

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: P243502

Luminaire Tested: **S124DR-H1195D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243502  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-60)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DR-H1195D835-X4F0-XX-UDD-A-W  
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

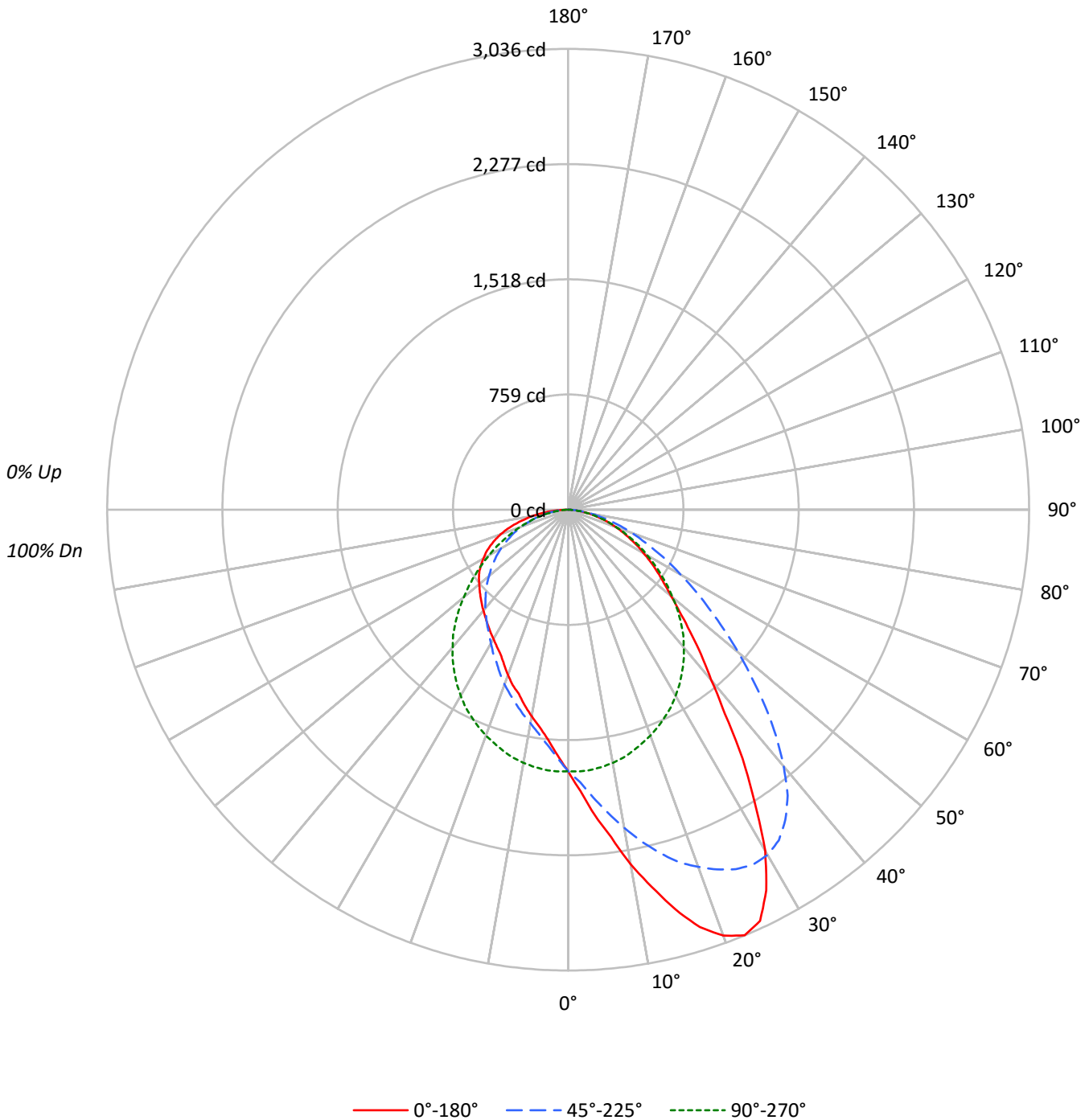
Lumens per Lamp: N/A  
Luminaire Lumens: 4940.8 lumens  
Efficiency: N/A  
Efficacy: 131.1 lumens/watt  
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45  
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 37.7  
Input Voltage (V): 120  
Input Current (Ain): 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	94	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63	61
4	84	73	64	58	82	71	63	57	69	62	56	66	60	56	64	59	55	53
5	78	65	56	50	75	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41
7	67	53	45	39	65	53	45	39	51	44	38	50	43	38	48	42	38	36
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	44	39	34	32
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	54	41	34	29	53	41	34	28	40	33	28	39	33	28	38	32	28	26

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

	0°	90°	180°
0°	15316	15316	15316
5°	18023	15356	13555
10°	21419	15286	12480
15°	25086	15151	11559
20°	28249	14975	10964
25°	29317	14775	10320
30°	26623	14525	10092
35°	21720	14179	10028
40°	17007	13735	10071
45°	14234	13182	10255
50°	12216	12410	10562
55°	11161	11575	11074
60°	10228	10715	11477
65°	9379	9808	11924
70°	8628	8847	12283
75°	7683	7779	12271
80°	6409	6373	12239
85°	4875	4804	11474



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	167.7	3.4
10°-20°	519.5	10.5
20°-30°	834.5	16.9
30°-40°	954.0	19.3
40°-50°	878.1	17.8
50°-60°	718.3	14.5
60°-70°	511.9	10.4
70°-80°	281.3	5.7
80°-90°	75.6	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°	1521.7	30.8
0°-40°	2475.7	50.1
0°-60°	4072.0	82.4
0°-90°	4940.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4940.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1723	1723	1723	1723	1723	
5°	2020	1905	1721	1556	1519	203
15°	2726	2342	1646	1325	1256	777
25°	2989	2613	1506	1114	1052	1342
35°	2002	2494	1307	930	924	1244
45°	1132	1838	1049	766	816	884
55°	720	1130	747	597	715	646
65°	446	626	466	418	567	445
75°	224	289	226	231	357	239
85°	48	59	47	65	112	57
