

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: P243433

Luminaire Tested: **S123RDR-H1165D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243433  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-69)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123RDR-H1165D835-X4F0-XX-UDD-A-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

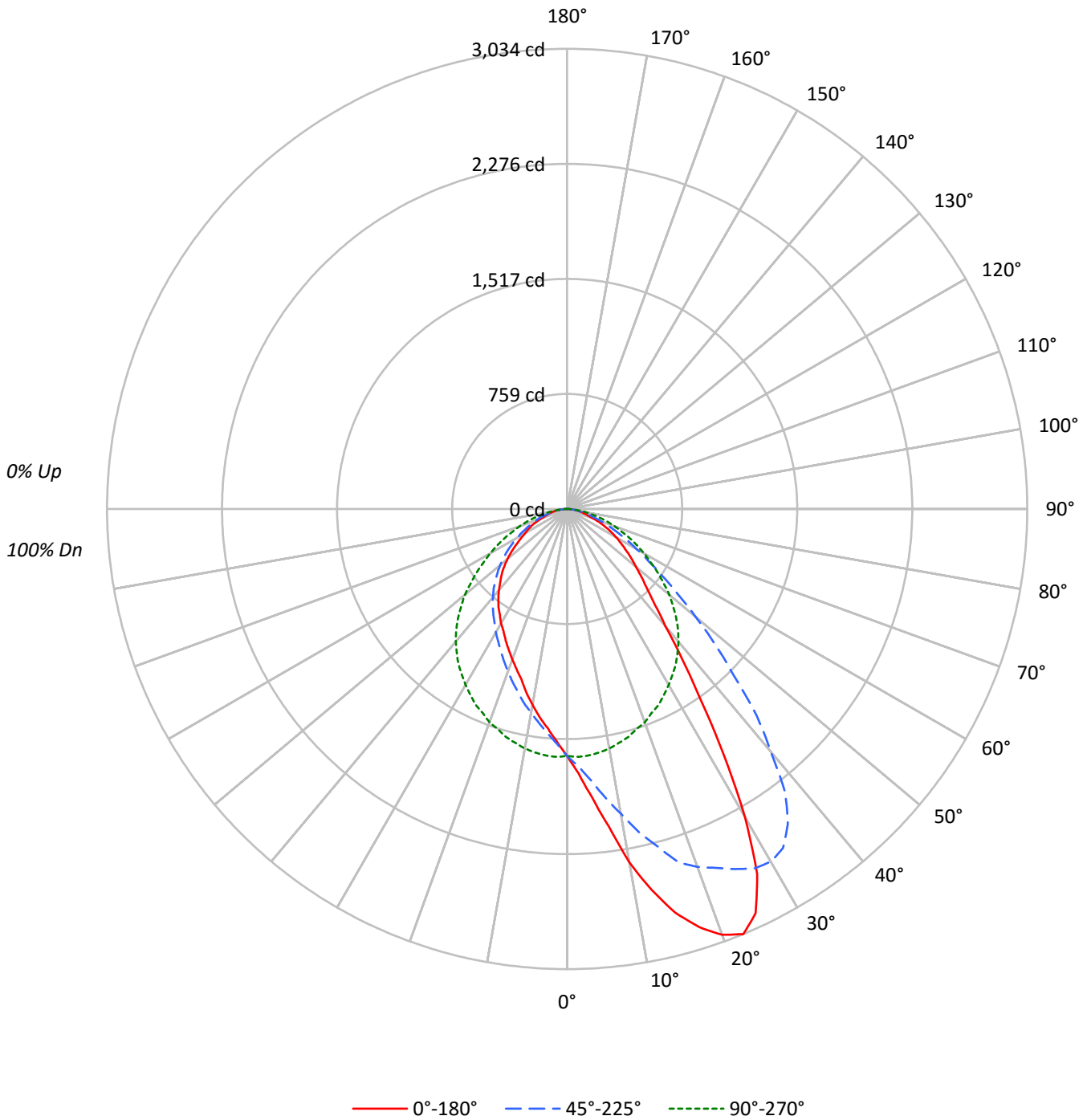
Lumens per Lamp: N/A  
Luminaire Lumens: 4244.1 lumens  
Efficiency: N/A  
Efficacy: 112.6 lumens/watt  
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4  
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 37.7  
Input Voltage (V): 120  
Input Current (Ain): 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



