

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: P242568

Luminaire Tested: **S123RDR-S1165D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242568
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-S1165D830-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: 4062.8 lumens
Efficiency: N/A
Efficacy: 98.9 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

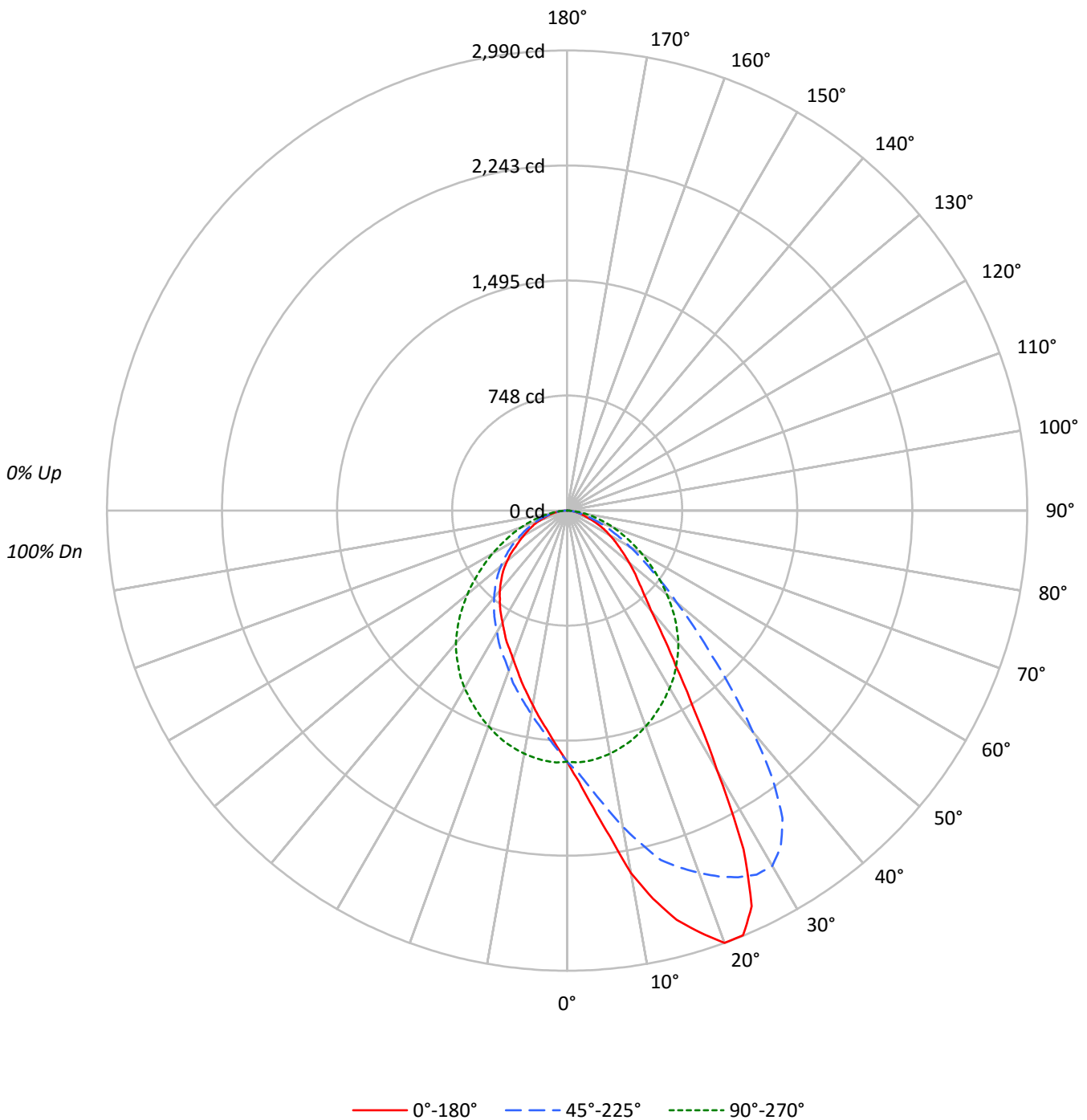
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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					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°	19777	19777	19777
5°	23576	19861	17491
10°	29436	19747	15801
15°	34552	19546	14410
20°	38562	19244	13227
25°	37946	18926	12500
30°	27275	18633	11751
35°	18211	18252	11265
40°	13416	17793	10764
45°	11255	16989	10273
50°	9930	15938	9589
55°	8709	14732	8650
60°	7755	13581	7925
65°	6812	12342	7371
70°	5348	11238	6734
75°	4711	9811	6149
80°	4097	8335	6045
85°	3296	6703	6411



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	160.2	3.9
10°-20°	501.6	12.3
20°-30°	790.0	19.4
30°-40°	821.5	20.2
40°-50°	702.8	17.3
50°-60°	535.7	13.2
60°-70°	343.2	8.4
70°-80°	164.4	4.0
80°-90°	43.2	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°	1451.8	35.7
0°-40°	2273.4	56.0
0°-60°	3511.9	86.4
0°-90°	4062.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4062.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1632	1632	1632	1632	1632	
5°	1938	1817	1632	1474	1438	199
15°	2753	2351	1558	1224	1148	781
25°	2837	2629	1415	1011	935	1233
35°	1231	2439	1234	826	761	800
45°	657	1324	991	652	599	515
55°	412	661	697	471	409	372
65°	238	326	430	294	257	234
75°	101	118	210	150	131	108
85°	24	26	48	45	46	27
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°	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6
2.5°	1764.3	1767.1	1758.1	1756.7	1746.2	1743.4	1743.4	1728.7	1719.6	1707.8	1700.8
5°	1937.6	1948.7	1943.2	1930.6	1909.6	1904.7	1891.5	1870.5	1846.8	1817.4	1803.5
7.5°	2135.9	2159.0	2154.8	2135.2	2112.9	2098.9	2061.9	2031.9	1986.5	1945.3	1913.1
10°	2391.6	2375.5	2362.9	2344.1	2323.8	2291.0	2251.9	2198.1	2135.9	2087.0	2032.6
12.5°	2583.0	2583.7	2566.9	2547.3	2516.6	2485.9	2435.6	2367.1	2292.4	2216.3	2152.0
