

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: P333929

Luminaire Tested: **S123DS-S1165D840-4F0-1E-UDD-A**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P333929  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-20)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DS-S1165D840-4F0-1E-UDD-A  
Description: DEFINE 3 DIRECT LED LUMINAIRE, ASYMMETRIC DIFFUSER  
PENDANT/SURFACE/WALL MOUNT, 1165 LUMENS PER FOOT  
Light Source: 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4661.8 lumens  
Efficiency: N/A  
Efficacy: 113.4 lumens/watt  
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5  
Luminous Opening: Rectangular (W 4' x L: 0.5' x H: 0')  
CIE Type: Direct

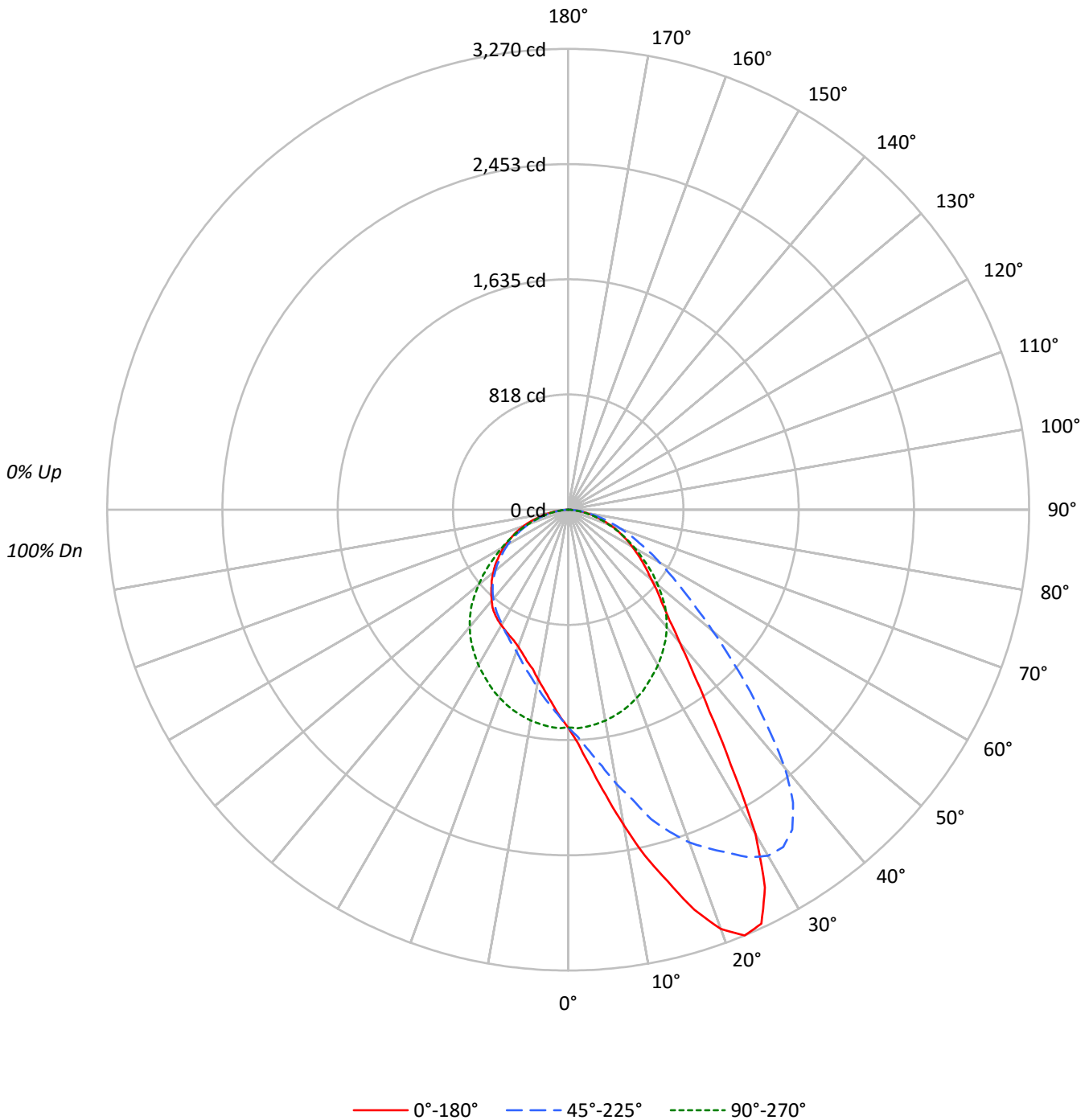
Input Watts (W): 41.1  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	74	72
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62
4	84	73	65	58	82	72	64	58	69	62	57	67	61	56	65	60	56	53
5	78	66	57	51	76	64	56	50	62	55	50	60	54	49	59	53	49	47
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	43	41
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36
8	62	49	41	35	61	49	41	35	47	40	35	46	39	35	45	39	35	33
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	36	31	29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27

