

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: P242565

Luminaire Tested: **S123RDR-S560D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242565  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-30)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123RDR-S560D830-X4F0-XX-UDD-A-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

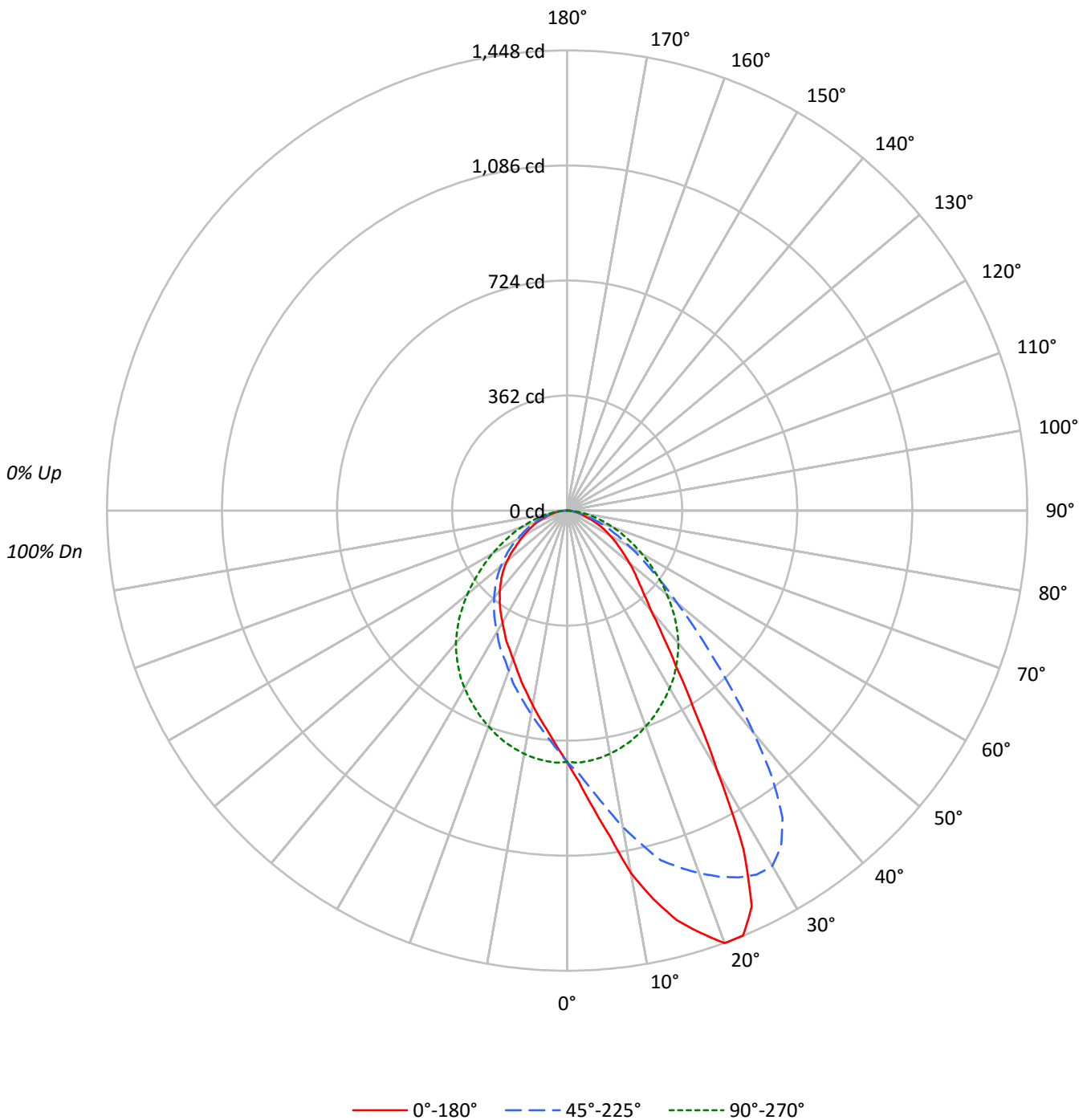
Lumens per Lamp: N/A  
Luminaire Lumens: 1968.3 lumens  
Efficiency: N/A  
Efficacy: 104.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.35  
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 18.8  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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	108	104	100	97	100	97	94	96	93	91	92	90	89	87
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	74
3	93	84	76	71	91	82	75	70	79	74	69	77	72	68	74	70	66	64
4	86	75	67	61	84	74	66	61	71	65	60	69	64	59	67	62	58	56
5	80	68	60	53	78	67	59	53	65	58	53	63	57	52	61	56	52	50
6	74	62	53	47	72	61	53	47	59	52	47	57	51	46	56	50	46	44
7	69	56	48	42	67	55	48	42	54	47	42	53	46	42	51	46	41	39
8	64	52	44	38	63	51	43	38	50	43	38	48	42	38	47	42	37	36
9	60	48	40	35	59	47	40	35	46	39	34	45	39	34	44	38	34	32
10	57	44	37	32	55	44	36	32	43	36	31	42	36	31	41	35	31	29

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	9582	9582	9582
5°	11422	9622	8473
10°	14262	9567	7656
15°	16739	9469	6981
20°	18682	9323	6408
25°	18383	9169	6056
30°	13214	9028	5692
35°	8822	8843	5457
40°	6500	8620	5215
45°	5453	8232	4976
50°	4810	7722	4645
55°	4220	7137	4191
60°	3758	6579	3840
65°	3301	5977	3571
70°	2591	5444	3260
75°	2281	4754	2979
80°	1982	4042	2932
85°	1599	3240	3101



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	77.6	3.9
10°-20°	243.0	12.3
20°-30°	382.7	19.4
30°-40°	398.0	20.2
40°-50°	340.5	17.3
50°-60°	259.5	13.2
60°-70°	166.3	8.4
70°-80°	79.7	4.0
80°-90°	20.9	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°	703.4	35.7
0°-40°	1101.4	56.0
0°-60°	1701.4	86.4
0°-90°	1968.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1968.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	790	790	790	790	790	
5°	939	880	791	714	696	96
15°	1334	1139	755	593	556	378
25°	1374	1274	686	490	453	597
35°	596	1182	598	400	369	388
