

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: P332970-930

Luminaire Tested: **S124RDIP-S1020D810U930-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332970-930  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124RDIP-S1020D810U930-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED  
HOUSING  
UPLIGHT 810 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6040.2 lumens  
Efficiency: N/A  
Efficacy: 111.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.09 / 1.24  
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')  
CIE Type: General Diffuse

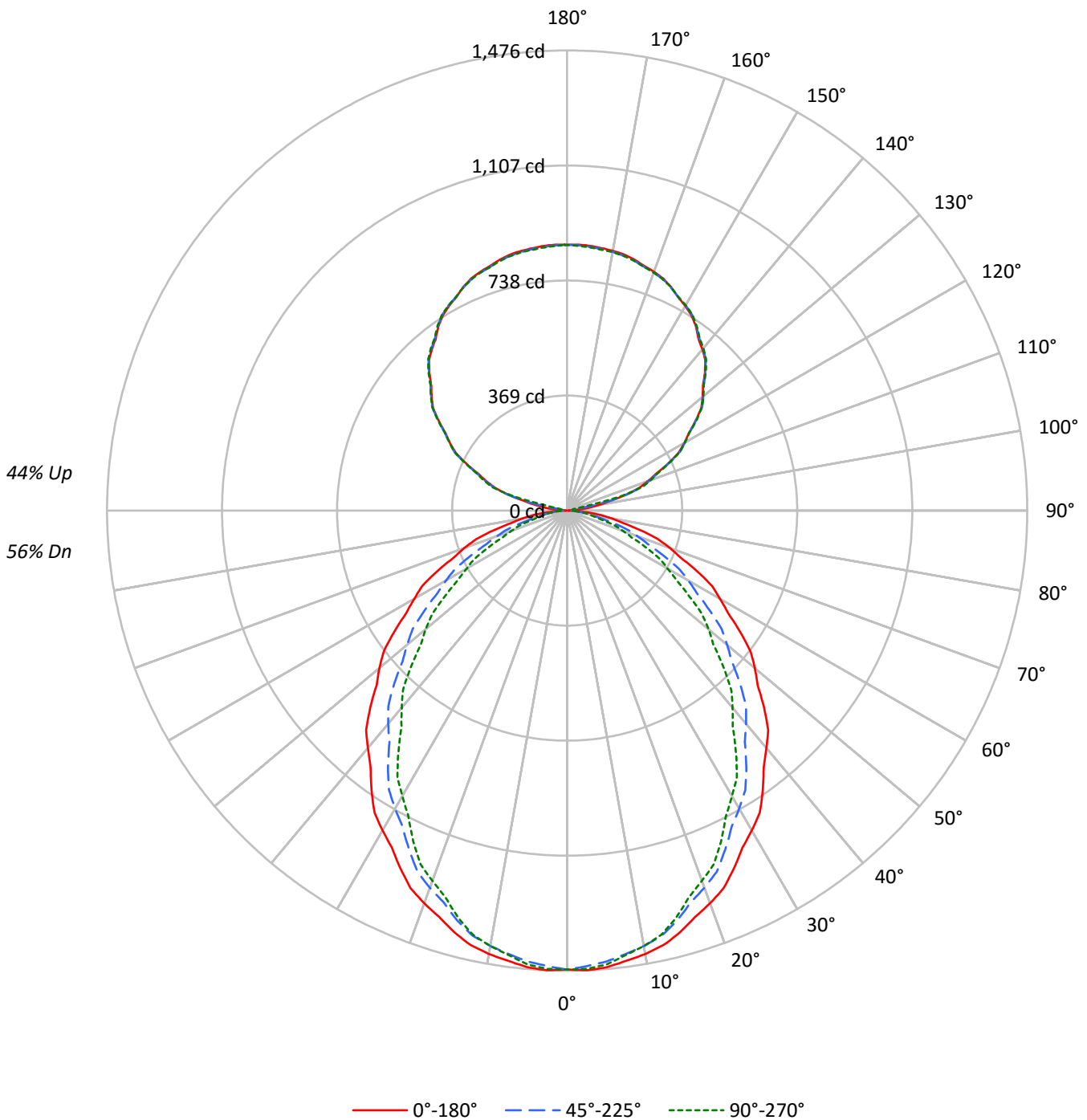
Input Watts (W): 54.4  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	50	30	10	0	
RCR																						
0	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	56				
1	100	95	91	88	92	89	86	83	77	74	72	66	64	62	55	54	53	48				
2	91	84	77	72	84	78	73	68	68	64	60	58	55	52	49	47	45	41				
3	83	74	66	61	77	69	62	57	60	55	51	51	48	45	44	41	39	35				
4	76	65	58	52	71	61	54	49	53	48	44	46	42	38	39	36	34	30				
5	70	58	50	44	65	55	48	42	48	42	38	41	37	34	35	32	29	26				
6	65	53	44	39	60	49	42	37	43	37	33	38	33	30	32	29	26	23				
7	60	48	40	34	56	45	38	32	39	34	29	34	30	26	30	26	23	21				
8	56	43	36	30	52	41	34	29	36	30	26	31	27	24	27	24	21	19				
9	52	40	32	27	48	37	31	26	33	27	24	29	24	21	25	22	19	17				
10	48	36	29	24	45	34	28	23	30	25	21	27	22	19	23	20	17	15				