15°	2753.4	2757.6	2747.1	2726.8	2686.3	2631.2	2558.5	2531.3	2427.9	2351.1	2274.2
17.5°	2874.9	2875.6	2873.5	2846.3	2802.3	2764.6	2696.8	2633.2	2535.5	2431.4	2328.7
20°	2989.5	2982.5	2983.9	2952.5	2921.7	2876.3	2810.7	2706.6	2629.8	2504.7	2397.9
22.5°	2986.7	2986.7	2993.0	2987.4	2967.1	2935.0	2886.8	2803.0	2699.6	2573.2	2449.6
25°	2837.2	2831.6	2864.4	2873.5	2909.1	2915.4	2900.1	2851.9	2759.0	2629.1	2480.3
27.5°	2481.0	2460.7	2529.2	2596.9	2687.0	2744.3	2803.0	2816.2	2772.2	2666.1	2510.3
30°	1948.7	2014.4	2045.1	2155.5	2278.4	2425.1	2553.6	2675.9	2705.9	2665.4	2543.1
32.5°	1535.2	1590.4	1614.9	1705.7	1818.1	1996.2	2205.1	2390.9	2536.2	2585.1	2523.6
35°	1230.7	1231.4	1290.1	1332.0	1438.2	1614.9	1802.1	2034.0	2264.5	2439.1	2457.2
37.5°	1015.6	1018.4	1056.1	1098.0	1183.2	1282.4	1456.3	1651.9	1929.2	2189.7	2325.2
40°	847.9	854.2	880.8	922.0	979.3	1049.8	1178.3	1359.9	1582.0	1880.3	2124.1
42.5°	740.4	751.6	762.0	791.4	821.4	886.4	984.2	1114.1	1311.0	1589.0	1879.6
45°	656.6	662.2	672.6	687.3	719.4	765.5	835.4	929.7	1097.3	1324.3	1605.8
47.5°	592.3	588.8	600.7	613.3	634.9	668.4	717.3	799.1	924.8	1114.8	1358.5
50°	526.6	526.0	533.6	542.7	563.0	586.0	624.4	682.4	777.4	928.3	1146.9
52.5°	465.2	468.7	473.6	485.4	498.7	516.2	549.7	587.4	665.6	790.7	963.9
55°	412.1	414.2	421.9	428.2	438.6	457.5	479.2	514.1	570.0	660.8	810.9
57.5°	366.0	365.3	373.0	373.7	387.0	403.0	420.5	447.7	490.3	562.3	667.0
60°	319.9	317.8	324.1	329.0	335.3	347.8	361.8	388.4	420.5	470.1	556.7
62.5°	278.0	277.3	281.5	286.4	291.3	302.4	313.6	332.5	356.2	396.0	460.3
65°	237.5	239.6	241.7	243.8	246.6	253.5	264.7	278.7	296.2	325.5	375.1
67.5°	195.6	198.4	199.1	204.0	209.5	213.0	219.3	232.6	245.9	272.4	301.7
70°	150.9	150.2	150.9	153.0	160.6	168.3	177.4	186.5	194.2	211.6	235.4
72.5°	124.3	122.9	125.0	125.0	127.8	128.5	133.4	141.8	152.3	162.7	178.1
75°	100.6	100.6	100.6	100.6	103.4	104.8	106.9	109.0	112.5	118.0	130.6
77.5°	78.2	78.2	79.6	80.3	81.0	81.7	83.1	85.2	86.6	89.4	95.7
80°	58.7	59.4	58.7	59.4	59.4	60.8	61.5	63.6	64.3	67.8	69.8
82.5°	40.5	39.8	40.5	41.2	41.2	42.6	42.6	44.0	44.0	45.4	47.5
85°	23.7	22.4	23.7	23.0	24.4	23.0	23.7	25.1	25.1	25.8	28.6
87.5°	7.0	8.4	7.0	7.7	7.7	8.4	8.4	8.4	9.8	9.1	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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6