45°	318	642	480	316	290	249
55°	200	320	338	228	198	180
65°	115	158	208	142	124	113
75°	49	57	102	72	64	52
85°	12	12	23	22	22	13
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°	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5
2.5°	854.8	856.1	851.7	851.1	846.0	844.6	844.6	837.5	833.1	827.4	824.0
5°	938.7	944.1	941.4	935.3	925.2	922.8	916.4	906.2	894.7	880.5	873.7
7.5°	1034.8	1046.0	1043.9	1034.5	1023.6	1016.9	998.9	984.4	962.4	942.4	926.9
10°	1158.7	1150.9	1144.8	1135.6	1125.8	1109.9	1091.0	1064.9	1034.8	1011.1	984.7
12.5°	1251.4	1251.7	1243.6	1234.1	1219.2	1204.3	1180.0	1146.8	1110.6	1073.7	1042.6
15°	1333.9	1336.0	1330.9	1321.1	1301.5	1274.7	1239.5	1226.3	1176.3	1139.0	1101.8
17.5°	1392.8	1393.2	1392.1	1378.9	1357.6	1339.4	1306.5	1275.7	1228.4	1177.9	1128.2
20°	1448.3	1444.9	1445.6	1430.4	1415.5	1393.5	1361.7	1311.3	1274.0	1213.5	1161.7
22.5°	1447.0	1447.0	1450.0	1447.3	1437.5	1421.9	1398.6	1358.0	1307.9	1246.6	1186.7
25°	1374.5	1371.8	1387.7	1392.1	1409.4	1412.4	1405.0	1381.7	1336.6	1273.7	1201.6
27.5°	1202.0	1192.2	1225.3	1258.1	1301.8	1329.5	1358.0	1364.4	1343.1	1291.6	1216.2
30°	944.1	975.9	990.8	1044.3	1103.8	1174.9	1237.2	1296.4	1310.9	1291.3	1232.1
32.5°	743.8	770.5	782.4	826.4	880.8	967.1	1068.3	1158.3	1228.7	1252.4	1222.6
35°	596.2	596.6	625.0	645.3	696.7	782.4	873.1	985.4	1097.1	1181.7	1190.5
37.5°	492.0	493.4	511.6	532.0	573.2	621.3	705.5	800.3	934.6	1060.9	1126.5
40°	410.8	413.9	426.7	446.7	474.4	508.6	570.9	658.8	766.5	911.0	1029.0
42.5°	358.7	364.1	369.2	383.4	397.9	429.4	476.8	539.7	635.2	769.8	910.6
45°	318.1	320.8	325.9	333.0	348.5	370.9	404.7	450.4	531.6	641.6	778.0
47.5°	287.0	285.3	291.0	297.1	307.6	323.8	347.5	387.1	448.0	540.1	658.2
50°	255.1	254.8	258.5	262.9	272.7	283.9	302.5	330.6	376.6	449.7	555.6
52.5°	225.4	227.1	229.4	235.2	241.6	250.1	266.3	284.6	322.5	383.1	467.0
55°	199.7	200.7	204.4	207.4	212.5	221.6	232.1	249.1	276.1	320.1	392.9
57.5°	177.3	177.0	180.7	181.0	187.5	195.3	203.7	216.9	237.6	272.4	323.2
60°	155.0	154.0	157.0	159.4	162.4	168.5	175.3	188.1	203.7	227.7	269.7
62.5°	134.7	134.3	136.4	138.7	141.1	146.5	151.9	161.1	172.6	191.9	223.0
65°	115.1	116.1	117.1	118.1	119.5	122.8	128.3	135.0	143.5	157.7	181.7
