

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: P242593

Luminaire Tested: **S123RDR-S1165D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242593
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-S1165D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3843.7 lumens
Efficiency: N/A
Efficacy: 93.5 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

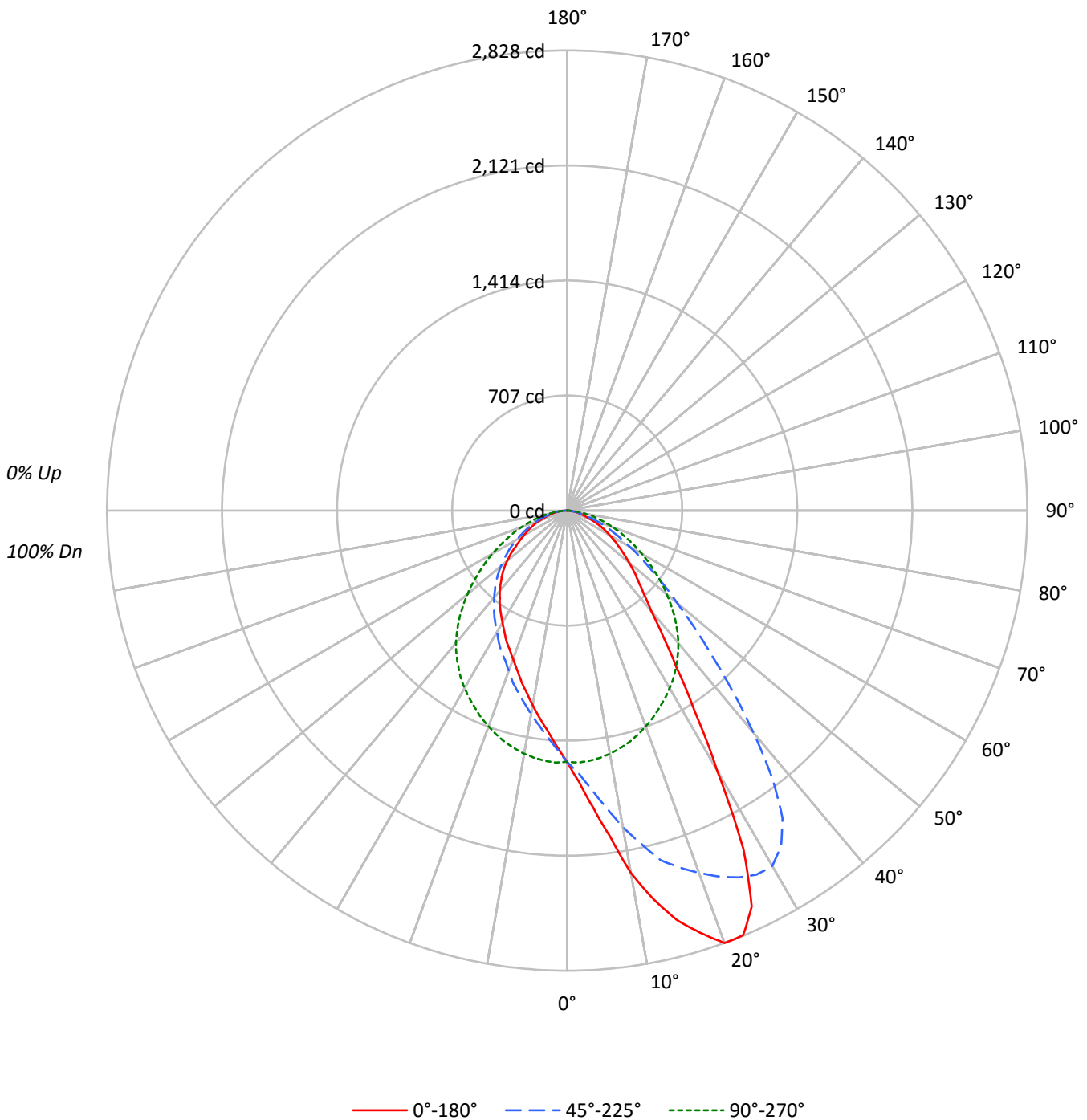
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P242593

CATALOG NUMBER: S123RDR-S1165D940-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot





