

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: P242642

Luminaire Tested: **S124DR-S1195D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242642  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-21)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DR-S1195D835-X4F0-XX-UDD-A-W  
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4936.3 lumens  
Efficiency: N/A  
Efficacy: 120.1 lumens/watt  
Spacing Criteria (0/90/45): 1.3 / 1.22 / 1.41  
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')  
CIE Type: Direct

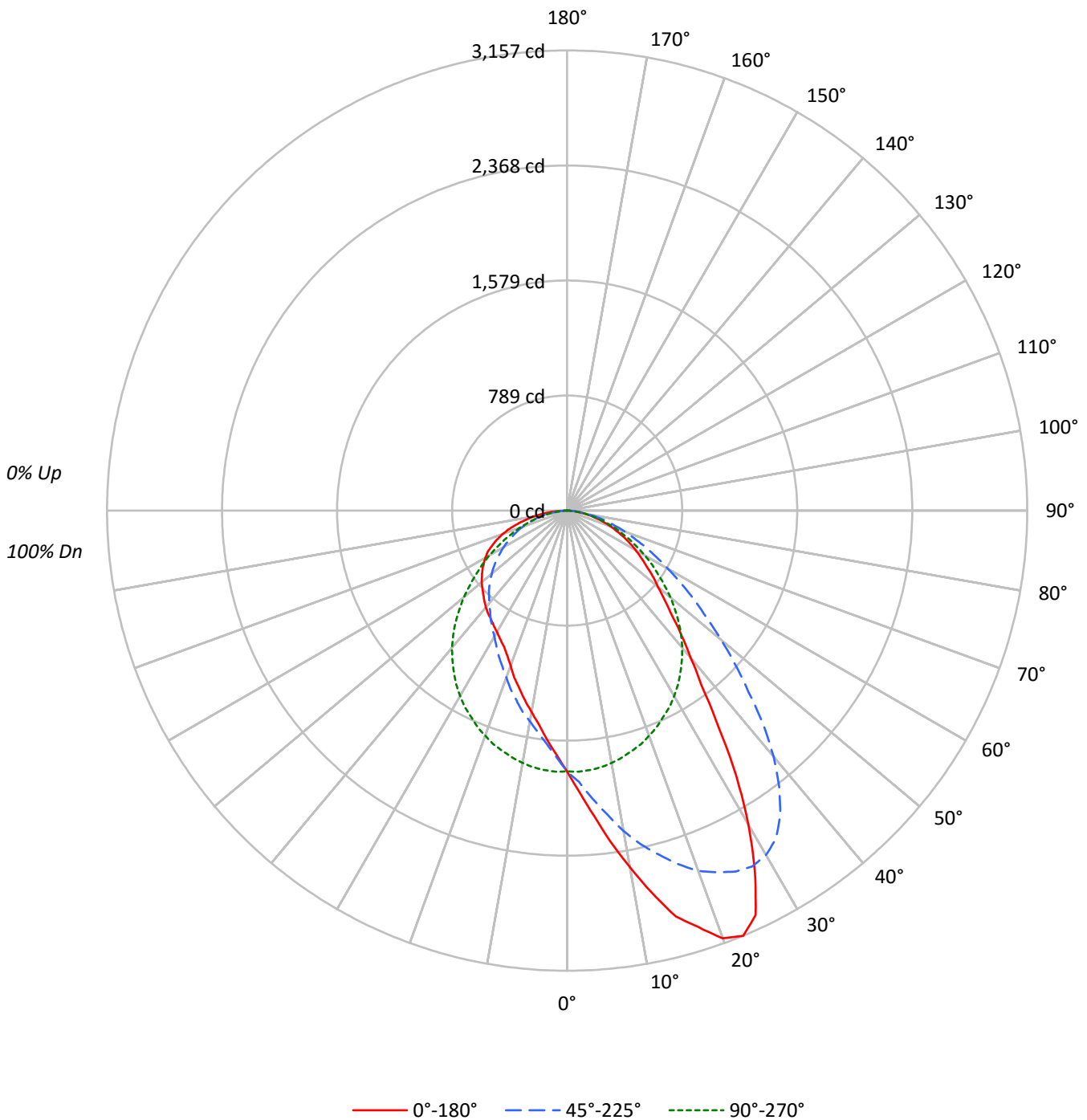
Input Watts (W): 41.1  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	109	105	101	97	107	103	99	96	98	95	93	95	92	90	91	89	87	85
2	100	92	86	80	98	90	84	79	87	82	78	84	79	76	81	77	74	72
3	92	82	74	68	89	80	73	67	77	71	66	74	69	65	72	67	64	62
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	47	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	40	35	45	39	35	33
9	58	45	37	32	57	45	37	32	44	37	32	43	36	32	42	36	31	30
10	55	42	34	29	54	41	34	29	40	34	29	39	33	29	39	33	29	27

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

	0°	90°	180°
0°	15901	15901	15901
5°	18726	15942	14070
10°	22421	15872	12668
15°	26528	15712	11634
20°	29540	15547	10711
25°	30017	15306	10074
30°	25541	15075	9873
35°	19637	14699	9875
40°	15306	14256	10060
45°	12762	13592	10229
50°	11232	12779	10576
55°	10290	11806	11002
60°	9643	10935	11515
65°	8977	9959	11938
70°	8205	8995	12210
75°	7329	7916	12065
80°	6143	6486	11681
85°	4539	4681	11188



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	174.1	3.5
10°-20°	537.4	10.9
20°-30°	853.7	17.3
30°-40°	948.6	19.2
40°-50°	862.7	17.5
50°-60°	704.9	14.3
60°-70°	503.2	10.2
70°-80°	276.9	5.6
80°-90°	74.8	1.5
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°	1565.2	31.7
0°-40°	2513.7	50.9
0°-60°	4081.3	82.7
0°-90°	4936.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4936.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1789	1789	1789	1789	1789	
5°	2099	1982	1787	1606	1577	212
15°	2883	2446	1707	1346	1264	815
25°	3060	2732	1561	1106	1027	1358
35°	1810	2548	1355	914	910	1146
45°	1015	1759	1081	757	814	798
55°	664	1059	762	592	710	599
65°	427	590	474	411	568	422
75°	213	275	230	229	351	227
85°	44	57	46	65	110	55
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°	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9
