

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: P242578

Luminaire Tested: **S123RDR-S1165D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242578  
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-S1165D840-X4F0-XX-UDD-A-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4353.0 lumens  
Efficiency: N/A  
Efficacy: 105.9 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

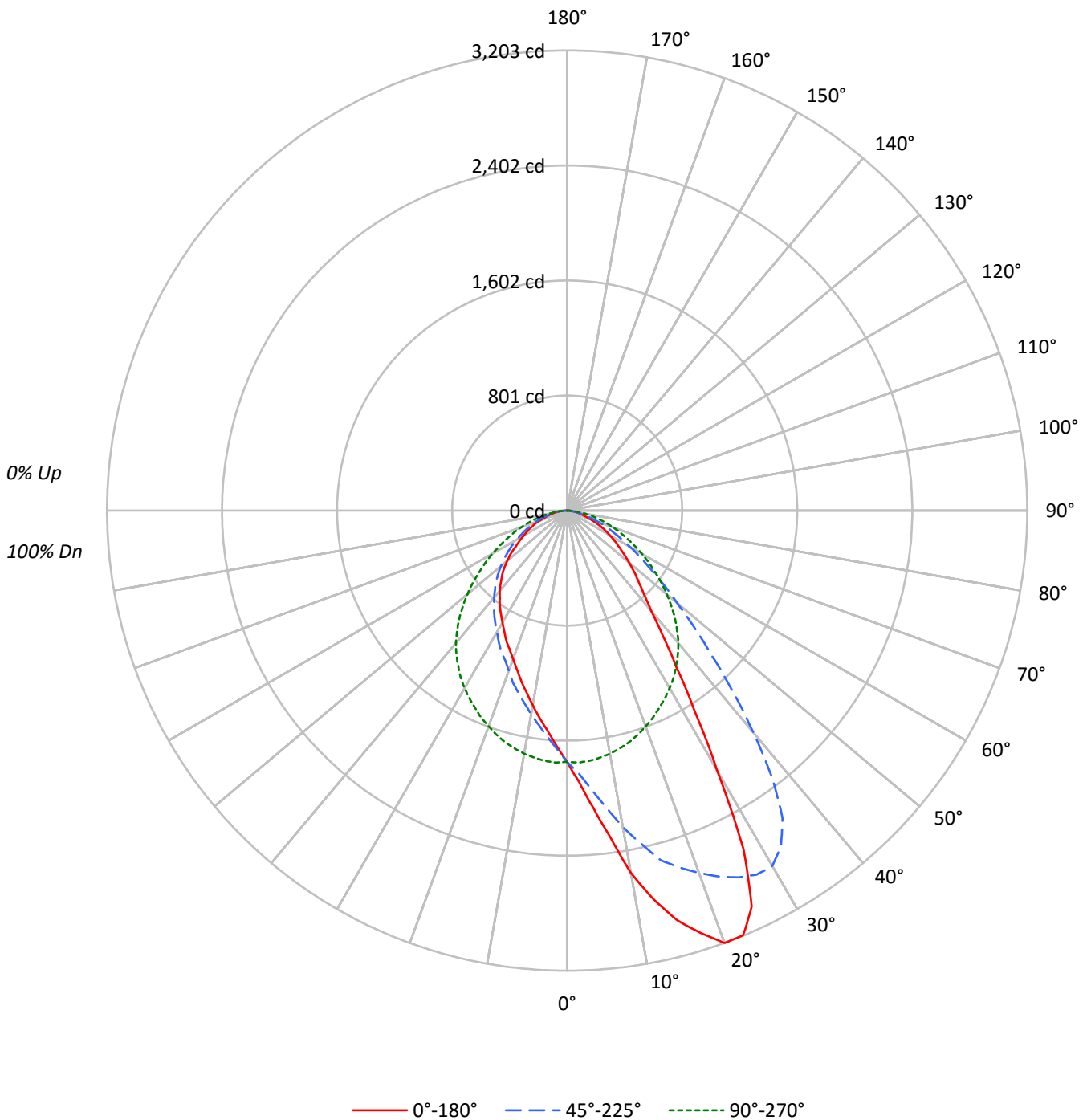
Input Watts (W): 41.1  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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°	21190	21190	21190
5°	25260	21280	18739
10°	31539	21158	16930
15°	37020	20943	15439
20°	41316	20619	14171
25°	40657	20278	13392
30°	29223	19964	12590
35°	19512	19556	12070
40°	14375	19065	11533
45°	12059	18203	11007
50°	10641	17075	10273
55°	9330	15784	9267
60°	8310	14550	8490
65°	7297	13222	7899
70°	5727	12043	7216
75°	5049	10514	6589
80°	4391	8935	6478
85°	3533	7176	6870



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	171.7	3.9
10°-20°	537.4	12.3
20°-30°	846.4	19.4
30°-40°	880.2	20.2
40°-50°	753.1	17.3
50°-60°	573.9	13.2
60°-70°	367.7	8.4
70°-80°	176.2	4.0
80°-90°	46.3	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°	1555.5	35.7
0°-40°	2435.7	56.0
0°-60°	3762.7	86.4
0°-90°	4353.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4353.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1748	1748	1748	1748	1748	
5°	2076	1947	1749	1579	1540	213
15°	2950	2519	1669	1312	1230	837
25°	3040	2817	1516	1084	1001	1321
35°	1319	2613	1322	885	816	857
45°	704	1419	1062	699	642	552
55°	442	708	747	504	438	399
65°	254	349	461	315	275	250
75°	108	126	224	160	141	115
85°	25	28	52	48	49	29
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°	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2
2.5°	1890.4	1893.4	1883.6	1882.1	1870.9	1867.9	1867.9	1852.2	1842.5	1829.8	1822.3
5°	2076.0	2087.9	2081.9	2068.5	2046.0	2040.8	2026.6	2004.1	1978.7	1947.2	1932.3
7.5°	2288.5	2313.2	2308.7	2287.7	2263.8	2248.8	2209.2	2177.0	2128.3	2084.2	2049.8
10°	2562.4	2545.2	2531.7	2511.5	2489.8	2454.6	2412.7	2355.1	2288.5	2236.1	2177.7
12.5°	2767.5	2768.2	2750.2	2729.3	2696.4	2663.4	2609.5	2536.2	2456.1	2374.6	2305.7