TEST NUMBER: P242593

CATALOG NUMBER: S123RDR-S1165D940-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	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°	18710	18710	18710
5°	22304	18790	16547
10°	27849	18683	14950
15°	32688	18492	13633
20°	36481	18207	12513
25°	35899	17906	11826
30°	25804	17628	11117
35°	17228	17268	10658
40°	12693	16834	10184
45°	10649	16074	9720
50°	9395	15078	9072
55°	8240	13937	8183
60°	7336	12848	7498
65°	6445	11676	6975
70°	5057	10632	6369
75°	4458	9282	5817
80°	3874	7888	5717
85°	3129	6342	6064



TEST NUMBER: P242593

CATALOG NUMBER: S123RDR-S1165D940-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	151.6	3.9
10°-20°	474.5	12.3
20°-30°	747.4	19.4
30°-40°	777.2	20.2
40°-50°	664.9	17.3
50°-60°	506.8	13.2
60°-70°	324.7	8.4
70°-80°	155.6	4.0
80°-90°	40.9	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°	1373.5	35.7
0°-40°	2150.8	56.0
0°-60°	3322.5	86.4
0°-90°	3843.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3843.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1544	1544	1544	1544	1544	
5°	1833	1719	1544	1394	1360	188
15°	2605	2224	1474	1158	1086	739
25°	2684	2487	1339	957	884	1166
35°	1164	2308	1167	781	720	757
45°	621	1253	938	617	567	487
55°	390	625	660	445	387	352
65°	225	308	407	278	243	221
75°	95	112	198	141	124	102
85°	22	24	46	42	44	26
90°	0	0	0	0	0	



TEST NUMBER: P242593

CATALOG NUMBER: S123RDR-S1165D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6
2.5°	1669.2	1671.8	1663.2	1661.9	1652.0	1649.4	1649.4	1635.5	1626.9	1615.7	1609.1
5°	1833.1	1843.6	1838.4	1826.5	1806.6	1802.0	1789.5	1769.6	1747.2	1719.4	1706.2
7.5°	2020.7	2042.5	2038.6	2020.1	1998.9	1985.7	1950.7	1922.3	1879.3	1840.3	1809.9
10°	2262.6	2247.4	2235.5	2217.7	2198.5	2167.4	2130.4	2079.6	2020.7	1974.5	1922.9
12.5°	2443.7	2444.3	2428.5	2410.0	2380.9	2351.8	2304.2	2239.5	2168.8	2096.7	2035.9
15°	2604.9	2608.9	2598.9	2579.8	2541.5	2489.3	2420.5	2394.8	2297.0	2224.3	2151.6
17.5°	2719.9	2720.5	2718.6	2692.8	2651.2	2615.5	2551.4	2491.2	2398.7	2300.3	2203.1
20°	2828.2	2821.6	2823.0	2793.2	2764.1	2721.2	2659.1	2560.6	2487.9	2369.6	2268.5
22.5°	2825.6	2825.6	2831.6	2826.3	2807.1	2776.7	2731.1	2651.8	2554.0	2434.4	2317.4
25°	2684.2	2678.9	2710.0	2718.6	2752.3	2758.2	2743.7	2698.1	2610.2	2487.3	2346.5
27.5°	2347.2	2328.0	2392.8	2456.9	2542.1	2596.3	2651.8	2664.4	2622.7	2522.3	2374.9
30°	1843.6	1905.8	1934.8	2039.2	2155.5	2294.3	2415.9	2531.5	2560.0	2521.6	2406.0
32.5°	1452.5	1504.7	1527.8	1613.7	1720.1	1888.6	2086.2	2261.9	2399.4	2445.6	2387.5
35°	1164.3	1165.0	1220.5	1260.2	1360.6	1527.8	1704.9	1924.3	2142.3	2307.5	2324.7
37.5°	960.8	963.5	999.1	1038.8	1119.4	1213.2	1377.8	1562.8	1825.1	2071.6	2199.8
40°	802.2	808.2	833.3	872.3	926.4	993.2	1114.8	1286.6	1496.7	1778.9	2009.5
42.5°	700.5	711.0	720.9	748.7	777.1	838.6	931.1	1054.0	1240.3	1503.3	1778.2
45°	621.2	626.4	636.4	650.2	680.6	724.2	790.3	879.5	1038.1	1252.9	1519.2
47.5°	560.4	557.1	568.3	580.2	600.7	632.4	678.6	756.0	874.9	1054.6	1285.3
50°	498.2	497.6	504.9	513.4	532.6	554.4	590.8	645.6	735.5	878.2	1085.0
52.5°	440.1	443.4	448.0	459.3	471.8	488.3	520.1	555.7	629.7	748.0	911.9
55°	389.9	391.9	399.1	405.1	415.0	432.8	453.3	486.4	539.2	625.1	767.2
57.5°	346.3	345.6	352.9	353.5	366.1	381.3	397.8	423.6	463.9	531.9	631.1
60°	302.6	300.7	306.6	311.2	317.2	329.1	342.3	367.4	397.8	444.7	526.7
62.5°	263.0	262.3	266.3	270.9	275.6	286.1	296.7	314.5	337.0	374.7	435.5
65°	224.7	226.7	228.6	230.6	233.3	239.9	250.4	263.7	280.2	307.9	354.9
67.5°	185.0	187.7	188.3	193.0	198.2	201.5	207.5	220.0	232.6	257.7	285.5
70°	142.7	142.1	142.7	144.7	152.0	159.3	167.8	176.4	183.7	200.2	222.7
72.5°	117.6	116.3	118.3	118.3	120.9	121.6	126.2	134.1	144.1	154.0	168.5
75°	95.2	95.2	95.2	95.2	97.8	99.1	101.1	103.1	106.4	111.7	123.6
77.5°	74.0	74.0	75.3	76.0	76.7	77.3	78.6	80.6	81.9	84.6	90.5
80°	55.5	56.2	55.5	56.2	56.2	57.5	58.2	60.1	60.8	64.1	66.1
82.5°	38.3	37.7	38.3	39.0	39.0	40.3	40.3	41.6	41.6	43.0	44.9
85°	22.5	21.1	22.5	21.8	23.1	21.8	22.5	23.8	23.8	24.4	27.1
87.5°	6.6	7.9	6.6	7.3	7.3	7.9	7.9	7.9	9.3	8.6	9.3
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: P242593