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

	0°	45°	90°
0°	11885	11885	11885
5°	11912	11766	11839
10°	11837	11625	11625
15°	11701	11381	11295
20°	11515	11059	10856
25°	11276	10684	10413
30°	11044	10288	9857
35°	10787	9876	9298
40°	10478	9409	8696
45°	10193	8944	8082
50°	9868	8410	7433
55°	9520	7854	6726
60°	9137	7245	6006
65°	8785	6481	5297
70°	8275	5641	4497
75°	7629	4676	3656
80°	6657	3561	3357
85°	5641	3242	3029



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	138.3	2.3
10°-20°	385.6	6.4
20°-30°	556.9	9.2
30°-40°	631.2	10.5
40°-50°	609.5	10.1
50°-60°	506.9	8.4
60°-70°	350.0	5.8
70°-80°	177.4	2.9
80°-90°	48.0	0.8
90°-100°	29.1	0.5
100°-110°	185.9	3.1
110°-120°	355.6	5.9
120°-130°	451.4	7.5
130°-140°	482.9	8.0
140°-150°	451.6	7.5
150°-160°	364.2	6.0
160°-170°	234.9	3.9
170°-180°	81.0	1.3
0°-30°	1080.8	17.9
0°-40°	1712.0	28.3
0°-60°	2828.4	46.8
0°-90°	3403.8	56.4
90°-120°	570.6	9.4
90°-150°	1956.4	32.4
90°-180°	2636.0	43.6
0°-180°	6040.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1472	1472	1472	1472	1472	
5°	1470	1465	1452	1462	1461	139
15°	1400	1389	1362	1359	1352	394
25°	1266	1244	1199	1181	1169	583
35°	1094	1057	1002	965	944	684
45°	893	850	783	730	708	688
55°	676	630	558	501	478	605
65°	460	410	339	293	277	454
75°	245	202	150	125	117	258
85°	61	39	35	33	33	69
90°	2	9	14	18	19	5
95°	35	15	14	18	18	45
105°	192	196	199	203	182	201
115°	358	360	360	361	361	352
125°	504	506	505	507	507	449
135°	625	624	627	628	629	481
145°	720	722	722	723	724	450
155°	790	790	789	791	789	364
165°	833	830	830	834	829	235
175°	852	849	849	854	847	81
180°	852	852	852	852	852	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2
2.5°	1475.8	1475.0	1474.1	1473.4	1472.6	1471.0	1468.8	1466.6	1464.4	1462.2	1464.4
5°	1469.9	1468.9	1467.9	1466.9	1465.9	1463.9	1460.9	1457.9	1454.9	1451.9	1454.4
7.5°	1456.6	1455.6	1454.5	1453.4	1452.4	1449.9	1446.0	1442.1	1438.2	1434.3	1435.9
10°	1444.0	1442.8	1441.4	1440.2	1439.0	1436.1	1431.6	1427.1	1422.5	1418.1	1419.0
12.5°	1427.8	1426.3	1424.8	1423.4	1422.0	1418.5	1413.2	1407.9	1402.6	1397.3	1397.9
15°	1400.0	1397.7	1395.5	1393.3	1391.0	1386.7	1380.5	1374.2	1368.0	1361.7	1361.2
17.5°	1366.4	1363.2	1359.9	1356.7	1353.4	1348.0	1340.5	1333.0	1325.5	1317.9	1316.5
20°	1340.3	1337.0	1333.7	1330.5	1327.2	1321.4	1312.9	1304.3	1295.8	1287.3	1285.3
22.5°	1311.4	1307.7	1304.1	1300.5	1296.8	1290.4	1281.3	1272.2	1263.1	1253.9	1250.9