2.5°	1698.0	1695.9	1686.1	1674.9	1660.3	1650.5	1642.8	1638.6	1626.0	1610.7	1600.2
5°	1788.8	1767.8	1745.5	1718.2	1693.1	1667.3	1651.2	1632.3	1609.3	1583.4	1565.3
7.5°	1878.9	1842.6	1802.8	1761.6	1719.6	1682.6	1648.4	1620.5	1585.5	1549.9	1525.5
10°	1985.8	1925.7	1863.5	1800.0	1742.0	1687.5	1645.6	1604.4	1560.4	1517.8	1485.7
12.5°	2082.9	1999.0	1925.0	1843.3	1765.0	1697.3	1632.3	1582.0	1526.9	1480.8	1443.0
15°	2161.8	2080.8	1994.1	1875.4	1776.9	1694.5	1621.2	1557.6	1493.3	1437.5	1401.8
17.5°	2244.2	2121.3	2007.4	1915.2	1786.7	1686.8	1600.9	1526.9	1457.0	1399.7	1355.0
20°	2291.7	2173.7	2047.2	1920.8	1795.1	1679.8	1575.8	1491.9	1418.6	1351.5	1311.0
22.5°	2320.3	2182.7	2047.9	1909.6	1774.1	1653.3	1550.6	1456.3	1375.3	1312.4	1260.0
25°	2341.3	2182.0	2035.4	1901.2	1765.0	1635.1	1512.9	1415.1	1329.2	1261.4	1208.4
27.5°	2358.1	2173.7	2005.3	1859.3	1721.7	1589.7	1479.4	1374.6	1288.7	1218.1	1160.2
30°	2362.2	2163.2	1969.7	1808.4	1668.0	1549.2	1430.5	1331.3	1239.1	1163.0	1109.9
32.5°	2367.8	2137.3	1921.5	1747.6	1603.0	1485.7	1380.9	1287.3	1192.3	1117.6	1063.1
35°	2348.3	2131.0	1872.6	1675.6	1531.8	1417.9	1320.8	1233.5	1140.6	1068.0	1012.8
37.5°	2288.9	2096.8	1823.7	1595.3	1446.5	1341.8	1260.7	1181.1	1095.2	1015.6	964.6
40°	2189.0	2040.9	1765.0	1523.4	1366.2	1258.0	1186.7	1124.5	1042.1	968.8	912.9
42.5°	2040.2	1964.8	1709.2	1447.9	1275.4	1172.0	1114.8	1057.5	987.6	912.9	861.2
45°	1851.7	1863.5	1628.8	1366.9	1193.0	1088.2	1031.6	991.1	926.9	865.4	811.6
47.5°	1622.6	1721.7	1542.9	1281.7	1103.6	1005.1	955.5	918.5	873.8	810.2	760.6
50°	1399.0	1557.6	1435.4	1195.8	1020.5	922.7	873.8	845.2	807.4	759.9	713.1
52.5°	1193.0	1366.2	1305.4	1100.1	930.4	843.1	795.6	773.2	745.3	701.3	660.1
55°	1006.5	1179.0	1162.3	1003.7	840.3	759.9	723.6	697.1	676.8	643.3	609.8
57.5°	844.5	1011.4	1014.9	896.8	762.0	680.3	648.9	627.9	614.0	587.4	554.6
60°	692.9	843.1	872.4	788.6	676.8	607.0	576.2	560.2	549.7	529.4	505.7
62.5°	567.2	689.4	723.6	669.1	595.1	530.8	508.5	493.1	486.8	470.1	449.8
65°	453.3	559.5	591.6	558.1	515.5	463.1	443.5	430.3	424.0	414.2	398.8
67.5°	357.6	440.0	475.0	447.0	431.0	393.9	380.7	373.0	367.4	360.4	347.1