15°	2950.1	2954.5	2943.3	2921.6	2878.2	2819.1	2741.3	2712.1	2601.3	2519.0	2436.7
17.5°	3080.3	3081.0	3078.8	3049.6	3002.4	2962.0	2889.4	2821.3	2716.6	2605.1	2495.0
20°	3203.0	3195.5	3197.0	3163.3	3130.4	3081.8	3011.4	2899.9	2817.6	2683.6	2569.1
22.5°	3200.0	3200.0	3206.7	3200.8	3179.1	3144.6	3093.0	3003.2	2892.4	2757.0	2624.5
25°	3039.9	3033.9	3069.0	3078.8	3116.9	3123.7	3107.2	3055.6	2956.0	2816.8	2657.4
27.5°	2658.2	2636.5	2709.8	2782.4	2879.0	2940.3	3003.2	3017.4	2970.3	2856.5	2689.6
30°	2087.9	2158.3	2191.2	2309.5	2441.2	2598.3	2736.0	2867.0	2899.2	2855.8	2724.8
32.5°	1644.9	1704.0	1730.2	1827.5	1948.0	2138.8	2362.6	2561.7	2717.3	2769.7	2703.8
35°	1318.6	1319.4	1382.2	1427.1	1540.9	1730.2	1930.8	2179.2	2426.2	2613.3	2632.7
37.5°	1088.1	1091.1	1131.5	1176.4	1267.7	1374.0	1560.3	1769.9	2067.0	2346.1	2491.3
40°	908.5	915.2	943.7	987.8	1049.2	1124.8	1262.5	1457.1	1695.0	2014.6	2275.8
42.5°	793.3	805.2	816.5	847.9	880.1	949.7	1054.4	1193.6	1404.7	1702.5	2013.8
45°	703.5	709.4	720.7	736.4	770.8	820.2	895.0	996.1	1175.7	1418.9	1720.5
47.5°	634.6	630.9	643.6	657.1	680.3	716.2	768.6	856.1	990.8	1194.4	1455.6
50°	564.3	563.5	571.8	581.5	603.2	627.9	669.0	731.2	832.9	994.6	1228.8
52.5°	498.4	502.2	507.4	520.1	534.3	553.0	589.0	629.4	713.2	847.1	1032.7
55°	441.5	443.8	452.0	458.7	470.0	490.2	513.4	550.8	610.7	708.0	868.9
57.5°	392.1	391.4	399.6	400.4	414.6	431.8	450.5	479.7	525.4	602.4	714.7
60°	342.8	340.5	347.2	352.5	359.2	372.7	387.7	416.1	450.5	503.6	596.4
62.5°	297.8	297.1	301.6	306.8	312.1	324.0	336.0	356.2	381.7	424.3	493.2
65°	254.4	256.7	258.9	261.2	264.2	271.7	283.6	298.6	317.3	348.7	401.9
67.5°	209.5	212.5	213.3	218.5	224.5	228.3	235.0	249.2	263.4	291.9	323.3
70°	161.6	160.9	161.6	163.9	172.1	180.4	190.1	199.8	208.0	226.8	252.2
72.5°	133.2	131.7	134.0	134.0	137.0	137.7	142.9	151.9	163.1	174.4	190.8
75°	107.8	107.8	107.8	107.8	110.8	112.3	114.5	116.7	120.5	126.5	139.9
77.5°	83.8	83.8	85.3	86.1	86.8	87.6	89.1	91.3	92.8	95.8	102.5
80°	62.9	63.6	62.9	63.6	63.6	65.1	65.9	68.1	68.8	72.6	74.8
82.5°	43.4	42.7	43.4	44.2	44.2	45.7	45.7	47.1	47.1	48.6	50.9
85°	25.4	23.9	25.4	24.7	26.2	24.7	25.4	26.9	26.9	27.7	30.7
87.5°	7.5	9.0	7.5	8.2	8.2	9.0	9.0	9.0	10.5	9.7	10.5