2.5°	1932.6	1931.9	1924.5	1923.0	1917.8	1911.2	1909.7	1897.8	1874.1	1863.0	1860.0
5°	2098.6	2113.5	2094.2	2090.5	2088.3	2063.8	2051.2	2036.4	2002.3	1982.3	1966.7
7.5°	2292.8	2293.5	2285.4	2277.2	2263.1	2242.4	2214.2	2181.6	2142.4	2102.3	2074.2
10°	2484.0	2489.9	2480.3	2478.8	2441.0	2417.3	2369.9	2329.8	2283.9	2232.8	2186.1
12.5°	2685.5	2673.7	2670.0	2630.7	2631.4	2583.3	2526.2	2484.7	2407.6	2346.9	2280.9
15°	2882.7	2866.4	2856.0	2812.3	2790.8	2730.7	2672.2	2627.0	2534.4	2446.2	2379.5
17.5°	2996.8	3016.8	2990.1	2972.3	2913.8	2874.5	2816.0	2723.3	2654.4	2544.7	2468.4
20°	3122.8	3124.2	3110.9	3092.4	3048.7	2995.3	2930.1	2826.3	2739.6	2630.7	2515.1
22.5°	3156.8	3156.8	3153.1	3136.1	3105.7	3065.0	2999.0	2916.7	2807.1	2686.3	2570.7
25°	3060.5	3057.5	3064.2	3083.5	3070.9	3057.5	3019.8	2955.3	2857.5	2732.2	2607.7
27.5°	2787.8	2807.1	2847.1	2894.5	2928.6	2959.0	2956.8	2929.3	2859.7	2751.5	2618.8
30°	2488.4	2513.6	2541.8	2589.2	2681.1	2733.7	2791.5	2835.2	2810.8	2728.5	2607.0
32.5°	2159.4	2160.9	2206.1	2261.7	2343.9	2457.3	2557.3	2657.4	2700.4	2667.0	2570.7
35°	1809.6	1820.0	1865.2	1918.6	2021.6	2145.3	2283.2	2406.2	2507.7	2548.4	2496.6
37.5°	1516.2	1548.8	1582.9	1643.6	1737.7	1849.6	1997.9	2151.2	2300.2	2390.6	2400.2
40°	1319.1	1337.6	1360.6	1404.3	1481.3	1591.0	1714.0	1896.3	2057.1	2202.4	2249.8
42.5°	1163.4	1172.3	1184.2	1222.7	1276.8	1385.8	1495.4	1650.3	1811.9	1992.7	2080.1
45°	1015.2	1026.3	1050.1	1073.0	1117.5	1193.1	1297.6	1429.5	1591.8	1759.2	1906.0
47.5°	904.1	911.5	926.3	951.5	991.5	1042.6	1131.6	1243.5	1402.1	1564.3	1721.4
50°	812.2	818.1	829.2	851.5	880.4	924.8	994.5	1097.5	1215.3	1379.1	1532.5
52.5°	739.6	741.0	748.5	761.8	783.3	818.9	872.9	953.7	1061.2	1202.7	1355.4
55°	664.0	666.9	674.3	685.5	705.5	729.2	772.9	836.6	932.2	1059.0	1191.6
57.5°	601.7	604.7	610.6	615.1	632.9	652.9	688.4	734.4	809.2	921.9	1042.6
60°	542.4	541.0	548.4	552.1	563.2	579.5	605.4	649.2	712.1	798.8	907.8
62.5°	484.6	482.4	488.3	493.5	498.7	512.1	532.1	563.9	612.1	688.4	778.8
65°	426.8	423.9	427.6	433.5	439.4	446.8	462.4	492.8	533.6	589.9	661.8
67.5°	367.6	371.3	371.3	375.0	378.7	389.0	400.2	423.9	452.8	498.7	562.5
70°	315.7	316.4	319.4	319.4	321.6	330.5	339.4	352.0	380.2	421.7	471.3
72.5°	263.8	267.5	265.3	268.3	269.7	274.9	280.9	292.7	315.7	343.8	383.9
75°	213.4	215.6	215.6	216.4	218.6	220.8	226.0	234.9	252.0	274.9	303.8