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

	0°	90°	180°
0°	8312	8312	8312
5°	9913	8349	7398
10°	12408	8306	6683
15°	15219	8239	6221
20°	18129	8135	5923
25°	19250	8008	5857
30°	16500	7915	5888
35°	11475	7783	5949
40°	8643	7628	5930
45°	7177	7399	5855
50°	6429	6929	5802
55°	6011	6425	5729
60°	5638	5896	5670
65°	5299	5375	5489
70°	4969	4781	5229
75°	4450	4186	4793
80°	3896	3434	4128
85°	3051	2495	2773



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	151.9	3.3
10°-20°	487.9	10.5
20°-30°	820.9	17.6
30°-40°	927.8	19.9
40°-50°	831.0	17.8
50°-60°	670.8	14.4
60°-70°	467.4	10.0
70°-80°	245.3	5.3
80°-90°	58.8	1.3
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°	1460.7	31.3
0°-40°	2388.5	51.2
0°-60°	3890.3	83.5
0°-90°	4661.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4661.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1544	1544	1544	1544	1544	
5°	1835	1720	1545	1399	1369	189
15°	2731	2273	1479	1166	1116	788
25°	3242	2686	1348	1002	986	1433
35°	1747	2770	1185	885	906	1127
45°	943	1826	972	757	769	744
55°	641	992	685	585	611	575
65°	416	556	422	397	431	414
75°	214	263	201	200	230	229
85°	49	57	40	40	45	60
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°	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5
2.5°	1662.8	1661.3	1657.5	1660.5	1654.5	1646.3	1645.6	1638.1	1616.4	1614.9	1608.9
5°	1834.9	1828.9	1828.1	1827.4	1816.9	1802.7	1775.8	1773.5	1737.6	1719.6	1697.9
7.5°	2042.9	2040.7	2034.7	2027.9	1992.8	1975.6	1950.1	1917.2	1875.3	1834.9	1809.4
10°	2270.4	2295.1	2264.4	2243.5	2224.0	2187.3	2144.7	2091.6	2038.4	1976.3	1929.2
12.5°	2514.4	2523.3	2523.3	2503.9	2470.9	2410.3	2326.5	2266.7	2218.8	2105.0	2064.6
15°	2731.4	2777.0	2747.8	2680.5	2682.0	2628.8	2530.1	2421.6	2363.9	2273.4	2149.9
17.5°	2976.8	2985.0	2976.1	2913.2	2882.5	2805.4	2716.4	2615.4	2506.9	2396.9	2268.9
20°	3165.4	3160.9	3134.7	3105.5	3041.2	2984.3	2884.8	2768.8	2619.1	2511.4	2368.4
22.5°	3270.2	3261.9	3252.9	3229.7	3178.9	3116.7	3029.9	2900.5	2759.8	2601.2	2430.5
25°	3241.7	3251.4	3252.9	3246.2	3227.5	3190.8	3120.5	3019.5	2877.3	2686.5	2514.4
27.5°	3021.7	3046.4	3077.8	3098.8	3132.5	3154.9	3132.5	3068.9	2952.1	2781.5	2569.7
30°	2655.0	2625.1	2699.2	2792.7	2856.3	2968.6	3031.4	3035.2	2976.1	2834.6	2629.6
32.5°	2146.2	2194.8	2217.3	2337.7	2495.6	2625.1	2765.8	2890.8	2919.9	2837.6	2664.8
35°	1746.6	1787.7	1847.6	1907.5	2057.1	2185.8	2405.8	2597.4	2750.1	2770.3	2660.3
37.5°	1451.7	1475.7	1512.4	1576.0	1678.5	1837.9	2012.2	2261.4	2471.7	2619.9	2604.9
40°	1230.2	1236.2	1278.9	1324.5	1403.8	1529.6	1683.0	1897.0	2161.9	2391.6	2487.4
42.5°	1064.1	1079.1	1091.0	1134.5	1193.6	1280.4	1420.3	1587.9	1825.1	2098.3	2308.6
45°	942.9	957.8	969.1	998.3	1043.2	1106.8	1206.3	1367.9	1552.8	1825.9	2078.1
47.5°	859.1	857.6	867.3	890.5	922.7	973.6	1046.9	1154.7	1332.0	1560.2	1824.4
50°	767.8	779.7	782.7	800.0	823.9	859.1	917.4	1005.7	1144.9	1339.5	1577.5
52.5°	703.4	704.9	714.6	725.9	746.1	771.5	820.2	884.5	986.3	1144.9	1358.9
55°	640.6	640.6	648.8	658.5	670.5	695.2	728.9	779.7	862.8	991.5	1172.6
57.5°	582.2	585.2	592.7	594.9	605.4	622.6	651.8	692.2	755.8	859.8	1009.5
60°	523.8	530.6	529.8	535.8	544.8	557.5	581.4	612.9	668.2	747.6	868.8
62.5°	472.9	470.7	470.7	478.2	487.2	499.1	512.6	538.8	583.7	651.8	750.6
65°	416.1	414.6	419.8	424.3	427.3	436.3	448.2	472.2	503.6	556.0	636.1
67.5°	366.7	362.2	365.9	367.4	372.7	380.1	392.1	407.1	432.5	476.7	541.0
70°	315.8	312.0	311.3	312.8	317.3	322.5	330.8	345.0	368.2	401.8	446.0
72.5°	263.4	261.2	261.2	264.9	266.4	269.4	274.6	287.4	304.6	327.8	368.2
75°	214.0	214.0	214.0	214.8	217.0	220.0	224.5	231.2	245.4	263.4	291.1
77.5°	169.1	169.9	168.4	167.6	171.4	172.9	173.6	181.1	189.3	202.8	224.5
80°	125.7	122.0	123.5	125.7	127.2	128.0	130.2	131.7	138.4	145.2	159.4
82.5°	85.3	82.3	82.3	86.1	86.1	86.8	89.0	91.3	92.8	98.8	104.8
85°	49.4	49.4	50.1	50.1	50.9	50.1	52.4	53.1	53.1	56.9	61.4
87.5°	22.4	21.0	21.7	22.4	21.7	22.4	23.2	23.9	24.7	25.4	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