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°	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2
2.5°	1819.3	1817.0	1806.6	1794.6	1778.9	1768.4	1760.2	1755.7	1742.2	1725.7	1714.5
5°	1916.6	1894.1	1870.2	1841.0	1814.0	1786.3	1769.1	1748.9	1724.2	1696.5	1677.1
7.5°	2013.1	1974.2	1931.5	1887.4	1842.5	1802.8	1766.1	1736.2	1698.8	1660.6	1634.4
10°	2127.6	2063.2	1996.6	1928.5	1866.4	1808.0	1763.1	1719.0	1671.8	1626.2	1591.8
12.5°	2231.6	2141.8	2062.5	1974.9	1891.1	1818.5	1748.9	1695.0	1635.9	1586.5	1546.1
15°	2316.2	2229.4	2136.6	2009.4	1903.8	1815.5	1737.0	1668.9	1600.0	1540.1	1502.0
17.5°	2404.5	2272.8	2150.8	2052.0	1914.3	1807.3	1715.3	1635.9	1561.1	1499.7	1451.8
20°	2455.4	2328.9	2193.5	2058.0	1923.3	1799.8	1688.3	1598.5	1519.9	1448.1	1404.7
22.5°	2486.1	2338.6	2194.2	2046.0	1900.8	1771.4	1661.4	1560.3	1473.5	1406.2	1350.0
25°	2508.5	2337.9	2180.7	2037.0	1891.1	1751.9	1621.0	1516.2	1424.1	1351.5	1294.7
27.5°	2526.5	2328.9	2148.6	1992.1	1844.7	1703.3	1585.0	1472.8	1380.7	1305.1	1243.0
30°	2531.0	2317.7	2110.4	1937.5	1787.1	1659.9	1532.6	1426.4	1327.6	1246.0	1189.2
32.5°	2537.0	2290.0	2058.7	1872.4	1717.5	1591.8	1479.5	1379.2	1277.5	1197.4	1139.0
35°	2516.0	2283.3	2006.4	1795.3	1641.2	1519.2	1415.2	1321.6	1222.1	1144.2	1085.1
37.5°	2452.4	2246.6	1954.0	1709.3	1549.9	1437.6	1350.8	1265.5	1173.4	1088.1	1033.5
40°	2345.4	2186.7	1891.1	1632.2	1463.8	1347.8	1271.5	1204.9	1116.6	1038.0	978.1
42.5°	2186.0	2105.1	1831.2	1551.4	1366.5	1255.8	1194.4	1133.0	1058.2	978.1	922.7
45°	1983.9	1996.6	1745.2	1464.5	1278.2	1166.0	1105.3	1061.9	993.1	927.2	869.6
47.5°	1738.4	1844.7	1653.1	1373.2	1182.4	1076.9	1023.8	984.1	936.2	868.1	815.0
50°	1499.0	1668.9	1537.9	1281.2	1093.4	988.6	936.2	905.5	865.1	814.2	764.1
52.5°	1278.2	1463.8	1398.7	1178.7	996.8	903.3	852.4	828.4	798.5	751.4	707.2
55°	1078.4	1263.2	1245.3	1075.4	900.3	814.2	775.3	746.9	725.2	689.2	653.3
57.5°	904.8	1083.6	1087.4	960.9	816.5	728.9	695.2	672.8	657.8	629.4	594.2
60°	742.4	903.3	934.7	844.9	725.2	650.3	617.4	600.2	589.0	567.3	541.8
62.5°	607.7	738.6	775.3	716.9	637.6	568.8	544.8	528.3	521.6	503.6	481.9
65°	485.7	599.4	633.9	597.9	552.3	496.2	475.2	461.0	454.3	443.8	427.3
67.5°	383.2	471.5	508.9	479.0	461.7	422.1	407.9	399.6	393.6	386.2	371.9
70°	293.4	354.7	393.6	386.9	373.4	354.7	345.0	339.8	333.8	327.8	315.8