TEST NUMBER: P243433

CATALOG NUMBER: S123RDR-H1165D835-X4F0-XX-UDD-A-W

### Luminous Intensity Polar Plot





TEST NUMBER: P243433

CATALOG NUMBER: S123RDR-H1165D835-X4F0-XX-UDD-A-W

**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	107	104	100	97	99	97	94	96	93	91	92	90	89	87
2	101	94	88	83	99	92	86	82	89	84	80	85	81	78	82	79	76	74
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66	64
4	86	75	67	61	84	74	66	60	71	65	59	69	63	59	67	62	58	56
5	79	68	59	53	77	66	59	53	64	57	52	62	56	52	61	55	51	49
6	74	61	53	47	72	60	52	47	59	52	46	57	51	46	55	50	46	44
7	69	56	48	42	67	55	47	42	54	47	41	52	46	41	51	45	41	39
8	64	51	43	38	62	51	43	37	49	42	37	48	42	37	47	41	37	35
9	60	47	39	34	59	47	39	34	45	39	34	44	38	34	43	38	33	32
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31	29

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

	0°	90°	180°
0°	19743	19743	19743
5°	23275	19853	17679
10°	29136	19736	16135
15°	34578	19540	14614
20°	38536	19305	13607
25°	39335	19066	12811
30°	32778	18743	12187
35°	22644	18482	11677
40°	15913	18061	11062
45°	12779	17420	10463
50°	11141	16591	9681
55°	9987	15353	8620
60°	9035	14184	7808
65°	7907	13070	7302
70°	6379	11763	6181
75°	5536	10242	6060
80°	5103	8739	6087
85°	4506	7037	5285



TEST NUMBER: P243433

CATALOG NUMBER: S123RDR-H1165D835-X4F0-XX-UDD-A-W

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	159.7	3.8
10°-20°	503.0	11.9
20°-30°	806.0	19.0
30°-40°	875.0	20.6
40°-50°	749.7	17.7
50°-60°	568.3	13.4
60°-70°	363.1	8.6
70°-80°	173.6	4.1
80°-90°	45.6	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°	1468.8	34.6
0°-40°	2343.8	55.2
0°-60°	3661.7	86.3
0°-90°	4244.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4244.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1629	1629	1629	1629	1629	
5°	1913	1796	1632	1483	1453	196
15°	2756	2303	1557	1250	1165	781
25°	2941	2620	1426	1035	958	1305
35°	1530	2537	1249	848	789	983
45°	746	1553	1016	671	610	589
55°	473	761	726	480	408	426
65°	276	366	456	290	255	274
75°	118	144	219	138	129	128
85°	32	34	51	40	38	37
90°	0	0	0	0	0	