70°	273.8	331.1	367.4	361.1	348.5	331.1	322.0	317.1	311.5	305.9	294.8
72.5°	206.7	241.7	275.2	280.8	271.0	271.0	263.3	261.9	259.1	252.1	247.3
75°	146.0	173.2	197.0	206.0	210.2	213.7	210.2	209.5	208.8	203.3	199.8
77.5°	101.3	118.7	134.8	150.9	156.5	161.3	162.0	164.8	162.7	159.3	157.9
80°	73.3	76.8	87.3	100.6	111.1	115.2	118.0	119.4	118.7	118.0	115.2
82.5°	48.2	51.0	54.5	62.9	71.2	78.9	80.3	79.6	81.7	82.4	80.3
85°	28.6	29.3	30.7	32.1	37.0	44.7	46.8	48.2	49.6	49.6	45.4
87.5°	11.2	10.5	11.9	11.9	14.0	14.7	18.9	22.4	23.0	20.3	20.3
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°	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6	1631.6
2.5°	1596.7	1587.6	1581.3	1567.4	1558.3	1548.5	1538.7	1545.0	1544.3	1543.6	1543.6
5°	1549.9	1533.9	1519.2	1500.3	1488.4	1473.8	1462.6	1461.2	1464.0	1454.2	1448.6
7.5°	1505.9	1485.0	1464.0	1444.4	1422.8	1406.0	1395.6	1391.4	1383.7	1377.4	1371.8
10°	1459.1	1433.3	1413.0	1387.2	1363.4	1342.5	1329.2	1320.1	1315.2	1310.3	1301.3
12.5°	1410.9	1385.8	1358.5	1328.5	1306.1	1281.0	1271.9	1261.4	1251.0	1245.4	1232.1
15°	1364.1	1331.3	1304.1	1273.3	1248.2	1224.4	1210.5	1190.2	1187.4	1180.4	1167.8
17.5°	1318.7	1282.4	1242.6	1221.6	1196.5	1171.3	1149.0	1142.7	1121.8	1114.8	1102.9
20°	1262.8	1230.0	1201.4	1171.3	1130.1	1107.1	1090.3	1081.2	1065.2	1055.4	1048.4
22.5°	1214.6	1181.1	1146.9	1110.6	1078.4	1051.9	1040.7	1025.4	1018.4	1003.7	996.0
25°	1169.2	1132.9	1093.1	1055.4	1030.9	1011.4	991.8	979.3	966.7	960.4	946.4
27.5°	1114.1	1077.7	1039.3	1010.0	982.1	962.5	943.6	933.2	917.1	906.6	898.9
30°	1070.1	1025.4	993.2	967.4	929.0	910.8	897.5	883.6	872.4	861.2	853.5
32.5°	1019.1	979.3	949.2	915.7	888.5	868.2	850.0	838.2	829.1	818.6	810.9
35°	965.3	931.1	899.6	867.5	845.9	825.6	805.3	794.9	785.8	776.0	769.0
37.5°	916.4	884.3	854.9	824.2	797.7	780.2	763.4	756.4	743.9	736.9	729.9
40°	871.7	840.3	808.1	778.8	750.9	738.3	723.6	711.7	700.6	695.7	688.0
42.5°	822.8	791.4	765.5	733.4	711.7	693.6	680.3	667.0	659.4	651.7	648.2
45°	774.6	746.7	720.1	688.7	667.0	652.4	637.0	625.1	617.5	612.6	604.9
47.5°	728.5	699.9	673.3	645.4	624.4	607.7	591.6	583.9	573.4	567.9	562.3
50°	677.5	652.4	623.7	598.6	577.6	560.9	548.3	537.8	528.7	521.1	517.6
52.5°	630.7	603.5	579.7	556.7	534.3	514.8	503.6	492.4	486.1	477.1	472.9