CATALOG NUMBER: S123RDR-S1165D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6
2.5°	1606.4	1604.4	1595.2	1584.6	1570.7	1561.5	1554.2	1550.2	1538.4	1523.8	1513.9
5°	1692.3	1672.5	1651.4	1625.6	1601.8	1577.3	1562.1	1544.3	1522.5	1498.0	1480.9
7.5°	1777.6	1743.2	1705.5	1666.6	1626.9	1591.9	1559.5	1533.1	1500.0	1466.3	1443.2
10°	1878.7	1821.8	1763.0	1702.9	1648.0	1596.5	1556.9	1517.9	1476.2	1435.9	1405.5
12.5°	1970.5	1891.2	1821.2	1743.9	1669.9	1605.8	1544.3	1496.7	1444.5	1400.9	1365.2
15°	2045.2	1968.5	1886.6	1774.3	1681.1	1603.1	1533.7	1473.6	1412.8	1359.9	1326.2
17.5°	2123.2	2006.9	1899.2	1811.9	1690.3	1595.8	1514.6	1444.5	1378.4	1324.3	1282.0
20°	2168.1	2056.4	1936.8	1817.2	1698.3	1589.2	1490.8	1411.5	1342.1	1278.7	1240.3
22.5°	2195.2	2065.0	1937.5	1806.6	1678.4	1564.1	1467.0	1377.8	1301.1	1241.7	1192.1
25°	2215.0	2064.4	1925.6	1798.7	1669.9	1546.9	1431.3	1338.8	1257.5	1193.4	1143.2
27.5°	2230.9	2056.4	1897.2	1759.1	1628.9	1504.0	1399.6	1300.5	1219.2	1152.4	1097.6
30°	2234.8	2046.5	1863.5	1710.8	1578.0	1465.7	1353.3	1259.5	1172.3	1100.2	1050.0
32.5°	2240.1	2022.1	1817.9	1653.3	1516.5	1405.5	1306.4	1217.9	1128.0	1057.3	1005.7
35°	2221.6	2016.1	1771.6	1585.3	1449.1	1341.4	1249.6	1167.0	1079.1	1010.4	958.2
37.5°	2165.5	1983.7	1725.4	1509.3	1368.5	1269.4	1192.8	1117.4	1036.1	960.8	912.6
40°	2071.0	1930.9	1669.9	1441.2	1292.5	1190.1	1122.7	1063.9	985.9	916.5	863.7
42.5°	1930.2	1858.8	1617.0	1369.8	1206.6	1108.8	1054.6	1000.5	934.4	863.7	814.8
45°	1751.8	1763.0	1541.0	1293.2	1128.7	1029.5	976.0	937.7	876.9	818.7	767.9
47.5°	1535.1	1628.9	1459.7	1212.6	1044.1	950.9	904.0	869.0	826.7	766.5	719.6
50°	1323.6	1473.6	1358.0	1131.3	965.4	872.9	826.7	799.6	763.9	719.0	674.7
52.5°	1128.7	1292.5	1235.0	1040.8	880.2	797.6	752.7	731.5	705.1	663.4	624.5
55°	952.2	1115.4	1099.6	949.6	794.9	719.0	684.6	659.5	640.3	608.6	576.9
57.5°	798.9	956.8	960.2	848.5	720.9	643.6	613.9	594.1	580.8	555.7	524.7
60°	655.5	797.6	825.3	746.0	640.3	574.2	545.2	530.0	520.1	500.9	478.4
62.5°	536.6	652.2	684.6	633.1	563.0	502.2	481.1	466.5	460.6	444.7	425.6
65°	428.9	529.3	559.7	528.0	487.7	438.1	419.6	407.1	401.1	391.9	377.3
67.5°	338.3	416.3	449.3	422.9	407.7	372.7	360.1	352.9	347.6	341.0	328.4
70°	259.0	313.2	347.6	341.6	329.7	313.2	304.6	300.0	294.7	289.4	278.9
72.5°	195.6	228.6	260.4	265.6	256.4	256.4	249.1	247.8	245.2	238.6	233.9
75°	138.1	163.9	186.3	194.9	198.9	202.2	198.9	198.2	197.6	192.3	189.0
77.5°	95.8	112.3	127.5	142.7	148.0	152.6	153.3	156.0	154.0	150.7	149.3
80°	69.4	72.7	82.6	95.2	105.1	109.0	111.7	113.0	112.3	111.7	109.0
82.5°	45.6	48.2	51.5	59.5	67.4	74.7	76.0	75.3	77.3	78.0	76.0
85°	27.1	27.8	29.1	30.4	35.0	42.3	44.3	45.6	46.9	46.9	43.0
87.5°	10.6	9.9	11.2	11.2	13.2	13.9	17.8	21.1	21.8	19.2	19.2
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: P242593