67.5°	94.7	96.1	96.4	98.8	101.5	103.2	106.3	112.7	119.1	132.0	146.2
70°	73.1	72.8	73.1	74.1	77.8	81.6	86.0	90.4	94.1	102.5	114.0
72.5°	60.2	59.6	60.6	60.6	61.9	62.3	64.6	68.7	73.8	78.8	86.3
75°	48.7	48.7	48.7	48.7	50.1	50.8	51.8	52.8	54.5	57.2	63.3
77.5°	37.9	37.9	38.6	38.9	39.3	39.6	40.3	41.3	42.0	43.3	46.4
80°	28.4	28.8	28.4	28.8	28.8	29.4	29.8	30.8	31.1	32.8	33.8
82.5°	19.6	19.3	19.6	20.0	20.0	20.6	20.6	21.3	21.3	22.0	23.0
85°	11.5	10.8	11.5	11.2	11.8	11.2	11.5	12.2	12.2	12.5	13.9
87.5°	3.4	4.1	3.4	3.7	3.7	4.1	4.1	4.1	4.7	4.4	4.7
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°	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5
2.5°	822.6	821.6	816.9	811.5	804.4	799.6	795.9	793.9	787.8	780.3	775.3
5°	866.6	856.5	845.6	832.4	820.3	807.7	800.0	790.8	779.7	767.1	758.3
7.5°	910.3	892.7	873.4	853.4	833.1	815.2	798.6	785.1	768.1	750.9	739.0
10°	962.0	932.9	902.8	872.0	843.9	817.6	797.3	777.3	756.0	735.3	719.8
12.5°	1009.1	968.5	932.6	893.0	855.1	822.3	790.8	766.5	739.7	717.4	699.1
15°	1047.3	1008.1	966.1	908.6	860.9	820.9	785.4	754.6	723.5	696.4	679.2
17.5°	1087.3	1027.7	972.5	927.9	865.6	817.2	775.6	739.7	705.9	678.1	656.5
20°	1110.3	1053.1	991.8	930.6	869.7	813.8	763.4	722.8	687.3	654.8	635.2
22.5°	1124.1	1057.5	992.2	925.2	859.5	801.0	751.2	705.5	666.3	635.8	610.5
25°	1134.3	1057.1	986.1	921.1	855.1	792.2	733.0	685.6	644.0	611.1	585.4
27.5°	1142.4	1053.1	971.5	900.8	834.1	770.2	716.7	666.0	624.3	590.2	562.1
30°	1144.4	1048.0	954.3	876.1	808.1	750.6	693.0	645.0	600.3	563.4	537.7
32.5°	1147.1	1035.5	930.9	846.7	776.6	719.8	669.0	623.7	577.6	541.4	515.0
35°	1137.7	1032.4	907.2	811.8	742.1	686.9	639.9	597.6	552.6	517.4	490.7
37.5°	1108.9	1015.9	883.5	772.9	700.8	650.1	610.8	572.2	530.6	492.0	467.3
40°	1060.5	988.8	855.1	738.0	661.9	609.4	574.9	544.8	504.9	469.3	442.3
42.5°	988.4	951.9	828.0	701.5	617.9	567.8	540.1	512.3	478.5	442.3	417.2
45°	897.1	902.8	789.1	662.2	578.0	527.2	499.8	480.2	449.0	419.3	393.2
47.5°	786.1	834.1	747.5	620.9	534.7	486.9	462.9	445.0	423.3	392.5	368.5
50°	677.8	754.6	695.4	579.3	494.4	447.0	423.3	409.5	391.2	368.2	345.5
52.5°	578.0	661.9	632.5	533.0	450.7	408.4	385.4	374.6	361.1	339.7	319.8
55°	487.6	571.2	563.1	486.3	407.1	368.2	350.6	337.7	327.9	311.7	295.4