25°	1265.9	1261.3	1256.9	1252.4	1247.8	1240.5	1230.2	1219.9	1209.7	1199.4	1195.1
27.5°	1218.1	1212.4	1206.8	1201.1	1195.5	1187.2	1176.2	1165.2	1154.2	1143.2	1138.0
30°	1184.7	1178.4	1172.2	1166.0	1159.7	1150.6	1138.9	1127.1	1115.3	1103.6	1097.3
32.5°	1149.6	1142.5	1135.4	1128.4	1121.3	1111.7	1099.5	1087.4	1075.1	1063.0	1055.7
35°	1094.5	1086.5	1078.5	1070.5	1062.5	1052.2	1039.7	1027.2	1014.6	1002.1	993.6
37.5°	1035.7	1027.4	1019.2	1010.9	1002.7	991.6	977.7	963.8	949.9	936.0	926.5
40°	994.3	985.9	977.7	969.4	961.2	949.9	935.6	921.3	907.0	892.8	882.2
42.5°	954.6	945.9	937.2	928.5	919.9	908.1	893.2	878.3	863.5	848.6	837.9
45°	892.8	883.5	874.2	865.0	855.7	843.5	828.5	813.5	798.4	783.4	771.2
47.5°	829.0	819.4	809.8	800.3	790.7	778.1	762.5	746.8	731.2	715.6	702.9
50°	785.7	775.9	766.1	756.4	746.6	733.7	717.7	701.6	685.6	669.6	657.0
52.5°	741.5	731.9	722.4	712.8	703.2	690.2	673.8	657.4	640.9	624.5	611.8
55°	676.4	666.3	656.3	646.3	636.3	623.1	606.8	590.5	574.3	558.0	544.9
57.5°	611.9	601.4	591.0	580.6	570.2	556.9	541.0	524.9	508.8	492.8	479.6
60°	565.9	555.9	545.8	535.8	525.8	512.7	496.8	480.7	464.6	448.7	435.6
62.5°	524.4	514.0	503.5	493.1	482.7	469.3	452.8	436.4	420.0	403.6	391.5
65°	459.9	449.1	438.4	427.6	416.9	403.4	387.4	371.4	355.3	339.3	328.6
67.5°	393.0	382.6	372.3	362.0	351.6	339.1	324.2	309.3	294.4	279.6	270.3
70°	350.6	340.1	329.5	319.0	308.5	296.1	281.8	267.5	253.2	239.0	230.7
72.5°	305.5	296.0	286.4	277.0	267.4	255.9	242.5	228.9	215.5	202.0	194.9
75°	244.6	235.4	226.1	216.8	207.6	197.0	185.2	173.5	161.7	149.9	144.1
77.5°	182.9	175.0	167.1	159.2	151.4	142.7	133.1	123.7	114.1	104.6	101.3
80°	143.2	135.9	128.7	121.4	114.1	106.7	99.2	91.7	84.1	76.6	75.9
82.5°	108.9	102.2	95.6	88.9	82.3	76.7	72.5	68.2	63.8	59.5	58.9
85°	60.9	55.8	50.9	45.8	40.8	37.9	37.2	36.4	35.7	35.0	34.4
87.5°	21.1	19.8	18.5	17.3	16.0	15.3	15.3	15.4	15.4	15.4	15.4
90°	1.9	3.5	5.1	6.6	8.2	9.5	10.6	11.7	12.9	14.0	14.8
92.5°	8.1	8.2	8.2	8.3	8.4	9.0	10.1	11.3	12.4	13.5	14.3
95°	35.1	30.2	25.4	20.6	15.8	13.5	13.6	13.8	13.9	14.0	14.8
97.5°	74.4	77.5	80.5	83.5	86.5	80.1	64.2	48.4	32.6	16.8	16.9
100°	104.5	107.1	109.7	112.2	114.7	106.2	86.7	67.2	47.6	28.0	25.6
102.5°	138.2	140.1	141.9	143.8	145.7	145.4	142.8	140.2	137.7	135.2	109.2
105°	191.8	192.7	193.6	194.4	195.3	196.1	196.7	197.5	198.2	198.9	200.2
107.5°	241.7	242.1	242.6	243.0	243.4	244.1	245.1	246.1	247.0	248.0	248.6
110°	275.4	275.8	276.2	276.6	277.1	277.7	278.6	279.4	280.3	281.1	281.4