CATALOG NUMBER: S123RDR-S1165D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6	1543.6
2.5°	1510.6	1502.0	1496.1	1482.8	1474.3	1465.0	1455.8	1461.7	1461.0	1460.4	1460.4
5°	1466.3	1451.1	1437.3	1419.4	1408.2	1394.3	1383.7	1382.4	1385.0	1375.8	1370.5
7.5°	1424.7	1404.9	1385.0	1366.5	1346.1	1330.2	1320.3	1316.3	1309.1	1303.1	1297.8
10°	1380.4	1356.0	1336.8	1312.4	1289.9	1270.1	1257.5	1248.9	1244.3	1239.7	1231.1
12.5°	1334.8	1311.0	1285.3	1256.9	1235.7	1211.9	1203.3	1193.4	1183.5	1178.2	1165.7
15°	1290.6	1259.5	1233.7	1204.6	1180.9	1158.4	1145.2	1126.0	1123.4	1116.8	1104.9
17.5°	1247.6	1213.2	1175.6	1155.7	1132.0	1108.2	1087.0	1081.1	1061.3	1054.6	1043.4
20°	1194.7	1163.7	1136.6	1108.2	1069.2	1047.4	1031.5	1022.9	1007.7	998.5	991.9
22.5°	1149.1	1117.4	1085.0	1050.7	1020.3	995.2	984.6	970.1	963.5	949.6	942.3
25°	1106.2	1071.8	1034.2	998.5	975.3	956.8	938.3	926.4	914.6	908.6	895.4
27.5°	1054.0	1019.6	983.3	955.5	929.1	910.6	892.7	882.8	867.6	857.7	850.5
30°	1012.4	970.1	939.7	915.2	878.9	861.7	849.1	835.9	825.3	814.8	807.5
32.5°	964.1	926.4	898.0	866.3	840.5	821.4	804.2	793.0	784.4	774.5	767.2
35°	913.2	880.9	851.1	820.7	800.2	781.1	761.9	752.0	743.4	734.2	727.5
37.5°	867.0	836.6	808.8	779.8	754.6	738.1	722.3	715.7	703.8	697.1	690.5
40°	824.7	794.9	764.6	736.8	710.4	698.5	684.6	673.4	662.8	658.2	650.9
42.5°	778.4	748.7	724.2	693.8	673.4	656.2	643.6	631.1	623.8	616.5	613.2
45°	732.8	706.4	681.3	651.6	631.1	617.2	602.7	591.4	584.2	579.5	572.3
47.5°	689.2	662.1	637.0	610.6	590.8	574.9	559.7	552.4	542.5	537.2	531.9
50°	641.0	617.2	590.1	566.3	546.5	530.6	518.7	508.8	500.2	493.0	489.7
52.5°	596.7	570.9	548.5	526.7	505.5	487.0	476.4	465.9	459.9	451.3	447.4
55°	547.1	522.7	502.9	481.1	460.6	445.4	432.2	422.9	416.3	407.1	401.8
57.5°	501.6	480.4	456.0	436.8	415.0	403.1	391.9	378.6	370.7	363.4	358.2
60°	455.3	430.2	409.7	391.9	373.4	356.8	346.9	337.0	328.4	321.2	316.5
62.5°	407.1	385.9	366.7	346.9	330.4	316.5	304.6	296.7	289.4	285.5	280.8
65°	357.5	340.3	320.5	304.6	288.8	278.2	268.9	261.7	256.4	253.1	249.1
67.5°	311.9	295.4	277.5	261.0	250.4	241.9	235.2	228.6	226.0	222.0	219.4
70°	267.6	250.4	235.2	223.4	212.8	206.8	202.9	198.2	195.6	190.3	187.7
72.5°	219.4	208.2	198.2	189.0	181.1	175.8	170.5	164.5	159.9	154.0	151.3
75°	180.4	169.2	160.6	154.0	148.7	141.4	134.1	128.2	126.2	124.2	123.6
77.5°	140.8	133.5	126.9	121.6	114.3	107.7	105.7	104.4	103.7	102.4	102.4
80°	105.1	98.5	93.8	87.2	83.3	83.3	83.3	81.9	82.6	82.6	82.6
82.5°	71.4	65.4	63.4	62.1	62.1	62.8	62.8	63.4	62.8	64.1	63.4
85°	40.3	41.0	42.3	41.6	42.3	42.3	43.6	43.0	43.6	42.3	43.6
87.5°	18.5	20.5	21.1	21.8	22.5	21.8	22.5	22.5	23.1	23.1	23.1
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: P242593