TEST NUMBER: P243433

CATALOG NUMBER: S123RDR-H1165D835-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8
2.5°	1745.5	1747.7	1744.1	1743.4	1742.7	1731.5	1728.0	1722.3	1702.6	1697.7	1694.2
5°	1912.9	1907.3	1913.6	1901.7	1888.3	1880.6	1867.9	1839.8	1815.2	1795.5	1782.8
7.5°	2111.3	2113.4	2107.0	2095.8	2069.1	2057.8	2023.3	1989.6	1957.2	1916.4	1886.2
10°	2367.2	2350.4	2353.9	2318.7	2290.6	2256.8	2209.7	2155.6	2098.6	2040.9	1998.0
12.5°	2571.2	2583.2	2574.7	2557.8	2503.7	2470.6	2427.7	2349.0	2258.9	2181.6	2116.2
15°	2755.5	2739.3	2741.4	2700.6	2680.9	2650.7	2579.6	2501.6	2443.2	2303.3	2225.9
17.5°	2890.5	2889.1	2887.0	2852.5	2828.6	2765.3	2692.9	2612.7	2539.6	2442.5	2345.4
20°	2987.5	2998.1	2995.3	2967.1	2925.0	2863.8	2820.2	2720.3	2600.0	2511.4	2392.6
22.5°	3034.0	3034.7	3036.1	3022.7	2994.6	2955.2	2893.3	2813.1	2706.2	2561.4	2429.1
25°	2941.1	2944.6	2962.9	2974.2	2981.9	2964.3	2932.0	2859.5	2767.4	2619.7	2482.6
27.5°	2713.3	2724.5	2744.9	2812.4	2839.9	2877.8	2891.2	2862.4	2794.1	2671.1	2514.9
30°	2341.9	2373.6	2393.3	2469.9	2577.5	2678.8	2726.6	2773.7	2767.4	2685.8	2527.6
32.5°	1917.1	1937.5	1994.5	2076.8	2161.9	2310.3	2476.3	2590.2	2654.2	2650.0	2538.1
35°	1530.3	1559.9	1608.4	1671.0	1788.4	1942.5	2130.2	2309.6	2469.9	2536.7	2496.7
37.5°	1242.0	1244.8	1290.5	1379.1	1452.3	1588.0	1757.5	1979.0	2189.3	2363.7	2402.4
40°	1005.7	1025.4	1049.3	1104.9	1191.4	1321.5	1434.0	1652.0	1870.0	2088.7	2244.9
42.5°	856.6	856.6	883.3	918.5	976.2	1054.2	1188.5	1386.2	1582.4	1851.0	2026.9
45°	745.5	752.5	764.5	787.0	827.8	888.2	992.3	1126.7	1327.1	1552.8	1817.3
47.5°	665.3	664.6	675.2	688.5	720.2	765.9	827.1	936.1	1084.5	1327.8	1561.3
50°	590.8	593.6	601.3	612.6	633.7	666.0	704.7	787.0	912.2	1104.9	1349.6
52.5°	533.1	532.4	538.7	545.7	561.9	580.2	614.7	675.9	762.4	915.7	1118.9
55°	472.6	475.4	483.2	487.4	500.7	512.7	541.5	576.0	645.6	761.0	945.9
57.5°	420.6	424.1	428.3	432.5	441.7	453.6	477.5	498.6	549.3	632.3	779.9
60°	372.7	371.3	376.3	383.3	388.2	398.8	412.1	433.9	469.1	528.2	636.5
62.5°	324.9	325.6	326.3	330.5	339.7	348.8	360.8	377.0	398.1	441.7	518.3
65°	275.7	276.4	277.8	282.0	291.2	296.8	309.4	323.5	340.4	366.4	419.9
67.5°	232.1	234.9	234.9	238.4	241.9	247.6	256.7	267.2	281.3	300.3	334.8
70°	180.0	179.3	182.9	189.9	193.4	203.2	209.6	216.6	229.3	241.2	270.8
72.5°	144.9	144.9	144.9	147.7	148.4	150.5	154.7	169.5	179.3	191.3	207.5
75°	118.2	118.9	118.9	119.6	120.3	122.4	123.8	128.0	130.8	143.5	153.3
77.5°	94.2	94.9	94.9	95.6	96.3	97.1	99.9	99.9	102.0	104.8	109.0
80°	73.1	72.4	72.4	73.1	73.1	75.3	75.3	76.7	77.4	78.8	80.9
82.5°	52.0	51.3	52.0	51.3	52.0	52.7	54.2	53.4	54.9	56.3	57.0
85°	32.4	33.1	33.1	34.5	33.8	33.1	33.8	33.8	33.8	33.8	35.2
87.5°	14.1	15.5	15.5	14.8	15.5	15.5	14.1	15.5	15.5	15.5	16.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P243433