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	308.0	308.8	309.6	310.3	311.1	311.7	312.1	312.4	312.8	313.2	313.2
115°	358.2	358.7	359.1	359.5	360.0	360.1	360.0	359.8	359.7	359.5	359.8
117.5°	403.5	404.1	404.6	405.2	405.8	406.3	406.5	406.8	407.2	407.5	407.4
120°	434.1	434.7	435.3	435.9	436.3	436.6	436.4	436.3	436.2	436.0	436.3
122.5°	462.7	463.0	463.3	463.7	464.1	464.3	464.5	464.7	464.9	465.1	465.3
125°	503.6	504.2	504.8	505.3	505.9	506.0	505.7	505.5	505.2	504.9	505.3
127.5°	542.3	542.5	542.7	542.8	542.9	543.3	544.0	544.6	545.3	545.9	545.8
130°	567.4	567.5	567.6	567.8	567.9	568.2	568.6	569.1	569.5	569.9	570.1
132.5°	590.3	590.5	590.8	591.1	591.3	591.7	592.2	592.8	593.3	593.9	594.0
135°	624.8	624.6	624.4	624.3	624.2	624.4	624.9	625.5	626.1	626.6	626.9
137.5°	655.2	655.3	655.3	655.3	655.4	655.7	656.4	657.0	657.6	658.3	658.6
140°	675.1	675.4	675.6	676.0	676.2	676.5	676.8	677.1	677.4	677.6	678.1
142.5°	692.9	693.4	694.0	694.5	695.0	695.3	695.5	695.7	695.9	696.0	696.3
145°	720.3	720.8	721.2	721.6	722.0	722.3	722.3	722.3	722.3	722.3	722.4
147.5°	742.2	743.0	743.7	744.5	745.3	745.7	745.5	745.3	745.2	745.1	745.2
150°	758.0	758.6	759.1	759.7	760.2	760.4	760.3	760.2	760.0	759.9	759.9
152.5°	771.2	771.7	772.1	772.6	773.1	773.1	772.9	772.7	772.3	772.1	772.3
155°	789.9	789.9	790.1	790.3	790.4	790.3	789.9	789.4	789.0	788.6	789.1
157.5°	805.5	805.4	805.4	805.3	805.2	804.9	804.4	804.0	803.5	803.0	803.7
160°	814.7	814.2	813.8	813.4	813.0	812.7	812.6	812.4	812.3	812.1	813.0
162.5°	822.9	822.3	821.7	821.3	820.7	820.4	820.2	820.1	819.9	819.8	820.7
165°	833.2	832.5	831.8	831.0	830.4	830.0	830.0	830.0	830.0	830.0	831.1
167.5°	841.3	840.6	839.8	839.1	838.4	838.0	837.9	837.8	837.7	837.6	838.9
170°	846.0	845.1	844.2	843.3	842.5	842.2	842.3	842.4	842.6	842.8	843.8
172.5°	849.0	848.2	847.3	846.4	845.6	845.2	845.4	845.5	845.6	845.8	846.9
175°	852.3	851.4	850.6	849.8	848.9	848.6	848.7	848.8	849.0	849.1	850.4
177.5°	853.9	853.0	852.2	851.4	850.7	850.4	850.6	850.8	851.1	851.3	852.2
180°	852.3	852.3	852.3	852.3	852.3	852.3	852.3	852.3	852.3	852.3	852.3



