

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: P243453

Luminaire Tested: **S123RDR-H1165D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243453
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-H1165D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3784.5 lumens
Efficiency: N/A
Efficacy: 100.4 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

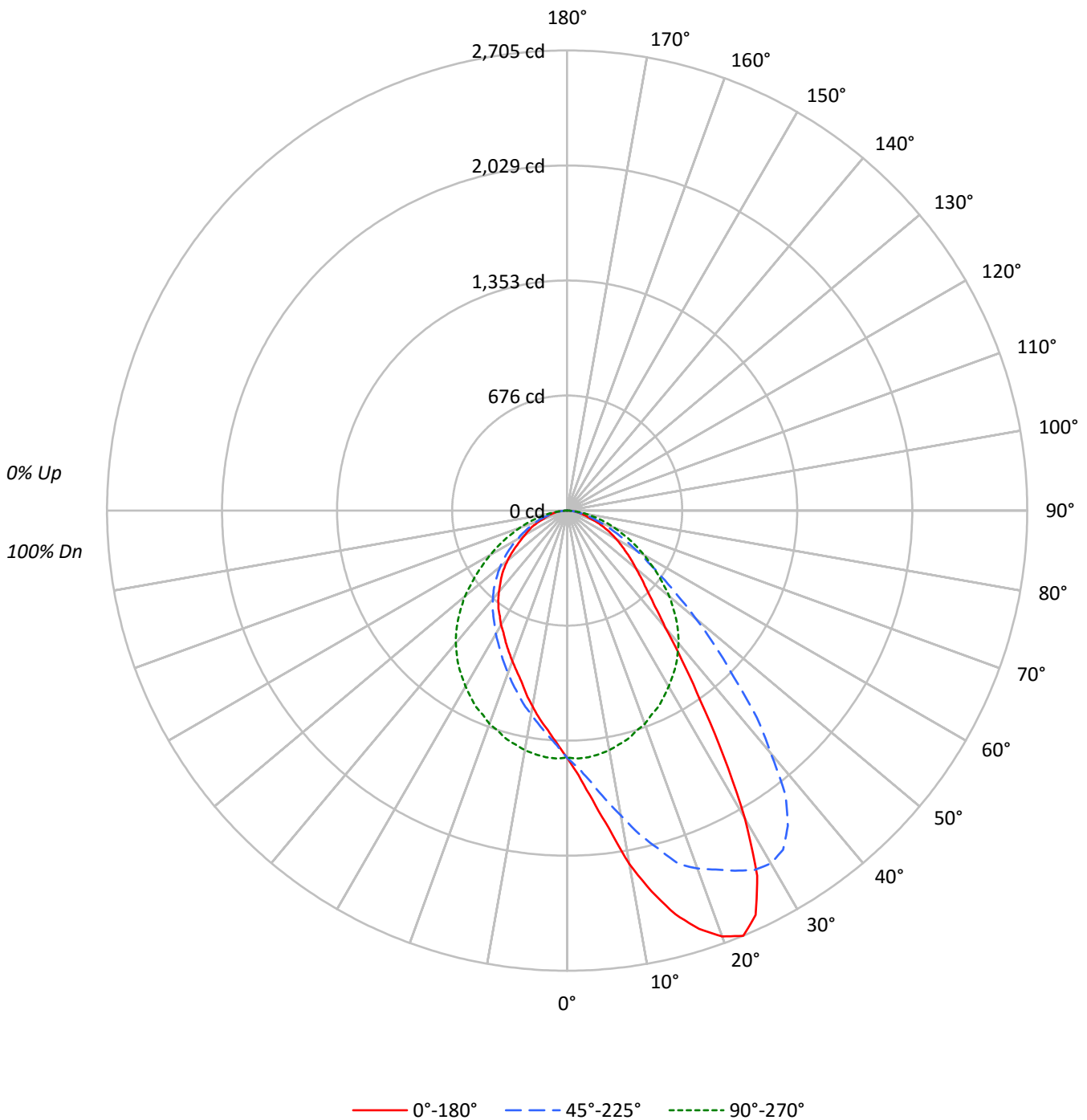
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	17605	17605	17605
5°	20755	17703	15764
10°	25981	17598	14388
15°	30834	17424	13032
20°	34363	17214	12134
25°	35075	17001	11423
30°	29229	16712	10867
35°	20192	16481	10411
40°	14190	16105	9864
45°	11396	15534	9330
50°	9934	14794	8633
55°	8905	13690	7686
60°	8058	12650	6962
65°	7050	11656	6511
70°	5688	10490	5511
75°	4936	9132	5405
80°	4551	7790	5431
85°	4005	6286	4715



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	142.4	3.8
10°-20°	448.6	11.9
20°-30°	718.7	19.0
30°-40°	780.3	20.6
40°-50°	668.5	17.7
50°-60°	506.7	13.4
60°-70°	323.8	8.6
70°-80°	154.8	4.1
80°-90°	40.6	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°	1309.7	34.6
0°-40°	2090.0	55.2
0°-60°	3265.2	86.3
0°-90°	3784.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3784.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1452	1452	1452	1452	1452	
5°	1706	1601	1455	1323	1296	175
15°	2457	2054	1388	1115	1038	697
25°	2623	2336	1271	923	854	1164
35°	1365	2262	1114	756	704	876
45°	665	1385	906	598	544	525
55°	421	678	648	428	364	380
65°	246	327	406	259	227	244
75°	105	128	195	123	115	114
85°	29	30	45	36	34	33
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°	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4
2.5°	1556.5	1558.4	1555.3	1554.6	1554.0	1544.0	1540.8	1535.8	1518.3	1513.9	1510.7
5°	1705.8	1700.8	1706.4	1695.7	1683.8	1676.9	1665.6	1640.6	1618.6	1601.0	1589.8
7.5°	1882.6	1884.5	1878.9	1868.8	1845.0	1835.0	1804.2	1774.1	1745.3	1708.9	1681.9
10°	2110.9	2095.9	2099.0	2067.6	2042.5	2012.4	1970.4	1922.1	1871.3	1819.9	1781.7
12.5°	2292.8	2303.4	2295.9	2280.9	2232.6	2203.1	2164.8	2094.6	2014.3	1945.3	1887.0
15°	2457.1	2442.7	2444.5	2408.2	2390.6	2363.6	2300.3	2230.7	2178.6	2053.8	1984.9