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5
2.5°	1604.4	1598.4	1592.4	1581.9	1573.0	1560.2	1556.5	1552.0	1538.5	1526.6	1517.6
5°	1689.7	1671.7	1645.6	1621.6	1602.2	1576.0	1561.0	1545.3	1522.8	1502.6	1486.2
7.5°	1771.3	1739.8	1703.2	1663.5	1625.3	1588.7	1559.5	1533.3	1504.1	1475.7	1454.0
10°	1872.3	1821.4	1764.5	1703.2	1650.8	1599.9	1557.3	1519.8	1479.4	1444.3	1415.1
12.5°	1987.5	1906.0	1822.2	1744.3	1680.0	1604.4	1550.5	1500.4	1453.2	1409.1	1375.4
15°	2073.6	1977.8	1885.0	1782.5	1688.2	1599.9	1538.5	1478.7	1425.5	1382.1	1340.2
17.5°	2158.9	2054.1	1935.9	1812.4	1701.7	1599.9	1516.1	1451.7	1386.6	1334.3	1293.8
20°	2229.2	2105.8	1967.3	1837.9	1712.2	1595.4	1501.1	1420.3	1348.5	1292.3	1245.2
22.5°	2289.9	2140.2	1995.8	1855.1	1711.4	1583.4	1473.4	1389.6	1310.3	1255.7	1204.8
25°	2328.0	2155.2	2011.5	1849.1	1692.7	1562.5	1442.8	1348.5	1270.6	1206.3	1154.7
27.5°	2363.9	2152.9	1990.5	1815.4	1670.2	1540.8	1412.1	1311.1	1229.5	1159.9	1106.8
30°	2399.9	2156.7	1953.9	1781.0	1634.3	1499.6	1375.4	1273.6	1186.8	1115.7	1066.4
32.5°	2422.3	2154.4	1920.2	1733.1	1577.5	1462.2	1335.7	1229.5	1139.7	1070.1	1023.0
35°	2428.3	2141.7	1880.5	1663.5	1515.3	1399.4	1293.8	1184.6	1091.0	1025.9	972.1
37.5°	2415.6	2118.5	1837.1	1600.7	1440.5	1325.3	1233.2	1139.7	1049.9	977.3	930.2
40°	2374.4	2096.0	1784.7	1533.3	1362.7	1252.7	1177.1	1085.8	997.5	929.4	886.0
42.5°	2295.8	2050.4	1727.1	1458.5	1281.9	1171.9	1103.8	1031.2	948.9	886.0	842.6
45°	2158.2	1980.1	1669.5	1383.6	1202.5	1088.8	1027.4	972.1	896.5	834.4	797.0
47.5°	1982.3	1885.0	1586.4	1305.1	1119.5	1009.5	945.1	899.5	840.4	790.2	753.6
50°	1797.5	1762.3	1501.9	1224.2	1036.4	929.4	868.0	827.6	788.0	737.8	704.9
52.5°	1584.2	1620.1	1403.1	1140.4	951.9	847.1	790.2	760.3	725.1	686.2	658.5
55°	1386.6	1465.2	1286.4	1044.7	868.0	767.8	713.1	684.7	663.8	633.1	608.4
57.5°	1195.1	1295.3	1165.1	948.1	785.7	698.2	644.3	612.1	598.7	581.4	561.2
60°	1028.2	1127.0	1033.4	850.8	702.7	620.4	574.0	547.8	534.3	523.1	506.6
62.5°	879.3	979.5	904.7	752.1	621.1	546.3	507.4	481.9	472.2	467.7	454.2
65°	745.3	831.4	779.0	648.8	544.0	476.7	440.0	422.1	412.3	410.1	401.1
67.5°	629.3	695.9	655.5	557.5	472.2	410.8	378.6	362.9	354.7	354.0	346.5
70°	515.6	577.0	547.8	461.0	389.9	344.2	317.3	303.8	299.3	298.6	294.8
72.5°	427.3	465.5	443.8	374.9	324.0	283.6	265.7	251.4	246.2	247.7	245.4
75°	329.3	361.4	348.0	297.8	253.7	226.7	210.3	201.3	196.8	199.1	196.1
77.5°	251.4	273.9	260.4	222.3	193.8	173.6	160.9	154.9	150.4	150.4	148.9
80°	178.8	190.8	184.1	163.1	140.7	124.2	114.5	110.8	108.5	107.8	107.0
82.5°	114.5	124.2	116.0	103.3	89.8	81.6	77.1	71.8	70.3	71.1	70.3
85°	64.4	68.1	65.1	56.1	50.1	45.6	42.7	40.4	38.9	39.7	38.2