CATALOG NUMBER: S123RDR-H1165D835-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8
2.5°	1692.1	1689.3	1678.7	1668.9	1654.1	1647.8	1639.4	1635.8	1624.6	1609.1	1602.1
5°	1770.9	1749.8	1729.4	1704.8	1684.4	1660.5	1647.1	1631.6	1607.7	1585.9	1570.4
7.5°	1854.6	1823.6	1785.6	1744.8	1708.3	1673.8	1644.3	1619.7	1588.7	1558.5	1534.6
10°	1946.7	1893.9	1832.8	1780.7	1728.0	1678.0	1640.8	1603.5	1563.4	1525.4	1496.6
12.5°	2045.8	1971.3	1897.5	1819.4	1740.6	1683.0	1627.4	1579.6	1534.6	1494.5	1460.0
15°	2148.5	2046.6	1952.3	1864.4	1754.7	1677.3	1616.1	1557.1	1500.8	1451.6	1417.8
17.5°	2221.7	2104.9	1986.1	1861.6	1767.3	1671.7	1595.7	1521.2	1469.2	1418.5	1372.8
20°	2289.2	2157.0	2015.6	1899.6	1768.1	1651.3	1568.3	1496.6	1424.1	1370.0	1331.3
22.5°	2318.0	2198.5	2055.7	1894.6	1763.1	1643.6	1536.7	1455.8	1391.1	1332.0	1281.4
25°	2323.6	2190.0	2043.7	1888.3	1744.1	1614.7	1506.4	1425.6	1341.2	1280.0	1240.6
27.5°	2348.3	2165.4	2021.9	1867.2	1720.9	1585.9	1472.0	1382.0	1303.2	1237.8	1187.1
30°	2354.6	2154.9	1975.5	1827.8	1677.3	1545.1	1429.8	1339.1	1253.2	1186.4	1140.7
32.5°	2357.4	2140.8	1927.0	1765.2	1621.8	1497.3	1391.8	1293.3	1211.8	1141.4	1094.3
35°	2347.6	2121.1	1868.6	1694.2	1556.4	1434.0	1336.2	1249.0	1158.3	1092.2	1042.3
37.5°	2308.9	2090.2	1835.6	1611.2	1479.7	1364.4	1281.4	1195.6	1111.9	1040.2	988.8
40°	2235.7	2045.1	1773.7	1541.6	1392.5	1289.1	1211.8	1141.4	1057.0	988.1	937.5
42.5°	2119.0	1984.0	1716.7	1462.8	1306.0	1208.2	1143.5	1083.1	1007.1	941.7	886.1
45°	1946.0	1898.2	1640.8	1382.7	1211.8	1119.6	1063.4	1016.2	947.3	887.5	836.2
47.5°	1758.9	1769.5	1564.1	1301.1	1126.0	1038.0	988.8	947.3	895.3	831.3	784.2
50°	1543.0	1600.7	1456.5	1218.8	1040.2	953.7	905.1	879.8	831.3	777.8	733.5
52.5°	1345.4	1436.8	1347.5	1128.8	955.8	870.7	825.7	800.3	768.0	723.7	678.7
55°	1140.7	1256.8	1192.1	1031.7	870.0	784.2	746.2	726.5	699.8	665.3	624.5
57.5°	971.2	1095.0	1054.2	929.7	786.3	708.9	675.2	652.6	636.5	604.8	571.8
60°	805.3	919.9	903.7	812.3	703.3	629.4	603.4	585.1	571.8	548.6	516.2
62.5°	649.8	761.0	770.8	699.1	622.4	555.6	531.7	519.0	508.5	490.2	460.7
65°	515.5	613.3	633.7	578.8	537.3	486.7	463.5	455.7	448.0	426.9	404.4
67.5°	403.7	480.3	507.1	476.1	446.6	417.0	398.8	388.2	382.6	369.9	354.5
70°	308.7	374.8	397.4	384.0	364.3	353.0	339.0	331.9	326.3	310.1	301.7
72.5°	231.4	276.4	304.5	300.3	296.1	288.3	279.9	277.8	269.4	258.8	251.1
75°	169.5	195.5	220.8	230.0	228.6	231.4	222.2	218.7	213.8	206.1	199.7
77.5°	121.7	137.1	154.7	166.0	171.6	172.3	172.3	170.2	166.7	161.1	156.1
80°	84.4	87.9	104.1	114.6	120.3	124.5	124.5	125.2	121.7	119.6	116.0
82.5°	58.4	60.5	64.0	72.4	79.5	84.4	85.1	84.4	83.0	82.3	77.4
85°	36.6	35.9	35.9	38.0	43.6	48.5	49.2	50.6	49.9	49.2	44.3
87.5°	15.5	15.5	16.2	15.5	17.6	18.3	19.7	23.2	22.5	19.0	17.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P243433