72.5°	221.5	258.9	294.9	300.8	290.4	290.4	282.1	280.6	277.6	270.2	264.9
75°	156.4	185.6	211.0	220.8	225.3	229.0	225.3	224.5	223.8	217.8	214.0
77.5°	108.5	127.2	144.4	161.6	167.6	172.9	173.6	176.6	174.4	170.6	169.1
80°	78.6	82.3	93.5	107.8	119.0	123.5	126.5	128.0	127.2	126.5	123.5
82.5°	51.6	54.6	58.4	67.4	76.3	84.6	86.1	85.3	87.6	88.3	86.1
85°	30.7	31.4	32.9	34.4	39.7	47.9	50.1	51.6	53.1	53.1	48.6
87.5°	12.0	11.2	12.7	12.7	15.0	15.7	20.2	23.9	24.7	21.7	21.7
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°	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2	1748.2
2.5°	1710.8	1701.0	1694.3	1679.3	1669.6	1659.1	1648.6	1655.4	1654.6	1653.9	1653.9
5°	1660.6	1643.4	1627.7	1607.5	1594.8	1579.0	1567.1	1565.6	1568.6	1558.1	1552.1
7.5°	1613.5	1591.0	1568.6	1547.6	1524.4	1506.5	1495.2	1490.7	1482.5	1475.8	1469.8
10°	1563.3	1535.6	1513.9	1486.3	1460.8	1438.4	1424.1	1414.4	1409.2	1403.9	1394.2
12.5°	1511.7	1484.8	1455.6	1423.4	1399.4	1372.5	1362.8	1351.5	1340.3	1334.3	1320.1
15°	1461.6	1426.4	1397.2	1364.3	1337.3	1311.9	1296.9	1275.2	1272.2	1264.7	1251.3
17.5°	1412.9	1374.0	1331.3	1308.9	1281.9	1255.0	1231.1	1224.3	1201.9	1194.4	1181.7
20°	1353.0	1317.9	1287.2	1255.0	1210.9	1186.2	1168.2	1158.5	1141.3	1130.8	1123.3
22.5°	1301.4	1265.5	1228.8	1189.9	1155.5	1127.0	1115.1	1098.6	1091.1	1075.4	1067.2
25°	1252.8	1213.8	1171.2	1130.8	1104.6	1083.6	1062.7	1049.2	1035.7	1029.0	1014.0
27.5°	1193.6	1154.7	1113.6	1082.1	1052.2	1031.2	1011.0	999.8	982.6	971.4	963.1
30°	1146.5	1098.6	1064.2	1036.5	995.3	975.9	961.6	946.7	934.7	922.7	914.5
32.5°	1091.9	1049.2	1017.0	981.1	951.9	930.2	910.8	898.0	888.3	877.1	868.9
35°	1034.2	997.6	963.9	929.5	906.3	884.6	862.9	851.6	841.9	831.4	823.9
37.5°	981.9	947.4	916.0	883.1	854.6	835.9	818.0	810.5	797.0	789.5	782.0
40°	934.0	900.3	865.9	834.4	804.5	791.0	775.3	762.6	750.6	745.4	737.1
42.5°	881.6	847.9	820.2	785.8	762.6	743.1	728.9	714.7	706.5	698.2	694.5
45°	829.9	800.0	771.6	737.9	714.7	699.0	682.5	669.8	661.6	656.3	648.1
47.5°	780.5	749.9	721.4	691.5	669.0	651.1	633.9	625.6	614.4	608.4	602.4
50°	725.9	699.0	668.3	641.3	618.9	600.9	587.5	576.2	566.5	558.3	554.5
52.5°	675.8	646.6	621.1	596.4	572.5	551.5	539.6	527.6	520.9	511.1	506.6