17.5°	2577.5	2576.2	2574.3	2543.6	2522.3	2465.9	2401.3	2329.8	2264.5	2178.0	2091.5
20°	2664.0	2673.4	2670.9	2645.8	2608.2	2553.7	2514.8	2425.7	2318.5	2239.5	2133.5
22.5°	2705.4	2706.0	2707.3	2695.4	2670.3	2635.2	2580.0	2508.5	2413.2	2284.0	2166.1
25°	2622.6	2625.8	2642.1	2652.1	2659.0	2643.3	2614.5	2549.9	2467.7	2336.0	2213.8
27.5°	2419.4	2429.5	2447.7	2507.9	2532.3	2566.2	2578.1	2552.4	2491.6	2381.8	2242.6
30°	2088.3	2116.5	2134.1	2202.5	2298.4	2388.7	2431.4	2473.4	2467.7	2395.0	2253.9
32.5°	1709.5	1727.7	1778.5	1851.9	1927.8	2060.1	2208.1	2309.7	2366.8	2363.0	2263.3
35°	1364.6	1391.0	1434.2	1490.0	1594.8	1732.1	1899.6	2059.5	2202.5	2262.0	2226.3
37.5°	1107.5	1110.0	1150.8	1229.8	1295.0	1416.0	1567.2	1764.7	1952.2	2107.8	2142.3
40°	896.8	914.3	935.7	985.2	1062.3	1178.4	1278.7	1473.1	1667.5	1862.6	2001.8
42.5°	763.8	763.8	787.7	819.0	870.4	940.1	1059.8	1236.1	1411.0	1650.6	1807.4
45°	664.8	671.0	681.7	701.8	738.1	792.1	884.9	1004.7	1183.4	1384.7	1620.5
47.5°	593.3	592.6	602.0	614.0	642.2	682.9	737.5	834.7	967.0	1184.0	1392.2
50°	526.8	529.3	536.2	546.2	565.0	593.9	628.4	701.8	813.4	985.2	1203.5
52.5°	475.4	474.7	480.4	486.6	501.1	517.4	548.1	602.7	679.8	816.5	997.8
55°	421.4	423.9	430.8	434.6	446.5	457.2	482.9	513.6	575.7	678.5	843.5
57.5°	375.0	378.2	381.9	385.7	393.8	404.5	425.8	444.6	489.8	563.8	695.5
60°	332.4	331.1	335.5	341.8	346.2	355.6	367.5	386.9	418.3	471.0	567.5
62.5°	289.7	290.4	291.0	294.7	302.9	311.1	321.7	336.1	355.0	393.8	462.2
65°	245.8	246.5	247.7	251.5	259.6	264.6	275.9	288.5	303.5	326.7	374.4
67.5°	207.0	209.5	209.5	212.6	215.7	220.7	228.9	238.3	250.8	267.8	298.5
70°	160.5	159.9	163.1	169.3	172.5	181.2	186.9	193.2	204.4	215.1	241.4
72.5°	129.2	129.2	129.2	131.7	132.3	134.2	138.0	151.1	159.9	170.6	185.0
75°	105.4	106.0	106.0	106.6	107.2	109.1	110.4	114.1	116.6	127.9	136.7
77.5°	84.0	84.7	84.7	85.3	85.9	86.5	89.1	89.1	90.9	93.4	97.2
80°	65.2	64.6	64.6	65.2	65.2	67.1	67.1	68.4	69.0	70.2	72.1
82.5°	46.4	45.8	46.4	45.8	46.4	47.0	48.3	47.7	48.9	50.2	50.8
85°	28.8	29.5	29.5	30.7	30.1	29.5	30.1	30.1	30.1	30.1	31.4
87.5°	12.5	13.8	13.8	13.2	13.8	13.8	12.5	13.8	13.8	13.8	14.4
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°	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4
