

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: P242637

Luminaire Tested: **S124DR-S1195D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242637
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-S1195D830-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4652.6 lumens
Efficiency: N/A
Efficacy: 113.2 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

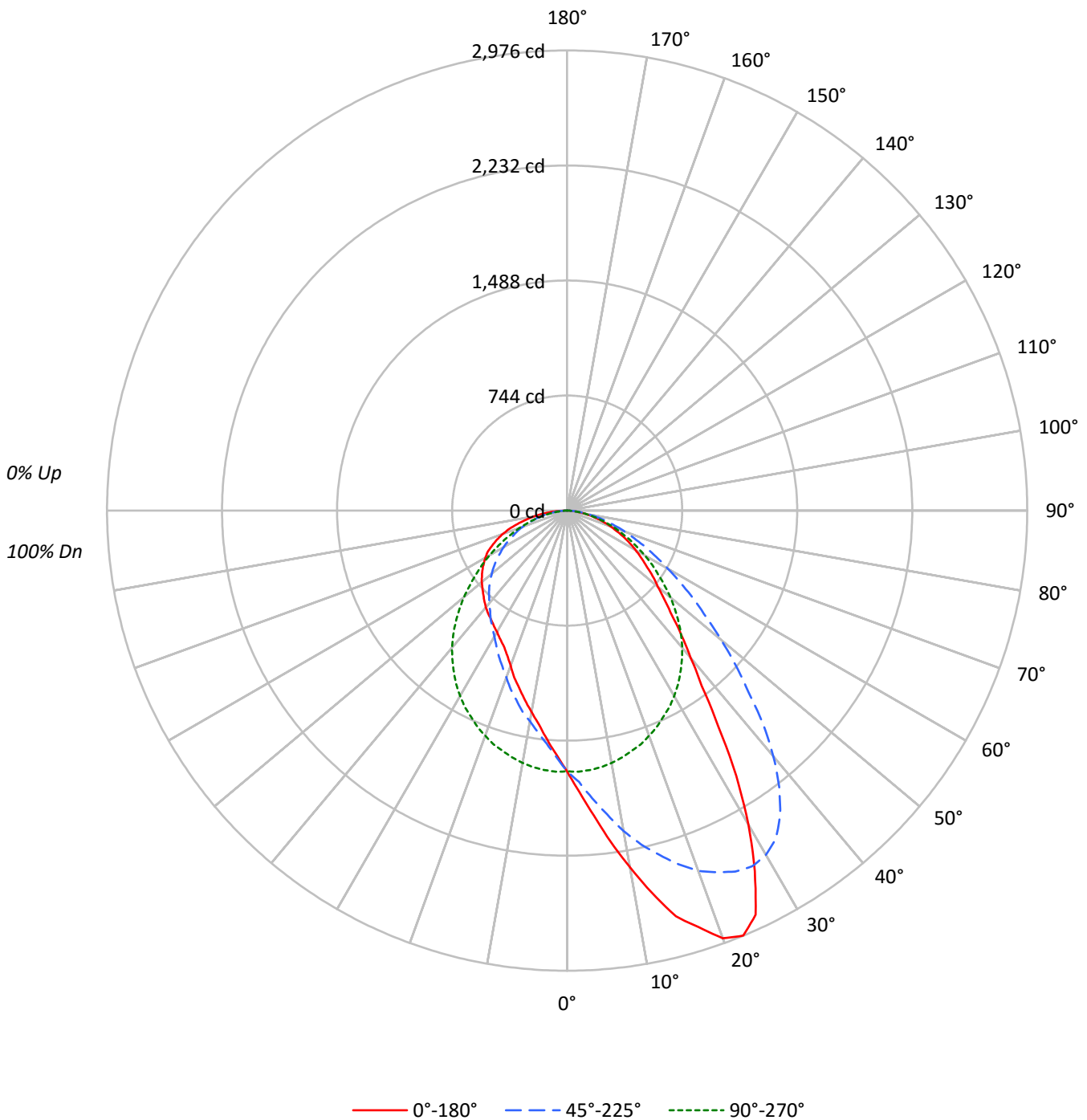
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	14988	14988	14988
5°	17650	15026	13262
10°	21133	14961	11941
15°	25003	14810	10966
20°	27842	14654	10096
25°	28293	14427	9495
30°	24073	14210	9305
35°	18509	13855	9307
40°	14427	13438	9483
45°	12029	12811	9641
50°	10586	12045	9968
55°	9698	11127	10369
60°	9090	10306	10853
65°	8462	9387	11253
70°	7732	8478	11508
75°	6910	7460	11371
80°	5795	6112	11011
85°	4273	4416	10546



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	164.1	3.5
10°-20°	506.5	10.9
20°-30°	804.6	17.3
30°-40°	894.1	19.2
40°-50°	813.1	17.5
50°-60°	664.4	14.3
60°-70°	474.3	10.2
70°-80°	261.0	5.6
80°-90°	70.5	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°	1475.2	31.7
0°-40°	2369.3	50.9
0°-60°	3846.8	82.7
0°-90°	4652.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4652.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1686	1686	1686	1686	1686	
5°	1978	1868	1684	1514	1486	200
15°	2717	2306	1609	1268	1192	768
25°	2885	2575	1471	1043	968	1280
35°	1706	2402	1277	861	858	1080
45°	957	1658	1019	714	767	752
55°	626	998	718	558	669	565
65°	402	556	446	388	535	398
75°	201	259	217	216	331	214
85°	42	54	43	62	103	51
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°	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1
2.5°	1821.6	1820.9	1813.9	1812.5	1807.6	1801.3	1799.9	1788.8	1766.4	1755.9	1753.1
5°	1978.1	1992.0	1973.9	1970.4	1968.3	1945.2	1933.4	1919.4	1887.3	1868.4	1853.7
7.5°	2161.1	2161.7	2154.1	2146.4	2133.1	2113.6	2087.0	2056.3	2019.3	1981.5	1955.0
10°	2341.3	2346.8	2337.8	2336.4	2300.7	2278.4	2233.7	2196.0	2152.7	2104.5	2060.5
12.5°	2531.2	2520.1	2516.6	2479.6	2480.2	2434.8	2381.1	2342.0	2269.3	2212.0	2149.9
15°	2717.0	2701.7	2691.9	2650.7	2630.4	2573.8	2518.7	2476.1	2388.7	2305.6	2242.8
17.5°	2824.6	2843.5	2818.3	2801.5	2746.4	2709.3	2654.2	2566.9	2501.9	2398.5	2326.6