77.5°	164.5	164.5	166.0	169.0	169.0	172.7	177.1	183.8	193.4	210.5	229.0
80°	120.0	121.5	120.8	122.3	122.3	125.2	126.7	135.6	139.3	149.7	163.8
82.5°	80.0	81.5	81.5	83.7	85.2	85.2	87.4	89.7	93.4	102.3	106.0
85°	44.5	45.9	44.5	45.9	48.2	48.9	51.1	51.9	54.8	57.1	62.2
87.5°	16.3	18.5	18.5	19.3	20.7	21.5	22.2	21.5	24.5	25.2	28.2
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°	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9
2.5°	1860.8	1850.4	1843.0	1837.0	1820.7	1811.1	1803.7	1793.3	1781.5	1768.9	1753.3
5°	1951.2	1926.0	1907.4	1879.3	1852.6	1830.4	1807.4	1786.7	1761.5	1734.0	1714.0
7.5°	2043.8	2009.0	1962.3	1926.0	1882.2	1844.5	1811.1	1776.3	1739.2	1703.7	1670.3
10°	2131.2	2083.1	2029.7	1966.7	1907.4	1854.8	1805.9	1758.5	1712.6	1666.6	1627.3
12.5°	2225.4	2162.4	2077.1	2000.8	1932.6	1857.8	1796.3	1735.5	1677.7	1628.8	1581.4
15°	2307.6	2220.9	2129.8	2031.2	1943.8	1861.5	1780.7	1707.4	1645.1	1581.4	1536.9
17.5°	2359.5	2252.0	2154.2	2051.2	1950.4	1847.4	1763.7	1681.4	1604.4	1542.1	1486.5
20°	2410.6	2303.9	2174.2	2071.2	1945.2	1838.5	1737.7	1643.6	1562.1	1494.7	1436.9
22.5°	2455.1	2327.6	2197.9	2054.2	1928.9	1814.1	1701.4	1606.6	1522.8	1451.0	1396.1
25°	2465.5	2323.9	2183.1	2048.2	1906.0	1771.8	1671.8	1560.6	1471.7	1396.9	1337.6
27.5°	2469.2	2319.5	2163.1	2016.4	1869.7	1747.4	1617.0	1519.9	1428.0	1348.7	1292.4
30°	2461.0	2303.2	2132.0	1969.7	1822.2	1686.6	1576.9	1468.7	1374.6	1296.1	1236.8
32.5°	2435.1	2269.1	2092.0	1917.8	1763.7	1631.8	1517.7	1416.1	1325.0	1247.9	1184.9
35°	2380.2	2217.9	2030.5	1851.9	1695.5	1561.4	1459.1	1354.6	1262.7	1189.4	1129.3
37.5°	2306.9	2155.7	1965.2	1779.2	1628.8	1492.5	1389.5	1293.1	1210.1	1134.5	1072.3
40°	2204.6	2075.7	1884.5	1704.4	1538.4	1410.2	1315.4	1228.6	1146.4	1076.0	1017.5
42.5°	2086.8	1978.6	1805.9	1612.5	1453.9	1325.0	1233.1	1157.5	1081.2	1017.5	958.9
45°	1942.3	1868.2	1702.2	1525.8	1359.1	1237.5	1149.4	1081.2	1016.0	952.2	903.3
47.5°	1781.5	1740.0	1595.5	1426.5	1266.4	1144.9	1068.6	1003.4	944.1	888.5	844.8
50°	1619.2	1601.4	1480.6	1319.1	1167.9	1055.2	978.2	924.1	875.2	827.7	787.0
52.5°	1459.1	1462.8	1356.9	1212.3	1075.3	967.8	891.5	841.8	801.1	764.8	729.2
55°	1295.3	1316.1	1230.9	1099.0	973.7	875.9	807.0	761.8	732.2	700.3	672.9
57.5°	1144.9	1179.7	1105.6	984.8	878.9	785.5	724.7	689.9	657.3	636.6	615.1
60°	998.2	1030.8	976.0	878.1	779.6	702.5	645.4	615.1	587.6	574.3	560.2