57.5°	409.1	490.0	491.7	434.5	369.2	329.6	314.4	304.2	297.4	284.6	268.7
60°	335.7	408.4	422.7	382.0	327.9	294.1	279.2	271.4	266.3	256.5	245.0
62.5°	274.8	334.0	350.6	324.2	288.3	257.2	246.3	238.9	235.9	227.7	217.9
65°	219.6	271.1	286.6	270.4	249.7	224.4	214.9	208.4	205.4	200.7	193.2
67.5°	173.3	213.2	230.1	216.6	208.8	190.9	184.4	180.7	178.0	174.6	168.2
70°	132.6	160.4	178.0	174.9	168.9	160.4	156.0	153.6	150.9	148.2	142.8
72.5°	100.2	117.1	133.3	136.0	131.3	131.3	127.6	126.9	125.5	122.2	119.8
75°	70.7	83.9	95.4	99.8	101.9	103.5	101.9	101.5	101.2	98.5	96.8
77.5°	49.1	57.5	65.3	73.1	75.8	78.2	78.5	79.9	78.8	77.2	76.5
80°	35.5	37.2	42.3	48.7	53.8	55.8	57.2	57.9	57.5	57.2	55.8
82.5°	23.3	24.7	26.4	30.5	34.5	38.2	38.9	38.6	39.6	39.9	38.9
85°	13.9	14.2	14.9	15.6	17.9	21.7	22.7	23.3	24.0	24.0	22.0
87.5°	5.4	5.1	5.8	5.8	6.8	7.1	9.1	10.8	11.2	9.8	9.8
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):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5
2.5°	773.6	769.2	766.1	759.4	755.0	750.2	745.5	748.5	748.2	747.8	747.8
5°	750.9	743.1	736.0	726.9	721.1	714.0	708.6	707.9	709.3	704.5	701.8
7.5°	729.6	719.4	709.3	699.8	689.3	681.2	676.1	674.1	670.4	667.3	664.6
10°	706.9	694.4	684.6	672.0	660.5	650.4	644.0	639.6	637.2	634.8	630.4
12.5°	683.6	671.4	658.2	643.6	632.8	620.6	616.2	611.1	606.1	603.4	596.9
15°	660.9	645.0	631.8	616.9	604.7	593.2	586.4	576.6	575.3	571.9	565.8
17.5°	638.9	621.3	602.0	591.8	579.7	567.5	556.7	553.6	543.5	540.1	534.3
20°	611.8	595.9	582.0	567.5	547.5	536.4	528.2	523.8	516.0	511.3	507.9
22.5°	588.5	572.2	555.6	538.0	522.5	509.6	504.2	496.8	493.4	486.3	482.5
25°	566.5	548.9	529.6	511.3	499.5	490.0	480.5	474.4	468.3	465.3	458.5
27.5°	539.7	522.1	503.5	489.3	475.8	466.3	457.2	452.1	444.3	439.2	435.5
30°	518.4	496.8	481.2	468.7	450.1	441.3	434.8	428.1	422.7	417.2	413.5
32.5°	493.7	474.4	459.9	443.6	430.4	420.6	411.8	406.1	401.7	396.6	392.9
35°	467.7	451.1	435.8	420.3	409.8	400.0	390.2	385.1	380.7	376.0	372.6
37.5°	444.0	428.4	414.2	399.3	386.4	378.0	369.9	366.5	360.4	357.0	353.6
40°	422.3	407.1	391.5	377.3	363.8	357.7	350.6	344.8	339.4	337.0	333.3
42.5°	398.6	383.4	370.9	355.3	344.8	336.0	329.6	323.2	319.4	315.7	314.0
45°	375.3	361.7	348.9	333.7	323.2	316.1	308.6	302.9	299.1	296.8	293.0