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°	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1
2.5°	1855.3	1849.7	1846.9	1843.4	1842.7	1839.2	1832.1	1822.3	1809.6	1796.3	1796.3
5°	2019.9	2018.5	2007.9	2008.7	1995.3	1980.5	1969.3	1955.2	1927.8	1904.6	1888.4
7.5°	2177.4	2192.2	2188.7	2177.4	2157.8	2136.7	2114.1	2094.5	2043.8	2015.7	1992.5
10°	2373.0	2378.6	2368.7	2352.6	2335.0	2294.2	2264.7	2231.6	2176.7	2128.9	2086.7
12.5°	2544.6	2557.9	2540.4	2524.9	2483.4	2453.1	2423.6	2357.5	2299.8	2239.3	2178.1
15°	2726.0	2712.0	2721.1	2683.1	2653.6	2624.8	2549.5	2482.0	2416.6	2342.0	2278.0
17.5°	2883.6	2883.6	2866.7	2842.1	2811.1	2757.0	2681.7	2607.2	2534.7	2437.0	2346.2
20°	2986.3	2994.0	2974.3	2948.3	2911.0	2854.7	2795.0	2714.1	2617.7	2503.8	2401.1
22.5°	3035.5	3036.9	3029.9	3008.1	2977.8	2930.0	2868.8	2790.0	2688.0	2565.7	2458.1
25°	2989.1	2996.8	2994.7	2993.3	2977.8	2950.4	2901.2	2828.0	2735.2	2612.8	2496.7
27.5°	2825.9	2844.9	2861.1	2868.1	2885.0	2886.4	2871.6	2827.3	2751.3	2636.0	2506.6
30°	2593.8	2584.0	2627.6	2649.4	2707.0	2741.5	2766.1	2763.3	2719.7	2626.2	2503.1
32.5°	2284.3	2311.1	2342.0	2393.4	2461.6	2541.8	2602.2	2647.3	2643.0	2581.8	2479.2
35°	2001.6	2001.6	2041.0	2104.3	2176.7	2273.1	2374.4	2458.1	2509.4	2493.9	2421.5
37.5°	1695.0	1714.0	1759.0	1808.2	1896.8	1989.7	2123.3	2234.4	2342.0	2374.4	2337.1
40°	1465.7	1474.1	1522.0	1563.5	1654.2	1750.5	1862.4	2004.4	2128.2	2207.7	2212.6
42.5°	1295.5	1294.8	1314.5	1351.8	1424.9	1510.7	1631.7	1770.9	1915.8	2028.3	2081.1
45°	1132.3	1130.9	1151.3	1189.3	1241.3	1317.3	1422.1	1561.3	1709.7	1837.7	1920.7
47.5°	994.5	1007.1	1016.3	1045.8	1088.7	1153.4	1243.5	1354.6	1497.3	1640.8	1752.6
50°	883.4	889.0	908.7	922.7	970.6	1015.6	1088.0	1187.9	1310.3	1460.8	1581.7
52.5°	794.7	798.3	810.2	828.5	855.9	895.3	953.0	1045.1	1155.5	1286.4	1411.5
55°	720.2	718.1	725.8	737.8	761.7	794.7	836.9	907.3	1003.6	1129.5	1244.9
57.5°	647.0	647.0	654.1	662.5	675.9	703.3	744.8	800.4	877.7	989.6	1091.5
60°	575.3	580.2	583.0	591.5	602.7	623.1	654.1	697.7	763.1	854.5	955.8
62.5°	512.0	512.0	516.9	519.7	534.5	549.3	571.8	609.1	660.4	742.0	820.8
65°	445.9	450.1	450.1	455.7	468.4	479.7	497.2	525.4	567.6	625.9	699.8
67.5°	389.6	389.6	393.1	396.0	403.0	410.7	426.2	448.0	483.9	530.3	597.1
70°	332.0	334.1	332.7	336.2	340.4	348.1	359.4	377.7	403.7	443.8	493.0
72.5°	279.9	277.1	278.5	282.0	284.1	289.1	296.1	310.2	331.3	363.6	399.5