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2
2.5°	1466.6	1468.8	1471.0	1472.1	1471.9	1471.7	1471.5	1471.3
5°	1456.9	1459.4	1461.9	1462.9	1462.4	1461.9	1461.4	1460.9
7.5°	1437.5	1439.1	1440.7	1441.1	1440.3	1439.5	1438.7	1437.9
10°	1420.1	1421.1	1422.0	1422.0	1421.1	1420.1	1419.0	1418.1
12.5°	1398.5	1399.1	1399.7	1399.3	1397.9	1396.5	1395.1	1393.8
15°	1360.7	1360.2	1359.7	1358.5	1356.8	1355.0	1353.3	1351.5
17.5°	1315.2	1313.8	1312.4	1310.3	1307.7	1305.0	1302.4	1299.7
20°	1283.3	1281.3	1279.3	1276.7	1273.4	1270.2	1266.9	1263.6
22.5°	1247.9	1244.9	1241.9	1239.1	1236.4	1233.8	1231.1	1228.5
25°	1190.8	1186.6	1182.3	1178.9	1176.5	1173.9	1171.4	1169.0
27.5°	1132.7	1127.5	1122.2	1117.8	1114.2	1110.5	1106.9	1103.3
30°	1091.0	1084.8	1078.5	1073.3	1069.3	1065.4	1061.4	1057.4
32.5°	1048.5	1041.2	1034.0	1028.4	1024.6	1020.8	1017.0	1013.2
35°	985.0	976.6	968.0	961.6	957.0	952.5	948.0	943.5
37.5°	917.0	907.5	898.0	891.0	886.5	881.9	877.4	872.9
40°	871.7	861.2	850.7	843.2	838.7	834.1	829.6	825.2
42.5°	827.1	816.4	805.7	798.0	793.3	788.6	783.8	779.2
45°	758.9	746.6	734.3	725.9	721.5	716.9	712.4	707.9
47.5°	690.2	677.4	664.6	655.8	650.9	645.9	640.9	636.0
50°	644.5	632.0	619.5	610.8	606.1	601.3	596.6	591.8
52.5°	599.0	586.3	573.6	564.8	559.8	554.8	549.8	544.9
55°	531.9	518.9	505.9	497.0	492.2	487.5	482.7	477.9
57.5°	466.4	453.1	439.9	431.5	427.9	424.3	420.7	417.1
60°	422.6	409.5	396.6	388.0	384.0	380.0	376.0	372.0
62.5°	379.5	367.5	355.5	347.8	344.6	341.4	338.2	335.0
65°	317.7	307.0	296.2	289.3	286.3	283.3	280.3	277.3
67.5°	261.0	251.8	242.5	236.2	232.8	229.6	226.2	223.0
70°	222.4	214.2	205.9	200.5	198.0	195.5	193.0	190.5
72.5°	187.8	180.8	173.7	169.1	166.7	164.4	162.2	159.9
75°	138.4	132.6	126.9	123.3	121.7	120.3	118.7	117.2
77.5°	97.9	94.6	91.2	89.3	88.8	88.4	87.9	87.5
80°	75.2	74.4	73.6	73.1	72.9	72.6	72.4	72.2
82.5°	58.4	57.9	57.3	56.9	56.7	56.4	56.2	55.9
85°	33.9	33.4	32.9	32.7	32.7	32.7	32.7	32.7
87.5°	15.4	15.3	15.3	15.4	15.7	15.9	16.2	16.5
90°	15.7	16.6	17.4	18.0	18.3	18.6	18.8	19.2
92.5°	15.2	16.1	16.9	17.4	17.4	17.4	17.5	17.6
95°	15.7	16.6	17.4	17.9	18.1	18.2	18.3	18.5
97.5°	17.0	17.1	17.2	17.3	17.4	17.5	17.7	17.9
100°	23.2	20.8	18.4	17.3	17.4	17.5	17.7	17.9
102.5°	83.2	57.2	31.2	18.3	18.3	18.3	18.3	18.3
105°	201.5	202.7	204.0	202.1	197.0	191.8	186.8	181.6
107.5°	249.2	249.8	250.5	251.0	251.6	252.1	252.7	253.2
110°	281.7	282.0	282.3	282.6	283.1	283.5	283.9	284.3