2.5°	1508.9	1506.4	1496.9	1488.2	1475.0	1469.4	1461.8	1458.7	1448.7	1434.9	1428.6
5°	1579.1	1560.3	1542.1	1520.2	1502.0	1480.6	1468.7	1454.9	1433.6	1414.2	1400.4
7.5°	1653.7	1626.1	1592.3	1555.9	1523.3	1492.6	1466.2	1444.3	1416.7	1389.7	1368.4
10°	1735.9	1688.8	1634.3	1587.9	1540.8	1496.3	1463.1	1429.8	1394.1	1360.2	1334.5
12.5°	1824.3	1757.8	1692.0	1622.4	1552.1	1500.7	1451.2	1408.5	1368.4	1332.6	1301.9
15°	1915.9	1824.9	1740.9	1662.5	1564.7	1495.7	1441.1	1388.5	1338.3	1294.4	1264.3
17.5°	1981.1	1877.0	1771.0	1660.0	1576.0	1490.7	1422.9	1356.5	1310.1	1264.9	1224.1
20°	2041.3	1923.4	1797.3	1693.9	1576.6	1472.5	1398.5	1334.5	1269.9	1221.6	1187.1
22.5°	2067.0	1960.4	1833.1	1689.5	1572.2	1465.6	1370.3	1298.1	1240.5	1187.8	1142.6
25°	2072.0	1952.9	1822.4	1683.8	1555.3	1439.9	1343.3	1271.2	1195.9	1141.4	1106.2
27.5°	2094.0	1930.9	1803.0	1665.0	1534.6	1414.2	1312.6	1232.3	1162.1	1103.7	1058.6
30°	2099.6	1921.5	1761.6	1629.9	1495.7	1377.8	1274.9	1194.0	1117.5	1058.0	1017.2
32.5°	2102.1	1909.0	1718.3	1574.1	1446.1	1335.1	1241.1	1153.3	1080.5	1017.8	975.8
35°	2093.3	1891.4	1666.3	1510.7	1387.8	1278.7	1191.5	1113.8	1032.9	973.9	929.4
37.5°	2058.9	1863.8	1636.8	1436.7	1319.5	1216.6	1142.6	1066.1	991.5	927.5	881.7
40°	1993.6	1823.7	1581.6	1374.7	1241.7	1149.5	1080.5	1017.8	942.6	881.1	836.0
42.5°	1889.5	1769.1	1530.8	1304.4	1164.6	1077.4	1019.7	965.8	898.0	839.7	790.2
45°	1735.3	1692.6	1463.1	1232.9	1080.5	998.4	948.2	906.2	844.7	791.4	745.7
47.5°	1568.4	1577.8	1394.7	1160.2	1004.0	925.6	881.7	844.7	798.3	741.3	699.2
50°	1375.9	1427.3	1298.8	1086.8	927.5	850.4	807.1	784.5	741.3	693.6	654.1
52.5°	1199.7	1281.2	1201.6	1006.5	852.3	776.4	736.2	713.7	684.8	645.3	605.2
55°	1017.2	1120.7	1063.0	920.0	775.8	699.2	665.4	647.8	624.0	593.3	556.9
57.5°	866.1	976.4	940.1	829.1	701.1	632.1	602.0	582.0	567.5	539.3	509.9
60°	718.1	820.3	805.9	724.3	627.1	561.3	538.1	521.8	509.9	489.2	460.3
62.5°	579.5	678.5	687.3	623.4	555.0	495.4	474.1	462.8	453.4	437.1	410.8
65°	459.7	546.9	565.0	516.1	479.1	434.0	413.3	406.4	399.5	380.7	360.6
67.5°	360.0	428.3	452.2	424.6	398.2	371.9	355.6	346.2	341.2	329.9	316.1
70°	275.3	334.3	354.3	342.4	324.9	314.8	302.3	296.0	291.0	276.6	269.0