62.5°	867.8	895.9	858.9	769.9	687.7	614.3	568.4	539.5	523.2	508.4	500.2
65°	744.7	769.2	734.4	668.4	595.1	535.8	496.5	473.5	455.7	449.8	439.4
67.5°	623.2	645.4	626.9	569.1	506.9	460.2	429.1	404.6	394.2	388.3	381.6
70°	517.2	539.5	519.5	470.6	425.4	387.6	358.7	346.1	335.0	332.7	322.4
72.5°	427.6	440.9	420.9	385.3	348.3	317.9	297.2	283.8	279.4	274.9	270.5
75°	334.2	347.5	334.2	304.6	277.2	254.9	235.7	230.5	223.8	221.6	217.9
77.5°	250.5	263.1	252.7	232.7	211.2	192.7	181.6	174.1	173.4	169.0	170.4
80°	180.8	188.2	178.6	166.0	149.7	137.8	130.4	126.7	122.3	120.8	123.8
82.5°	117.1	119.3	115.6	108.2	97.1	90.4	86.0	81.5	81.5	82.3	81.5
85°	67.4	66.7	66.0	58.5	54.8	49.6	46.7	45.9	45.2	46.7	48.2
87.5°	28.2	28.9	28.2	25.2	23.0	20.7	20.0	19.3	20.0	20.7	21.5
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):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9	1788.9
2.5°	1745.9	1739.2	1729.6	1716.3	1705.1	1693.3	1690.3	1685.9	1694.8	1687.4	1685.1
5°	1697.0	1681.4	1661.4	1638.4	1625.1	1605.8	1602.1	1594.7	1587.3	1586.6	1579.2
7.5°	1645.9	1624.4	1599.2	1575.5	1554.7	1534.0	1520.6	1519.1	1507.3	1501.4	1493.9
10°	1596.9	1568.8	1538.4	1516.2	1491.0	1468.7	1453.2	1444.3	1436.9	1428.7	1421.3
12.5°	1539.1	1508.8	1485.1	1460.6	1429.5	1413.9	1385.8	1368.7	1368.7	1370.9	1348.7
15°	1496.9	1467.3	1428.7	1394.6	1378.3	1345.7	1331.7	1313.9	1302.8	1291.6	1282.7
17.5°	1445.0	1408.7	1379.1	1340.5	1310.2	1285.7	1266.4	1256.8	1239.0	1222.7	1211.6
20°	1396.9	1357.6	1325.7	1284.2	1250.1	1218.3	1202.7	1187.9	1175.3	1162.0	1149.4
22.5°	1348.0	1306.5	1265.7	1225.7	1194.6	1160.5	1145.7	1124.2	1112.3	1106.4	1093.8
25°	1296.1	1251.6	1207.2	1168.6	1136.0	1106.4	1086.4	1070.8	1057.5	1051.5	1043.4
27.5°	1239.8	1196.0	1153.8	1109.3	1071.5	1050.1	1033.8	1021.2	1013.0	1004.1	1000.4
30°	1186.4	1140.5	1094.5	1053.8	1019.7	998.2	983.4	975.2	969.3	965.6	961.9
32.5°	1132.3	1087.1	1038.2	1001.9	972.2	953.7	943.3	935.2	933.0	932.2	931.5
35°	1073.8	1027.8	983.4	950.0	921.1	913.7	904.1	899.6	898.1	903.3	905.6
37.5°	1017.5	974.5	933.0	899.6	880.4	868.5	864.8	864.1	869.2	873.7	878.9
40°	963.4	921.9	883.3	855.2	837.4	830.7	829.2	832.9	838.9	844.0	850.0
42.5°	910.7	870.0	835.9	810.0	798.8	792.9	794.4	798.1	807.0	813.7	823.3
45°	855.9	821.8	787.7	766.2	755.9	757.3	757.3	764.0	772.2	781.8	791.4
47.5°	804.8	769.9	741.0	722.5	717.3	715.1	718.8	727.7	738.8	749.9	763.3