47.5°	352.9	339.1	326.2	312.7	302.5	294.4	286.6	282.9	277.8	275.1	272.4
50°	328.2	316.1	302.2	290.0	279.9	271.7	265.6	260.6	256.2	252.4	250.7
52.5°	305.6	292.4	280.9	269.7	258.9	249.4	244.0	238.6	235.5	231.1	229.1
55°	280.2	267.7	257.5	246.3	235.9	228.1	221.3	216.6	213.2	208.4	205.7
57.5°	256.8	246.0	233.5	223.7	212.5	206.4	200.7	193.9	189.8	186.1	183.4
60°	233.2	220.3	209.8	200.7	191.2	182.7	177.7	172.6	168.2	164.5	162.1
62.5°	208.4	197.6	187.8	177.7	169.2	162.1	156.0	151.9	148.2	146.2	143.8
65°	183.1	174.3	164.1	156.0	147.9	142.5	137.7	134.0	131.3	129.6	127.6
67.5°	159.7	151.3	142.1	133.7	128.3	123.9	120.5	117.1	115.7	113.7	112.3
70°	137.0	128.3	120.5	114.4	109.0	105.9	103.9	101.5	100.2	97.5	96.1
72.5°	112.3	106.6	101.5	96.8	92.7	90.0	87.3	84.3	81.9	78.8	77.5
75°	92.4	86.6	82.2	78.8	76.1	72.4	68.7	65.6	64.6	63.6	63.3
77.5°	72.1	68.4	65.0	62.3	58.5	55.2	54.1	53.5	53.1	52.5	52.5
80°	53.8	50.4	48.1	44.7	42.6	42.6	42.6	42.0	42.3	42.3	42.3
82.5°	36.5	33.5	32.5	31.8	31.8	32.1	32.1	32.5	32.1	32.8	32.5
85°	20.6	21.0	21.7	21.3	21.7	21.7	22.3	22.0	22.3	21.7	22.3
87.5°	9.5	10.5	10.8	11.2	11.5	11.2	11.5	11.5	11.8	11.8	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):**

	165°	170°	175°	180°
0°	790.5	790.5	790.5	790.5
2.5°	743.8	743.4	743.8	742.4
5°	700.8	700.5	699.5	696.4
7.5°	661.9	661.2	658.5	659.2
10°	628.1	628.4	624.3	622.0
12.5°	595.2	593.2	590.2	587.4
15°	567.1	563.8	555.6	556.3
17.5°	532.3	529.6	529.2	524.5
20°	502.5	500.8	501.5	496.8
22.5°	479.2	477.5	473.7	473.1
25°	456.5	453.8	451.1	452.8
27.5°	433.5	431.4	428.4	428.4
30°	411.8	409.8	408.4	406.7
32.5°	389.8	389.8	387.1	387.1
35°	371.2	369.2	368.5	368.8
37.5°	353.3	350.6	349.2	347.9
40°	333.7	330.9	330.3	329.6
42.5°	311.7	311.0	310.6	309.3
45°	292.0	291.7	289.7	290.3
47.5°	271.1	269.4	268.3	269.4
50°	249.4	248.7	245.7	246.3
52.5°	227.7	224.7	224.0	223.3
55°	203.4	200.3	199.0	198.3
57.5°	179.3	178.3	177.0	178.0
60°	158.7	158.7	158.7	158.4
62.5°	142.8	141.8	141.4	142.1
65°	126.6	126.2	124.9	124.5
67.5°	111.7	110.3	110.3	109.6
70°	94.4	93.7	91.7	92.0
72.5°	75.8	75.1	75.1	74.4
75°	62.9	62.6	62.3	63.6
77.5°	52.5	52.5	52.8	52.1
80°	42.3	42.3	42.0	42.0
82.5°	31.8	32.1	32.5	31.8
85°	22.3	22.0	22.7	22.3
87.5°	12.5	11.8	11.8	12.2
90°	0.0	0.0	0.0	0.0

(END OF REPORT)