72.5°	206.3	246.5	271.5	267.8	264.0	257.1	249.6	247.7	240.2	230.8	223.9
75°	151.1	174.3	196.9	205.1	203.8	206.3	198.2	195.0	190.6	183.7	178.1
77.5°	108.5	122.3	138.0	148.0	153.0	153.6	153.6	151.8	148.6	143.6	139.2
80°	75.3	78.4	92.8	102.2	107.2	111.0	111.0	111.6	108.5	106.6	103.5
82.5°	52.1	53.9	57.1	64.6	70.9	75.3	75.9	75.3	74.0	73.4	69.0
85°	32.6	32.0	32.0	33.9	38.9	43.3	43.9	45.2	44.5	43.9	39.5
87.5°	13.8	13.8	14.4	13.8	15.7	16.3	17.6	20.7	20.1	16.9	15.7
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°	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4	1452.4
2.5°	1424.8	1416.7	1409.1	1401.0	1391.0	1381.6	1380.3	1379.0	1382.2	1375.9	1373.4
5°	1389.7	1374.0	1362.1	1347.1	1336.4	1322.6	1315.1	1313.2	1312.6	1308.8	1303.8
7.5°	1351.5	1334.5	1317.6	1300.7	1283.1	1268.7	1260.5	1256.1	1252.4	1246.1	1241.1
10°	1315.7	1294.4	1276.2	1253.0	1234.2	1215.4	1207.8	1201.6	1197.8	1189.0	1182.1
12.5°	1275.6	1248.6	1228.5	1203.5	1186.5	1170.2	1158.3	1146.4	1137.6	1124.4	1118.8
15°	1240.5	1212.2	1178.4	1163.3	1139.5	1115.0	1101.9	1101.9	1083.7	1073.0	1066.1
17.5°	1193.4	1169.0	1145.1	1114.4	1080.5	1066.1	1051.1	1037.9	1025.3	1022.2	1009.7
20°	1152.0	1123.2	1098.7	1065.5	1034.8	1017.8	1000.3	985.8	976.4	967.7	960.8
22.5°	1111.3	1082.4	1044.8	1012.2	991.5	968.9	950.1	937.6	929.4	916.2	910.0
25°	1068.6	1034.1	1000.3	968.3	942.6	923.1	903.7	896.8	882.4	875.5	866.7
27.5°	1026.0	984.6	952.6	925.0	896.2	877.3	864.2	851.6	839.1	835.3	830.3
30°	978.3	940.1	909.3	882.4	854.8	838.5	822.8	811.5	800.8	792.7	787.0
32.5°	930.7	898.7	869.2	837.8	812.8	795.2	782.0	772.0	767.0	753.2	748.2
35°	886.8	854.1	822.8	793.3	773.2	756.3	744.4	735.0	724.3	715.5	710.5
37.5°	841.6	812.1	780.1	755.1	732.5	718.7	705.5	693.0	684.8	679.8	673.5
40°	797.7	766.3	741.9	714.3	694.2	678.5	664.8	655.3	645.3	640.9	632.8
42.5°	756.3	726.2	698.0	672.9	654.7	639.7	626.5	615.8	607.7	599.5	595.1
45°	708.7	682.3	656.6	631.5	614.6	598.3	583.9	574.4	563.2	556.3	553.8
47.5°	668.5	640.9	613.3	590.1	572.6	555.0	543.1	531.8	522.4	515.5	511.7
50°	620.9	595.1	572.6	549.4	532.4	513.6	499.2	488.5	477.9	472.9	466.6
52.5°	580.1	555.0	527.4	506.7	487.3	471.0	457.8	449.0	439.6	432.1	427.7