87.5°	27.7	28.4	26.2	23.2	21.7	19.5	19.5	18.0	16.5	16.5	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°	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5	1544.5
2.5°	1512.4	1507.1	1499.6	1488.4	1479.4	1465.2	1465.2	1467.5	1467.5	1466.7	1465.2
5°	1472.7	1461.5	1448.0	1432.3	1415.8	1399.4	1396.4	1390.4	1385.9	1382.9	1379.2
7.5°	1432.3	1413.6	1394.9	1373.2	1354.5	1338.7	1327.5	1317.8	1311.8	1305.1	1299.8
10°	1391.1	1366.4	1343.2	1320.0	1294.6	1274.4	1261.7	1252.7	1246.0	1240.0	1237.0
12.5°	1342.5	1313.3	1287.1	1265.4	1237.0	1216.0	1204.0	1201.1	1192.8	1178.6	1171.1
15°	1295.3	1269.1	1238.5	1204.8	1191.3	1165.9	1151.7	1144.9	1140.4	1130.7	1127.7
17.5°	1256.4	1221.3	1186.1	1161.4	1136.7	1116.5	1108.3	1099.3	1093.3	1084.3	1082.1
20°	1207.8	1177.1	1145.7	1118.7	1092.5	1070.1	1063.4	1057.4	1051.4	1047.6	1044.7
22.5°	1158.4	1127.7	1103.0	1078.3	1049.9	1037.2	1029.7	1023.0	1019.2	1017.0	1014.0
25°	1112.7	1085.8	1056.6	1034.2	1011.7	1002.0	997.5	993.8	990.8	987.0	986.3
27.5°	1072.3	1042.4	1017.7	996.0	979.5	971.3	966.1	963.8	963.8	965.3	966.1
30°	1025.9	999.0	979.5	961.6	946.6	939.1	938.4	938.4	941.4	942.1	943.6
32.5°	983.3	962.3	942.9	925.7	915.2	910.7	914.4	914.4	916.7	918.9	921.9
35°	942.1	922.7	907.7	892.7	883.0	885.3	886.8	888.3	892.0	896.5	899.5
37.5°	903.2	885.3	869.5	857.6	851.6	856.1	859.8	862.8	867.3	871.0	874.0
40°	860.6	847.8	832.9	822.4	823.9	826.1	829.1	832.9	836.6	838.9	841.9
42.5°	820.9	807.4	797.0	788.7	791.0	794.0	795.5	797.0	801.4	805.9	807.4
45°	780.5	770.0	759.5	754.3	755.8	757.3	758.8	761.0	764.8	767.8	768.5
47.5°	734.8	727.4	720.6	714.6	717.6	716.9	719.1	723.6	725.1	726.6	731.1
50°	691.4	684.7	676.5	675.0	675.0	675.0	675.7	681.7	681.7	684.7	687.7
52.5°	643.6	639.8	635.3	632.3	630.8	630.8	634.6	636.8	638.3	642.8	645.8
55°	596.4	591.9	587.4	585.2	583.7	585.2	591.2	592.7	596.4	598.7	600.9
57.5°	547.0	544.0	540.3	538.8	538.8	539.5	544.0	547.8	548.5	556.0	559.0
60°	498.4	493.1	490.1	490.1	488.7	495.4	493.9	501.4	502.9	507.4	512.6
62.5°	448.2	440.8	440.0	440.0	443.0	443.8	446.7	449.0	453.5	459.5	463.2
65°	393.6	389.9	395.1	394.4	392.9	397.4	397.4	401.1	405.6	410.8	419.1
67.5°	342.7	339.7	341.2	340.5	342.7	345.7	348.0	351.0	356.2	362.2	367.4
70°	291.1	293.3	289.6	292.6	294.8	295.6	297.1	301.6	307.6	311.3	317.3
72.5°	241.0	240.2	241.7	242.5	244.7	246.2	247.7	252.9	259.7	262.7	267.1
75°	193.1	192.3	194.6	194.6	198.3	199.8	201.3	203.5	209.5	214.0	217.8
77.5°	149.7	150.4	149.7	152.7	151.2	151.9	156.4	158.6	159.4	169.1	170.6
80°	106.3	107.8	108.5	109.3	110.0	108.5	113.7	116.0	116.0	121.2	125.0
82.5°	68.8	69.6	71.8	72.6	72.6	74.8	74.1	75.6	77.8	79.3	84.6
85°	38.2	40.4	41.2	40.4	41.2	39.7	41.9	42.7	43.4	43.4	43.4
87.5°	15.0	15.7	15.0	15.7	15.0	15.7	15.7	14.2	14.2	16.5	13.5
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: P333929