75°	223.7	222.2	227.2	225.8	229.3	233.5	239.8	250.4	266.6	289.1	316.5
77.5°	174.4	172.3	174.4	175.8	177.2	180.8	185.7	192.0	203.3	218.0	242.6
80°	125.2	124.5	125.9	127.3	128.0	133.6	135.0	141.4	146.3	157.5	169.5
82.5°	83.0	84.4	85.1	86.5	85.8	88.6	90.0	94.2	98.5	104.1	113.2
85°	47.8	45.7	47.8	47.8	47.8	51.3	50.6	53.5	56.3	59.1	65.4
87.5°	16.9	16.9	17.6	18.3	18.3	20.4	19.7	21.1	23.9	23.9	26.0
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°	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1
2.5°	1792.0	1784.3	1778.7	1762.5	1752.6	1743.5	1735.1	1725.9	1716.1	1703.4	1695.7
5°	1871.5	1854.6	1830.0	1807.5	1782.2	1759.7	1741.4	1721.0	1698.5	1675.3	1654.9
7.5°	1959.4	1927.8	1889.8	1848.3	1808.9	1775.9	1741.4	1709.0	1677.4	1646.4	1617.6
10°	2047.3	1992.5	1942.5	1885.6	1833.5	1783.6	1738.6	1693.6	1654.2	1613.4	1576.8
12.5°	2128.9	2062.8	1989.7	1918.6	1849.0	1784.3	1728.7	1673.9	1623.2	1574.7	1531.8
15°	2191.5	2108.5	2022.0	1937.6	1857.4	1789.9	1717.5	1646.4	1593.7	1534.6	1487.5
17.5°	2263.2	2164.8	2079.0	1977.7	1877.8	1768.8	1692.2	1614.8	1551.5	1494.5	1447.4
20°	2311.1	2202.8	2079.0	1964.3	1861.7	1763.9	1671.8	1583.1	1516.3	1450.2	1393.3
22.5°	2349.1	2237.2	2100.8	1981.2	1852.5	1734.4	1634.5	1547.3	1468.5	1405.9	1351.8
25°	2368.7	2232.3	2102.2	1957.3	1828.6	1715.4	1602.8	1506.5	1427.0	1357.4	1311.0
27.5°	2369.4	2229.5	2075.5	1932.0	1794.1	1671.8	1560.6	1465.7	1376.4	1309.6	1254.0
30°	2365.9	2211.2	2048.7	1891.9	1754.8	1629.6	1513.5	1415.1	1333.5	1262.4	1209.7
32.5°	2343.4	2185.9	2008.7	1844.1	1695.0	1569.1	1462.2	1364.4	1277.2	1212.5	1156.9
35°	2292.8	2130.3	1952.4	1782.9	1641.5	1510.7	1405.2	1306.7	1228.7	1158.4	1101.4
37.5°	2228.1	2076.2	1895.4	1718.2	1565.6	1441.8	1342.6	1249.8	1168.2	1103.5	1046.5
40°	2146.5	2003.7	1825.8	1641.5	1488.9	1363.7	1270.2	1183.7	1114.0	1047.9	992.4
42.5°	2034.7	1925.0	1742.1	1562.8	1403.1	1284.9	1194.2	1122.5	1050.7	991.0	935.4
45°	1915.1	1815.2	1652.8	1474.8	1321.5	1199.8	1114.7	1048.6	987.4	927.0	881.9
47.5°	1782.9	1701.3	1550.8	1377.1	1225.9	1118.3	1034.6	975.5	919.2	872.8	827.8
50°	1625.3	1582.4	1441.8	1284.2	1137.3	1026.8	957.9	897.4	855.9	810.9	768.7
52.5°	1479.1	1444.6	1330.0	1175.2	1041.6	944.5	870.7	822.9	782.1	749.0	715.3
55°	1320.1	1302.5	1205.5	1071.8	950.9	853.8	790.5	746.9	714.6	683.6	659.0
57.5°	1173.8	1172.4	1086.6	972.0	853.8	771.5	711.0	675.2	647.0	625.2	604.1
60°	1024.0	1036.0	965.6	860.9	767.3	689.9	635.1	602.7	583.7	563.4	545.8