50°	752.9	720.3	695.8	679.5	673.6	675.8	681.8	689.9	704.0	718.8	732.9
52.5°	700.3	671.4	649.2	634.3	630.6	635.1	641.0	655.1	666.9	683.2	701.0
55°	645.4	620.3	602.5	591.4	589.9	592.1	598.8	612.8	630.6	650.6	666.9
57.5°	591.4	569.9	552.8	544.7	545.4	546.9	557.3	574.3	592.1	613.6	634.3
60°	536.5	517.2	503.9	498.0	498.7	503.2	516.5	532.1	555.8	576.5	598.8
62.5°	484.6	468.3	455.7	450.6	449.1	460.2	472.8	489.1	512.8	536.5	561.0
65°	428.3	415.0	404.6	401.6	403.9	411.3	427.6	449.1	469.1	493.5	518.7
67.5°	373.5	362.4	355.0	356.4	358.7	369.0	383.1	401.6	423.9	449.1	475.0
70°	321.6	311.2	305.3	306.1	310.5	323.8	335.7	354.2	378.7	404.6	425.4
72.5°	268.3	262.3	257.1	260.8	265.3	273.4	289.0	307.5	328.3	352.0	374.2
75°	214.2	214.2	211.2	213.4	220.1	229.0	240.1	259.4	280.9	300.1	317.9
77.5°	168.2	166.0	167.5	169.7	174.1	185.3	197.9	211.9	229.0	249.0	263.8
80°	121.5	122.3	126.0	130.4	131.9	140.1	153.4	166.0	178.6	194.9	209.0
82.5°	83.7	84.5	86.0	91.9	93.4	102.3	109.7	122.3	133.4	143.0	154.1
85°	49.6	49.6	53.4	55.6	59.3	65.2	70.4	77.8	88.2	95.6	106.7
87.5°	23.7	23.7	26.7	28.2	30.4	34.1	35.6	43.7	46.7	50.4	57.1
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: P242642

CATALOG NUMBER: S124DR-S1195D835-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1788.9	1788.9	1788.9	1788.9
2.5°	1683.7	1682.2	1677.0	1676.2
5°	1574.7	1571.0	1568.8	1576.9
7.5°	1492.5	1489.5	1482.8	1480.6
10°	1413.9	1410.9	1405.0	1403.5
12.5°	1338.3	1331.7	1331.7	1333.9
15°	1273.1	1270.1	1262.0	1264.2
17.5°	1206.4	1203.5	1192.3	1203.5
20°	1144.2	1138.2	1133.1	1132.3
22.5°	1084.9	1079.7	1080.4	1074.5
25°	1037.5	1032.3	1030.8	1027.1
27.5°	998.9	996.0	993.0	994.5
30°	964.1	963.4	961.9	961.9
32.5°	935.2	935.2	936.7	936.7
35°	908.5	910.7	912.2	910.0
37.5°	884.8	886.3	888.5	890.7
40°	856.6	861.8	863.3	867.0
42.5°	830.0	835.9	840.3	840.3
45°	802.5	808.5	813.7	813.7
47.5°	774.4	782.5	787.7	788.5
50°	745.5	755.9	761.1	764.8
52.5°	717.3	727.7	735.1	736.6
55°	684.0	698.8	707.0	709.9
57.5°	654.3	667.7	676.6	678.8
60°	618.8	633.6	645.4	647.7
62.5°	582.5	598.0	608.4	615.1
65°	539.5	555.0	565.4	567.6
67.5°	494.3	510.6	517.2	521.7
70°	446.1	458.7	466.1	469.8
72.5°	391.3	404.6	413.5	413.5
75°	335.0	346.8	351.3	351.3
77.5°	276.4	283.1	289.0	290.5
80°	220.1	223.8	228.2	228.2
82.5°	162.3	165.3	169.7	169.0
85°	105.2	111.9	111.2	109.7
87.5°	59.3	60.0	62.2	63.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)