CATALOG NUMBER: S123DS-S1165D840-4F0-1E-UDD-A

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1544.5	1544.5	1544.5	1544.5
2.5°	1460.0	1459.2	1464.5	1460.7
5°	1374.7	1376.9	1369.4	1369.4
7.5°	1297.6	1294.6	1295.3	1290.1
10°	1228.0	1223.5	1222.0	1222.8
12.5°	1170.4	1170.4	1158.4	1158.4
15°	1127.7	1113.5	1112.0	1116.5
17.5°	1080.6	1072.3	1073.1	1071.6
20°	1044.7	1040.2	1039.4	1034.2
22.5°	1011.7	1011.0	1011.7	1005.7
25°	985.5	989.3	986.3	986.3
27.5°	967.6	967.6	965.3	965.3
30°	946.6	945.9	947.4	947.4
32.5°	925.7	927.2	927.2	927.9
35°	904.0	904.7	907.0	905.5
37.5°	875.5	879.3	878.5	880.0
40°	842.6	844.9	844.1	844.1
42.5°	808.9	810.4	808.2	806.7
45°	771.5	770.0	772.3	769.3
47.5°	730.4	731.1	731.9	734.8
50°	689.2	693.7	693.7	692.9
52.5°	648.8	650.3	654.0	654.0
55°	606.9	608.4	609.9	610.6
57.5°	564.2	563.5	566.5	567.2
60°	518.6	518.6	524.6	526.8
62.5°	469.9	472.9	478.9	474.4
65°	422.8	428.8	428.0	431.0
67.5°	373.4	377.2	383.1	383.1
70°	323.3	327.0	330.0	332.3
72.5°	274.6	276.1	284.4	279.9
75°	223.0	228.2	232.7	230.5
77.5°	173.6	180.3	181.8	179.6
80°	130.2	129.5	133.9	133.2
82.5°	86.8	86.1	87.6	88.3
85°	46.4	48.6	45.6	44.9
87.5°	13.5	13.5	12.7	12.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)