20°	2943.3	2944.7	2932.2	2914.7	2873.5	2823.2	2761.7	2663.9	2582.2	2479.6	2370.6
22.5°	2975.5	2975.5	2972.0	2955.9	2927.3	2888.9	2826.7	2749.2	2645.8	2531.9	2423.0
25°	2884.7	2881.9	2888.2	2906.3	2894.4	2881.9	2846.2	2785.5	2693.3	2575.2	2457.9
27.5°	2627.6	2645.8	2683.5	2728.2	2760.3	2789.0	2786.9	2761.0	2695.4	2593.4	2468.4
30°	2345.4	2369.2	2395.7	2440.4	2527.0	2576.6	2631.1	2672.3	2649.3	2571.7	2457.2
32.5°	2035.3	2036.7	2079.3	2131.7	2209.2	2316.1	2410.4	2504.7	2545.2	2513.8	2423.0
35°	1705.7	1715.4	1758.0	1808.3	1905.4	2022.1	2152.0	2267.9	2363.6	2402.0	2353.1
37.5°	1429.1	1459.8	1491.9	1549.2	1637.9	1743.4	1883.1	2027.6	2168.0	2253.2	2262.3
40°	1243.3	1260.7	1282.4	1323.6	1396.2	1499.6	1615.5	1787.4	1938.9	2075.8	2120.5
42.5°	1096.6	1105.0	1116.1	1152.5	1203.5	1306.1	1409.5	1555.5	1707.7	1878.2	1960.6
45°	956.9	967.4	989.7	1011.4	1053.3	1124.5	1223.0	1347.3	1500.3	1658.2	1796.5
47.5°	852.1	859.1	873.1	896.8	934.5	982.7	1066.6	1172.0	1321.5	1474.5	1622.5
50°	765.5	771.1	781.6	802.5	829.8	871.7	937.3	1034.4	1145.5	1299.8	1444.4
52.5°	697.1	698.5	705.4	718.0	738.3	771.8	822.8	898.9	1000.2	1133.6	1277.5
55°	625.8	628.6	635.6	646.1	664.9	687.3	728.5	788.6	878.7	998.1	1123.1
57.5°	567.2	569.9	575.5	579.7	596.5	615.3	648.9	692.2	762.7	868.9	982.7
60°	511.3	509.9	516.9	520.4	530.8	546.2	570.6	611.9	671.2	752.9	855.6
62.5°	456.8	454.7	460.3	465.2	470.1	482.6	501.5	531.5	576.9	648.9	734.1
65°	402.3	399.5	403.0	408.6	414.2	421.2	435.8	464.5	502.9	556.0	623.7
67.5°	346.4	349.9	349.9	353.4	356.9	366.7	377.2	399.5	426.8	470.1	530.1
70°	297.5	298.2	301.0	301.0	303.1	311.5	319.9	331.8	358.3	397.4	444.2
72.5°	248.7	252.1	250.1	252.8	254.2	259.1	264.7	275.9	297.5	324.1	361.8
75°	201.2	203.3	203.3	204.0	206.0	208.1	213.0	221.4	237.5	259.1	286.4
77.5°	155.1	155.1	156.5	159.2	159.2	162.7	166.9	173.2	182.3	198.4	215.8
80°	113.2	114.5	113.8	115.2	115.2	118.0	119.4	127.8	131.3	141.1	154.4
82.5°	75.4	76.8	76.8	78.9	80.3	80.3	82.4	84.5	88.0	96.4	99.9
85°	41.9	43.3	41.9	43.3	45.4	46.1	48.2	48.9	51.7	53.8	58.7
87.5°	15.4	17.5	17.5	18.2	19.6	20.3	21.0	20.3	23.0	23.7	26.5
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°	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1
2.5°	1753.8	1744.1	1737.1	1731.5	1716.1	1707.0	1700.1	1690.3	1679.1	1667.2	1652.6