55°	578.3	552.5	531.5	508.5	486.8	470.8	456.8	447.0	440.0	430.3	424.7
57.5°	530.1	507.8	481.9	461.7	438.6	426.1	414.2	400.2	391.8	384.2	378.6
60°	481.2	454.7	433.1	414.2	394.6	377.2	366.7	356.2	347.1	339.5	334.6
62.5°	430.3	407.9	387.7	366.7	349.2	334.6	322.0	313.6	305.9	301.7	296.9
65°	377.9	359.7	338.8	322.0	305.2	294.1	284.3	276.6	271.0	267.5	263.3
67.5°	329.7	312.2	293.4	275.9	264.7	255.6	248.7	241.7	238.9	234.7	231.9
70°	282.9	264.7	248.7	236.1	224.9	218.6	214.4	209.5	206.7	201.2	198.4
72.5°	231.9	220.0	209.5	199.8	191.4	185.8	180.2	173.9	169.0	162.7	160.0
75°	190.7	178.8	169.7	162.7	157.2	149.5	141.8	135.5	133.4	131.3	130.6
77.5°	148.8	141.1	134.1	128.5	120.8	113.9	111.8	110.4	109.7	108.3	108.3
80°	111.1	104.1	99.2	92.2	88.0	88.0	88.0	86.6	87.3	87.3	87.3
82.5°	75.4	69.1	67.1	65.7	65.7	66.4	66.4	67.1	66.4	67.8	67.1
85°	42.6	43.3	44.7	44.0	44.7	44.7	46.1	45.4	46.1	44.7	46.1
87.5°	19.6	21.7	22.4	23.0	23.7	23.0	23.7	23.7	24.4	24.4	24.4
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: P242568

CATALOG NUMBER: S123RDR-S1165D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1631.6	1631.6	1631.6	1631.6
2.5°	1535.2	1534.5	1535.2	1532.5
5°	1446.5	1445.8	1443.7	1437.5
7.5°	1366.2	1364.8	1359.2	1360.6
10°	1296.4	1297.1	1288.7	1283.8
12.5°	1228.6	1224.4	1218.1	1212.6
15°	1170.6	1163.7	1146.9	1148.3
17.5°	1098.7	1093.1	1092.4	1082.6
20°	1037.2	1033.7	1035.1	1025.4
22.5°	989.0	985.5	977.9	976.5
25°	942.2	936.7	931.1	934.6
27.5°	894.7	890.6	884.3	884.3
30°	850.0	845.9	843.1	839.6
32.5°	804.6	804.6	799.1	799.1
35°	766.2	762.0	760.6	761.3
37.5°	729.2	723.6	720.8	718.0
40°	688.7	683.1	681.7	680.3
42.5°	643.3	641.9	641.2	638.4
45°	602.8	602.1	597.9	599.3
47.5°	559.5	556.0	553.9	556.0
50°	514.8	513.4	507.1	508.5
52.5°	470.1	463.8	462.4	461.0
55°	419.8	413.5	410.7	409.3
57.5°	370.2	368.1	365.3	367.4
60°	327.6	327.6	327.6	326.9
62.5°	294.8	292.7	292.0	293.4
65°	261.2	260.5	257.7	257.0
67.5°	230.5	227.7	227.7	226.3
70°	194.9	193.5	189.3	190.0
72.5°	156.5	155.1	155.1	153.7
75°	129.9	129.2	128.5	131.3
77.5°	108.3	108.3	109.0	107.6
80°	87.3	87.3	86.6	86.6
82.5°	65.7	66.4	67.1	65.7
85°	46.1	45.4	46.8	46.1
87.5°	25.8	24.4	24.4	25.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)