122.2	112.2	105.6	101.2	99.0	97.4	97.4
77.5°	115.3	118.8	113.7	102.7	94.9	86.1	81.7	77.6	76.7	75.1	75.7
80°	82.0	83.6	80.7	73.2	66.3	61.6	57.8	55.6	55.3	54.0	55.3
82.5°	54.4	54.7	51.5	48.1	42.7	40.2	37.7	36.8	36.4	36.4	35.8
85°	30.2	30.8	28.6	26.4	24.5	22.3	21.7	21.1	20.4	21.4	22.0
87.5°	11.6	11.9	11.6	10.7	10.1	9.4	9.1	9.7	8.8	9.4	9.7
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	769.8	769.8	769.8	769.8	769.8	769.8	769.8	769.8	769.8	769.8	769.8
2.5°	752.2	749.7	745.9	739.6	735.2	730.5	728.6	729.2	727.3	724.8	725.5
5°	732.4	725.1	718.9	710.1	701.9	695.0	692.8	690.0	687.4	685.9	684.3
7.5°	711.3	701.3	691.8	683.0	673.6	664.8	661.4	658.9	657.6	653.2	651.3
10°	691.2	679.6	668.3	657.9	648.2	638.4	635.0	631.8	627.4	625.5	623.3
12.5°	669.8	658.2	646.0	633.4	623.7	615.8	609.8	607.6	603.2	601.4	600.1
15°	649.1	635.0	625.2	615.5	600.7	591.9	589.4	581.6	579.0	575.3	572.8
17.5°	628.4	615.2	600.7	589.4	580.3	569.3	563.3	559.9	555.2	551.7	547.0
20°	608.0	592.6	581.2	567.1	557.1	547.0	539.5	536.3	532.2	527.5	520.9
22.5°	588.2	571.2	560.2	547.0	534.4	522.8	516.5	512.1	504.0	503.0	497.0
25°	564.9	549.8	535.4	521.6	509.3	497.7	493.6	486.7	483.8	478.2	477.3
27.5°	542.9	526.9	511.2	496.1	485.4	477.3	470.0	465.6	462.8	458.4	458.7
30°	520.0	502.4	487.6	473.8	462.2	454.3	449.6	447.4	443.3	442.7	440.5
32.5°	495.5	479.5	464.1	451.8	439.9	433.0	430.8	428.6	426.0	426.4	425.7
35°	471.0	456.8	440.5	429.2	419.4	415.4	411.9	411.3	410.3	411.0	411.0
37.5°	447.1	431.7	418.2	407.8	402.2	396.5	394.9	394.6	394.9	395.6	397.1
40°	423.8	409.7	396.5	388.0	381.7	379.2	377.0	378.0	379.2	381.4	383.3
42.5°	400.6	387.1	376.1	367.6	361.6	360.4	360.7	362.6	362.9	366.0	369.5
45°	376.1	364.5	354.1	347.5	343.7	342.2	342.8	344.7	346.9	351.3	355.7
47.5°	353.5	343.1	334.0	327.4	324.6	323.9	325.2	327.7	332.7	337.1	342.2
50°	330.5	321.1	312.6	306.6	306.3	304.1	307.0	310.1	316.1	322.0	329.6
52.5°	307.9	298.8	291.6	286.9	285.6	285.6	289.1	294.7	300.0	307.9	314.8
55°	284.3	276.2	269.3	267.7	265.8	266.7	270.5	276.2	283.7	292.5	300.0
57.5°	260.1	253.2	248.2	246.0	245.1	248.2	252.6	258.6	268.3	277.1	285.3
60°	237.2	231.2	225.9	225.3	224.6	228.7	234.1	240.4	250.1	258.9	268.9
62.5°	212.7	208.0	204.5	203.6	203.6	207.7	213.6	221.8	230.9	240.4	251.0
65°	187.9	183.8	182.9	181.6	184.4	186.9	192.9	200.8	210.5	220.9	232.2
67.5°	164.9	162.4	160.6	160.6	162.7	167.5	172.8	180.7	190.7	201.7	211.8
70°	142.0	139.5	137.9	139.5	140.8	146.4	152.1	159.6	169.0	179.7	190.4
72.5°	118.1	118.4	118.8	118.4	119.7	125.0	130.7	137.9	147.0	157.4	167.1
75°	97.1	95.5	95.8	96.5	100.5	103.4	109.0	115.9	125.7	135.1	143.3
77.5°	75.4	74.8	76.3	76.3	80.1	83.6	88.3	95.2	103.7	112.2	118.8
80°	55.3	55.6	56.9	57.2	60.3	64.1	69.1	73.8	81.4	87.3	93.6
82.5°	37.4	38.0	39.6	41.8	43.0	45.2	49.6	54.7	60.0	66.3	70.1
85°	21.7	22.6	23.9	25.4	26.7	28.9	32.0	36.1	39.9	43.4	46.5
87.5°	10.7	10.7	11.6	12.3	13.2	14.5	16.7	18.2	20.7	23.2	24.5
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°	769.8	769.8	769.8	769.8
2.5°	724.2	723.9	722.6	723.3
5°	683.4	680.2	679.9	678.6
7.5°	648.2	647.2	647.2	644.7
10°	621.1	618.3	619.0	617.7
12.5°	595.4	593.8	591.9	590.0
15°	566.5	566.5	566.5	561.1
17.5°	543.9	543.5	542.0	541.7
20°	520.3	519.0	515.0	517.8
22.5°	496.4	495.5	492.0	492.6
25°	474.1	473.2	472.5	470.0
27.5°	454.9	455.3	455.9	454.3
30°	440.5	439.5	440.8	439.2
32.5°	427.0	427.0	425.7	426.0
35°	411.6	412.8	413.2	412.8
37.5°	398.1	399.6	400.9	399.6
40°	385.5	386.8	388.0	387.7
42.5°	372.3	374.5	375.5	376.4
45°	359.7	362.6	364.1	364.5
47.5°	346.9	350.3	353.5	353.1
50°	334.3	338.7	341.5	341.2
52.5°	321.7	326.1	329.6	331.2
55°	307.6	313.2	316.4	319.2
57.5°	293.5	299.7	302.9	304.1
60°	277.7	283.4	287.5	288.4
62.5°	260.1	266.1	271.5	272.7
65°	241.9	248.5	252.6	253.2
67.5°	220.9	227.2	231.2	233.1
70°	199.2	203.9	208.3	211.1
72.5°	175.0	180.7	184.7	186.6
75°	149.9	156.2	158.4	159.6
77.5°	123.8	127.6	131.0	131.3
80°	97.7	102.4	103.7	106.8
82.5°	71.9	76.3	75.4	76.7
85°	47.4	49.0	50.0	50.3
87.5°	25.1	26.1	26.7	27.0
90°	0.0	0.0	0.0	0.0

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