55°	619.6	592.0	569.5	544.8	521.6	504.4	489.4	479.0	471.5	461.0	455.0
57.5°	568.0	544.1	516.4	494.7	470.0	456.5	443.8	428.8	419.8	411.6	405.6
60°	515.6	487.2	464.0	443.8	422.8	404.1	392.9	381.7	371.9	363.7	358.5
62.5°	461.0	437.0	415.3	392.9	374.2	358.5	345.0	336.0	327.8	323.3	318.1
65°	404.9	385.4	363.0	345.0	327.0	315.1	304.6	296.4	290.4	286.6	282.1
67.5°	353.2	334.5	314.3	295.6	283.6	273.9	266.4	258.9	255.9	251.5	248.5
70°	303.1	283.6	266.4	252.9	241.0	234.2	229.7	224.5	221.5	215.5	212.5
72.5°	248.5	235.7	224.5	214.0	205.1	199.1	193.1	186.3	181.1	174.4	171.4
75°	204.3	191.6	181.9	174.4	168.4	160.1	151.9	145.2	142.9	140.7	139.9
77.5°	159.4	151.2	143.7	137.7	129.5	122.0	119.7	118.2	117.5	116.0	116.0
80°	119.0	111.5	106.3	98.8	94.3	94.3	94.3	92.8	93.5	93.5	93.5
82.5°	80.8	74.1	71.8	70.3	70.3	71.1	71.1	71.8	71.1	72.6	71.8
85°	45.7	46.4	47.9	47.1	47.9	47.9	49.4	48.6	49.4	47.9	49.4
87.5°	21.0	23.2	23.9	24.7	25.4	24.7	25.4	25.4	26.2	26.2	26.2
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: P242578

CATALOG NUMBER: S123RDR-S1165D840-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1748.2	1748.2	1748.2	1748.2
2.5°	1644.9	1644.2	1644.9	1641.9
5°	1549.9	1549.1	1546.9	1540.1
7.5°	1463.8	1462.3	1456.3	1457.8
10°	1389.0	1389.7	1380.7	1375.5
12.5°	1316.4	1311.9	1305.1	1299.2
15°	1254.3	1246.8	1228.8	1230.3
17.5°	1177.2	1171.2	1170.4	1160.0
20°	1111.3	1107.6	1109.1	1098.6
22.5°	1059.7	1055.9	1047.7	1046.2
25°	1009.5	1003.6	997.6	1001.3
27.5°	958.7	954.2	947.4	947.4
30°	910.8	906.3	903.3	899.5
32.5°	862.1	862.1	856.1	856.1
35°	821.0	816.5	815.0	815.7
37.5°	781.3	775.3	772.3	769.3
40°	737.9	731.9	730.4	728.9
42.5°	689.2	687.7	687.0	684.0
45°	645.8	645.1	640.6	642.1
47.5°	599.4	595.7	593.5	595.7
50°	551.5	550.0	543.3	544.8
52.5°	503.6	496.9	495.4	493.9
55°	449.8	443.0	440.0	438.5
57.5°	396.6	394.4	391.4	393.6
60°	351.0	351.0	351.0	350.2
62.5°	315.8	313.6	312.8	314.3
65°	279.9	279.1	276.1	275.4
67.5°	247.0	244.0	244.0	242.5
70°	208.8	207.3	202.8	203.6
72.5°	167.6	166.1	166.1	164.6
75°	139.2	138.4	137.7	140.7
77.5°	116.0	116.0	116.7	115.2
80°	93.5	93.5	92.8	92.8
82.5°	70.3	71.1	71.8	70.3
85°	49.4	48.6	50.1	49.4
87.5°	27.7	26.2	26.2	26.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)