CATALOG NUMBER: S123RDR-H1165D835-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8	1628.8
2.5°	1597.9	1588.7	1580.3	1571.1	1559.9	1549.3	1547.9	1546.5	1550.0	1543.0	1540.2
5°	1558.5	1540.9	1527.5	1510.7	1498.7	1483.2	1474.8	1472.7	1472.0	1467.8	1462.1
7.5°	1515.6	1496.6	1477.6	1458.6	1438.9	1422.7	1413.6	1408.7	1404.5	1397.4	1391.8
10°	1475.5	1451.6	1431.2	1405.2	1384.1	1363.0	1354.5	1347.5	1343.3	1333.4	1325.7
12.5°	1430.5	1400.2	1377.7	1349.6	1330.6	1312.3	1299.0	1285.6	1275.8	1261.0	1254.7
15°	1391.1	1359.4	1321.5	1304.6	1277.9	1250.4	1235.7	1235.7	1215.3	1203.3	1195.6
17.5°	1338.3	1310.9	1284.2	1249.7	1211.8	1195.6	1178.7	1163.9	1149.9	1146.4	1132.3
20°	1291.9	1259.6	1232.2	1194.9	1160.4	1141.4	1121.7	1105.6	1095.0	1085.2	1077.4
22.5°	1246.2	1213.9	1171.7	1135.1	1111.9	1086.6	1065.5	1051.4	1042.3	1027.5	1020.5
25°	1198.4	1159.7	1121.7	1085.9	1057.0	1035.2	1013.4	1005.7	989.5	981.8	971.9
27.5°	1150.6	1104.2	1068.3	1037.3	1005.0	983.9	969.1	955.1	941.0	936.8	931.1
30°	1097.1	1054.2	1019.8	989.5	958.6	940.3	922.7	910.0	898.1	888.9	882.6
32.5°	1043.7	1007.8	974.7	939.6	911.5	891.8	877.0	865.7	860.1	844.6	839.0
35°	994.4	957.9	922.7	889.7	867.1	848.2	834.8	824.2	812.3	802.4	796.8
37.5°	943.8	910.8	874.9	846.8	821.4	806.0	791.2	777.1	768.0	762.4	755.3
40°	894.6	859.4	832.0	801.0	778.5	761.0	745.5	734.9	723.7	718.8	709.6
42.5°	848.2	814.4	782.8	754.6	734.2	717.3	702.6	690.6	681.5	672.3	667.4
45°	794.7	765.2	736.3	708.2	689.2	670.9	654.8	644.2	631.5	623.8	621.0
47.5°	749.7	718.8	687.8	661.8	642.1	622.4	609.0	596.4	585.8	578.1	573.9
50°	696.2	667.4	642.1	616.1	597.1	576.0	559.8	547.9	535.9	530.3	523.2
52.5°	650.5	622.4	591.5	568.3	546.5	528.2	513.4	503.6	493.0	484.6	479.6
55°	593.6	566.1	541.5	516.9	495.1	480.3	468.4	451.5	442.4	433.9	420.6
57.5°	543.6	517.6	491.6	467.7	447.3	429.7	414.9	403.7	391.7	385.4	376.3
60°	490.9	463.5	439.6	421.3	398.8	379.8	369.9	356.6	346.7	336.9	334.1
62.5°	438.8	413.5	389.6	370.6	350.2	335.5	322.8	316.5	306.6	298.9	296.1
65°	384.7	363.6	341.1	320.0	307.3	290.5	283.4	272.9	267.2	263.7	263.0
67.5°	331.2	312.3	291.9	275.7	263.7	252.5	244.0	239.8	234.2	230.0	226.5
70°	282.7	264.4	246.9	233.5	224.3	215.9	210.3	202.5	196.9	191.3	183.6
72.5°	234.9	220.1	205.4	194.8	185.7	180.7	173.0	161.1	155.4	154.0	153.3
75°	190.6	174.4	163.9	158.2	149.8	137.8	132.9	131.5	130.8	129.4	129.4
77.5°	147.0	137.1	130.1	118.2	113.9	113.2	109.7	109.0	107.6	108.3	108.3
80°	106.9	101.3	92.8	89.3	87.9	88.6	87.2	87.9	86.5	87.2	85.8
82.5°	71.0	66.1	67.5	65.4	65.4	66.8	66.1	64.0	64.0	63.3	63.3
85°	42.2	41.5	42.9	42.9	42.2	40.1	41.5	40.8	38.7	39.4	39.4
87.5°	18.3	18.3	18.3	17.6	18.3	17.6	17.6	17.6	15.5	15.5	15.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0