CATALOG NUMBER: S123RDR-S1165D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1543.6	1543.6	1543.6	1543.6
2.5°	1452.5	1451.8	1452.5	1449.8
5°	1368.5	1367.9	1365.9	1359.9
7.5°	1292.5	1291.2	1285.9	1287.2
10°	1226.5	1227.1	1219.2	1214.6
12.5°	1162.4	1158.4	1152.4	1147.2
15°	1107.5	1100.9	1085.0	1086.4
17.5°	1039.4	1034.2	1033.5	1024.2
20°	981.3	978.0	979.3	970.1
22.5°	935.7	932.4	925.1	923.8
25°	891.4	886.1	880.9	884.2
27.5°	846.5	842.5	836.6	836.6
30°	804.2	800.2	797.6	794.3
32.5°	761.2	761.2	756.0	756.0
35°	724.9	720.9	719.6	720.3
37.5°	689.9	684.6	682.0	679.3
40°	651.6	646.3	644.9	643.6
42.5°	608.6	607.3	606.6	604.0
45°	570.3	569.6	565.6	567.0
47.5°	529.3	526.0	524.0	526.0
50°	487.0	485.7	479.7	481.1
52.5°	444.7	438.8	437.5	436.1
55°	397.1	391.2	388.6	387.2
57.5°	350.2	348.2	345.6	347.6
60°	309.9	309.9	309.9	309.3
62.5°	278.9	276.9	276.2	277.5
65°	247.1	246.5	243.8	243.2
67.5°	218.1	215.4	215.4	214.1
70°	184.4	183.0	179.1	179.7
72.5°	148.0	146.7	146.7	145.4
75°	122.9	122.2	121.6	124.2
77.5°	102.4	102.4	103.1	101.8
80°	82.6	82.6	81.9	81.9
82.5°	62.1	62.8	63.4	62.1
85°	43.6	43.0	44.3	43.6
87.5°	24.4	23.1	23.1	23.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)