62.5°	888.3	906.6	842.6	760.3	668.1	604.8	562.6	538.0	516.9	502.2	488.8
65°	758.2	781.4	729.3	655.5	585.2	525.4	489.5	466.3	450.1	441.7	432.5
67.5°	643.5	656.2	621.0	563.4	505.0	452.9	423.4	403.0	388.9	385.4	374.9
70°	528.9	543.7	519.0	466.3	421.3	383.3	356.6	340.4	332.0	327.0	320.0
72.5°	436.8	443.1	418.5	381.9	346.0	314.4	294.7	282.7	272.9	270.8	267.3
75°	341.8	351.0	331.3	303.1	273.6	251.1	236.3	226.5	221.5	218.0	218.0
77.5°	258.1	265.9	254.6	230.0	212.4	192.7	182.9	173.7	171.6	168.1	169.5
80°	183.6	187.1	180.8	163.9	148.4	137.8	129.4	124.5	123.8	121.0	123.8
82.5°	121.7	122.4	115.3	107.6	95.7	90.0	84.4	82.3	81.6	81.6	80.2
85°	67.5	68.9	64.0	59.1	54.9	49.9	48.5	47.1	45.7	47.8	49.2
87.5°	26.0	26.7	26.0	23.9	22.5	21.1	20.4	21.8	19.7	21.1	21.8
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):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1
2.5°	1683.7	1678.1	1669.7	1655.6	1645.7	1635.2	1631.0	1632.4	1628.2	1622.5	1623.9
5°	1639.4	1623.2	1609.2	1589.5	1571.2	1555.7	1550.8	1544.5	1538.8	1535.3	1531.8
7.5°	1592.3	1569.8	1548.7	1529.0	1507.9	1488.2	1480.5	1474.8	1472.0	1462.2	1458.0
10°	1547.3	1521.3	1495.9	1472.7	1450.9	1429.1	1421.4	1414.4	1404.5	1400.3	1395.4
12.5°	1499.5	1473.4	1446.0	1417.9	1396.1	1378.5	1365.1	1360.2	1350.4	1346.1	1343.3
15°	1453.0	1421.4	1399.6	1377.8	1344.7	1325.0	1319.4	1301.8	1296.2	1287.8	1282.1
17.5°	1406.6	1377.1	1344.7	1319.4	1299.0	1274.4	1261.0	1253.3	1242.7	1235.0	1224.5
20°	1360.9	1326.4	1301.1	1269.5	1247.0	1224.5	1207.6	1200.5	1191.4	1180.9	1166.1
22.5°	1316.6	1278.6	1254.0	1224.5	1196.3	1170.3	1156.2	1146.4	1128.1	1126.0	1112.6
25°	1264.6	1230.8	1198.4	1167.5	1140.1	1114.0	1104.9	1089.4	1083.1	1070.4	1068.3
27.5°	1215.3	1179.4	1144.3	1110.5	1086.6	1068.3	1052.2	1042.3	1036.0	1026.1	1026.8
30°	1164.0	1124.6	1091.5	1060.6	1034.6	1017.0	1006.4	1001.5	992.4	991.0	986.0
32.5°	1109.1	1073.2	1038.8	1011.4	984.6	969.2	964.2	959.3	953.7	954.4	953.0
35°	1054.3	1022.6	986.0	960.7	938.9	929.8	922.0	920.6	918.5	919.9	919.9
37.5°	1000.8	966.3	936.1	912.9	900.2	887.6	884.1	883.4	884.1	885.5	889.0
40°	948.8	917.1	887.6	868.6	854.5	848.9	844.0	846.1	848.9	853.8	858.0
42.5°	896.7	866.5	841.9	822.9	809.5	806.7	807.4	811.6	812.3	819.4	827.1
45°	841.9	815.8	792.6	777.9	769.4	765.9	767.3	771.5	776.5	786.3	796.1
47.5°	791.2	768.0	747.6	732.8	726.5	725.1	727.9	733.6	744.8	754.7	765.9