TEST NUMBER: P332970-930

CATALOG NUMBER: S124RDIP-S1020D810U930-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	313.2	313.1	313.0	313.2	313.8	314.4	314.9	315.4
115°	360.1	360.4	360.7	360.9	360.9	360.9	360.9	360.9
117.5°	407.3	407.3	407.2	407.2	407.2	407.1	407.0	407.0
120°	436.6	436.9	437.2	437.2	436.9	436.6	436.3	436.0
122.5°	465.5	465.6	465.8	465.7	465.5	465.1	464.9	464.6
125°	505.7	506.1	506.5	506.9	507.0	507.1	507.3	507.4
127.5°	545.8	545.7	545.6	545.5	545.4	545.3	545.2	545.0
130°	570.2	570.3	570.5	570.5	570.5	570.5	570.5	570.5
132.5°	594.2	594.3	594.4	594.4	594.4	594.2	594.1	594.0
135°	627.2	627.5	627.8	628.0	628.4	628.6	628.9	629.2
137.5°	658.8	659.2	659.5	659.6	659.5	659.4	659.3	659.3
140°	678.5	678.9	679.3	679.6	679.8	679.9	680.0	680.2
142.5°	696.6	696.9	697.2	697.4	697.4	697.5	697.5	697.5
145°	722.5	722.7	722.8	723.0	723.3	723.6	723.9	724.1
147.5°	745.3	745.4	745.5	745.7	745.8	745.9	746.1	746.2
150°	759.9	759.9	759.9	759.9	760.1	760.2	760.3	760.5
152.5°	772.6	772.8	773.0	773.1	773.0	772.9	772.8	772.7
155°	789.7	790.3	790.8	790.9	790.4	790.0	789.6	789.2
157.5°	804.5	805.2	805.9	805.9	805.2	804.5	803.7	803.0
160°	813.8	814.7	815.5	815.5	814.7	813.8	813.0	812.1
162.5°	821.5	822.3	823.2	823.1	822.1	821.2	820.3	819.3
165°	832.3	833.4	834.5	834.5	833.2	831.9	830.6	829.3
167.5°	840.2	841.4	842.6	842.5	841.1	839.7	838.3	836.9
170°	845.0	846.1	847.3	847.1	845.7	844.3	842.9	841.5
172.5°	848.1	849.2	850.4	850.1	848.6	847.1	845.5	844.0
175°	851.7	853.0	854.2	854.0	852.3	850.6	848.9	847.2
177.5°	853.1	854.0	854.9	854.7	853.3	852.0	850.6	849.2
180°	852.3	852.3	852.3	852.3	852.3	852.3	852.3	852.3

(END OF REPORT)