55°	529.3	504.8	482.9	460.9	441.5	428.3	417.7	402.6	394.5	386.9	375.0
57.5°	484.8	461.6	438.4	417.0	398.9	383.2	370.0	360.0	349.3	343.7	335.5
60°	437.7	413.3	392.0	375.6	355.6	338.6	329.9	318.0	309.2	300.4	297.9
62.5°	391.3	368.7	347.4	330.5	312.3	299.1	287.9	282.2	273.4	266.5	264.0
65°	343.0	324.2	304.2	285.3	274.1	259.0	252.7	243.3	238.3	235.2	234.5
67.5°	295.4	278.4	260.3	245.8	235.2	225.1	217.6	213.8	208.8	205.1	201.9
70°	252.1	235.8	220.1	208.2	200.1	192.5	187.5	180.6	175.6	170.6	163.7
72.5°	209.5	196.3	183.1	173.7	165.6	161.2	154.3	143.6	138.6	137.3	136.7
75°	170.0	155.5	146.1	141.1	133.6	122.9	118.5	117.3	116.6	115.4	115.4
77.5°	131.1	122.3	116.0	105.4	101.6	101.0	97.8	97.2	96.0	96.6	96.6
80°	95.3	90.3	82.8	79.6	78.4	79.0	77.8	78.4	77.1	77.8	76.5
82.5°	63.3	58.9	60.2	58.3	58.3	59.6	58.9	57.1	57.1	56.4	56.4
85°	37.6	37.0	38.3	38.3	37.6	35.7	37.0	36.4	34.5	35.1	35.1
87.5°	16.3	16.3	16.3	15.7	16.3	15.7	15.7	15.7	13.8	13.8	13.8
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: P243453

CATALOG NUMBER: S123RDR-H1165D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1452.4	1452.4	1452.4	1452.4
2.5°	1374.7	1373.4	1371.5	1369.6
5°	1303.8	1298.1	1297.5	1295.6
7.5°	1237.3	1234.8	1230.4	1235.4
10°	1176.5	1178.4	1174.0	1169.0
12.5°	1113.1	1109.4	1102.5	1106.2
15°	1057.3	1051.1	1047.3	1038.5
17.5°	999.0	994.0	994.0	988.3
20°	948.2	943.2	944.4	940.7
22.5°	905.6	901.8	896.2	896.8
25°	865.4	859.8	853.5	854.1
27.5°	820.9	815.9	814.6	810.2
30°	781.4	777.0	776.4	776.4
32.5°	743.1	741.3	738.1	736.2
35°	709.9	707.4	702.4	703.6
37.5°	668.5	666.0	665.4	664.8
40°	629.6	627.8	622.7	623.4
42.5°	590.8	587.6	584.5	583.2
45°	548.7	548.1	543.1	544.3
47.5°	508.6	507.3	504.8	501.7
50°	464.1	463.4	461.6	457.8
52.5°	420.8	418.9	415.2	411.4
55°	371.9	366.2	366.9	363.7
57.5°	331.7	329.2	324.2	322.3
60°	292.9	290.4	289.7	287.2
62.5°	260.3	257.7	255.9	255.9
65°	230.8	227.6	227.0	227.0
67.5°	198.2	195.0	194.4	193.2
70°	157.4	156.8	155.5	155.5
72.5°	135.5	134.8	135.5	133.0
75°	115.4	114.8	114.8	115.4
77.5°	96.0	96.0	95.3	95.3
80°	75.9	76.5	75.9	77.8
82.5°	57.1	55.8	56.4	55.2
85°	35.1	35.1	33.9	33.9
87.5°	13.8	13.8	13.8	13.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)