50°	739.9	718.8	699.8	686.4	685.7	680.8	687.1	694.2	707.5	720.9	737.8
52.5°	689.2	668.8	652.7	642.1	639.3	639.3	647.0	659.7	671.7	689.2	704.7
55°	636.5	618.2	602.7	599.2	595.0	597.1	605.5	618.2	635.1	654.8	671.7
57.5°	582.3	566.9	555.6	550.7	548.6	555.6	565.5	578.8	600.6	620.3	638.6
60°	531.0	517.6	505.7	504.3	502.9	512.0	524.0	538.0	559.8	579.5	602.0
62.5°	476.1	465.6	457.9	455.7	455.7	464.9	478.3	496.5	516.9	538.0	561.9
65°	420.6	411.4	409.3	406.5	412.8	418.5	431.8	449.4	471.2	494.4	519.7
67.5°	369.2	363.6	359.4	359.4	364.3	374.9	386.8	404.4	426.9	451.5	474.0
70°	317.9	312.3	308.8	312.3	315.1	327.7	340.4	357.3	378.4	402.3	426.2
72.5°	264.4	265.1	265.9	265.1	268.0	279.9	292.6	308.8	329.1	352.4	374.2
75°	217.3	213.8	214.5	215.9	225.1	231.4	244.0	259.5	281.3	302.4	320.7
77.5°	168.8	167.4	170.9	170.9	179.3	187.1	197.6	213.1	232.1	251.1	265.9
80°	123.8	124.5	127.3	128.0	135.0	143.5	154.7	165.3	182.2	195.5	209.6
82.5°	83.7	85.1	88.6	93.5	96.4	101.3	111.1	122.4	134.3	148.4	156.8
85°	48.5	50.6	53.5	57.0	59.8	64.7	71.7	80.9	89.3	97.1	104.1
87.5°	23.9	23.9	26.0	27.4	29.5	32.4	37.3	40.8	46.4	52.0	54.9
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: P243502

CATALOG NUMBER: S124DR-H1195D835-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1723.1	1723.1	1723.1	1723.1
2.5°	1621.1	1620.4	1617.6	1619.0
5°	1529.7	1522.7	1522.0	1519.1
7.5°	1450.9	1448.8	1448.8	1443.2
10°	1390.4	1384.1	1385.5	1382.7
12.5°	1332.8	1329.3	1325.0	1320.8
15°	1268.1	1268.1	1268.1	1256.1
17.5°	1217.4	1216.7	1213.2	1212.5
20°	1164.7	1161.9	1152.7	1159.1
22.5°	1111.2	1109.1	1101.4	1102.8
25°	1061.3	1059.2	1057.8	1052.2
27.5°	1018.4	1019.1	1020.5	1017.0
30°	986.0	983.9	986.7	983.2
32.5°	955.8	955.8	953.0	953.7
35°	921.3	924.1	924.9	924.1
37.5°	891.1	894.6	897.4	894.6
40°	863.0	865.8	868.6	867.9
42.5°	833.4	838.3	840.5	842.6
45°	805.3	811.6	815.1	815.8
47.5°	776.5	784.2	791.2	790.5
50°	748.3	758.2	764.5	763.8
52.5°	720.2	730.0	737.8	741.3
55°	688.5	701.2	708.2	714.6
57.5°	656.9	671.0	678.0	680.8
60°	621.7	634.4	643.5	645.6
62.5°	582.3	595.7	607.7	610.5
65°	541.5	556.3	565.5	566.9
67.5°	494.4	508.5	517.6	521.9
70°	445.9	456.4	466.3	472.6
72.5°	391.7	404.4	413.5	417.8
75°	335.5	349.5	354.5	357.3
77.5°	277.1	285.5	293.3	294.0
80°	218.7	229.3	232.1	239.1
82.5°	161.1	170.9	168.8	171.6
85°	106.2	109.7	111.8	112.5
87.5°	56.3	58.4	59.8	60.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)