TEST NUMBER: P243433

CATALOG NUMBER: S123RDR-H1165D835-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1628.8	1628.8	1628.8	1628.8
2.5°	1541.6	1540.2	1538.1	1536.0
5°	1462.1	1455.8	1455.1	1453.0
7.5°	1387.6	1384.8	1379.8	1385.5
10°	1319.4	1321.5	1316.5	1310.9
12.5°	1248.3	1244.1	1236.4	1240.6
15°	1185.7	1178.7	1174.5	1164.6
17.5°	1120.3	1114.7	1114.7	1108.4
20°	1063.4	1057.7	1059.1	1054.9
22.5°	1015.5	1011.3	1005.0	1005.7
25°	970.5	964.2	957.2	957.9
27.5°	920.6	915.0	913.6	908.6
30°	876.3	871.4	870.7	870.7
32.5°	833.4	831.3	827.8	825.7
35°	796.1	793.3	787.7	789.1
37.5°	749.7	746.9	746.2	745.5
40°	706.1	704.0	698.4	699.1
42.5°	662.5	659.0	655.5	654.1
45°	615.4	614.7	609.0	610.4
47.5°	570.4	569.0	566.1	562.6
50°	520.4	519.7	517.6	513.4
52.5°	471.9	469.8	465.6	461.4
55°	417.0	410.7	411.4	407.9
57.5°	372.0	369.2	363.6	361.5
60°	328.4	325.6	324.9	322.1
62.5°	291.9	289.0	286.9	286.9
65°	258.8	255.3	254.6	254.6
67.5°	222.2	218.7	218.0	216.6
70°	176.5	175.8	174.4	174.4
72.5°	151.9	151.2	151.9	149.1
75°	129.4	128.7	128.7	129.4
77.5°	107.6	107.6	106.9	106.9
80°	85.1	85.8	85.1	87.2
82.5°	64.0	62.6	63.3	61.9
85°	39.4	39.4	38.0	38.0
87.5°	15.5	15.5	15.5	15.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)