5°	1839.1	1815.3	1797.8	1771.3	1746.2	1725.2	1703.6	1684.0	1660.3	1634.4	1615.5
7.5°	1926.4	1893.5	1849.5	1815.3	1774.1	1738.5	1707.0	1674.2	1639.3	1605.8	1574.3
10°	2008.8	1963.4	1913.1	1853.7	1797.8	1748.3	1702.2	1657.5	1614.2	1570.8	1533.8
12.5°	2097.5	2038.1	1957.8	1885.9	1821.6	1751.1	1693.1	1635.8	1581.3	1535.2	1490.5
15°	2175.0	2093.3	2007.4	1914.5	1832.1	1754.5	1678.4	1609.3	1550.6	1490.5	1448.6
17.5°	2223.9	2122.6	2030.4	1933.4	1838.4	1741.3	1662.3	1584.8	1512.2	1453.5	1401.1
20°	2272.1	2171.5	2049.3	1952.2	1833.5	1732.9	1637.9	1549.2	1472.4	1408.8	1354.3
22.5°	2314.0	2193.9	2071.6	1936.1	1818.1	1709.8	1603.7	1514.3	1435.3	1367.6	1315.9
25°	2323.8	2190.4	2057.7	1930.6	1796.5	1670.0	1575.7	1471.0	1387.2	1316.6	1260.7
27.5°	2327.3	2186.2	2038.8	1900.5	1762.2	1647.0	1524.1	1432.6	1345.9	1271.2	1218.1
30°	2319.6	2170.8	2009.5	1856.5	1717.5	1589.7	1486.3	1384.4	1295.7	1221.6	1165.7
32.5°	2295.2	2138.7	1971.8	1807.6	1662.3	1538.0	1430.5	1334.8	1248.9	1176.2	1116.8
35°	2243.5	2090.5	1913.8	1745.5	1598.1	1471.7	1375.3	1276.8	1190.2	1121.0	1064.5
37.5°	2174.3	2031.8	1852.3	1677.0	1535.2	1406.7	1309.6	1218.8	1140.6	1069.3	1010.7
40°	2077.9	1956.4	1776.2	1606.5	1450.0	1329.2	1239.8	1158.1	1080.5	1014.2	959.0
42.5°	1966.9	1864.9	1702.2	1519.9	1370.4	1248.9	1162.2	1091.0	1019.1	959.0	903.8
45°	1830.7	1760.8	1604.4	1438.1	1281.0	1166.4	1083.3	1019.1	957.6	897.5	851.4
47.5°	1679.1	1640.0	1503.8	1344.5	1193.7	1079.1	1007.2	945.7	889.8	837.5	796.2
50°	1526.1	1509.4	1395.5	1243.3	1100.8	994.6	922.0	871.0	824.9	780.2	741.8
52.5°	1375.3	1378.8	1278.9	1142.7	1013.5	912.2	840.3	793.5	755.0	720.8	687.3
55°	1220.9	1240.5	1160.2	1035.8	917.8	825.6	760.6	718.0	690.1	660.0	634.2
57.5°	1079.1	1112.0	1042.1	928.3	828.4	740.4	683.1	650.3	619.5	600.0	579.7
60°	940.8	971.6	919.9	827.7	734.8	662.1	608.4	579.7	553.9	541.3	528.0
62.5°	817.9	844.4	809.5	725.7	648.2	579.0	535.7	508.5	493.1	479.1	471.5
65°	702.0	725.0	692.2	630.0	560.9	505.0	468.0	446.3	429.6	424.0	414.2
67.5°	587.4	608.4	590.9	536.4	477.7	433.7	404.4	381.4	371.6	366.0	359.7
70°	487.5	508.5	489.6	443.5	400.9	365.3	338.1	326.2	315.7	313.6	303.8
72.5°	403.0	415.6	396.7	363.2	328.3	299.6	280.1	267.5	263.3	259.1	254.9
75°	315.0	327.6	315.0	287.1	261.2	240.3	222.1	217.2	210.9	208.8	205.3
77.5°	236.1	248.0	238.2	219.3	199.1	181.6	171.1	164.1	163.4	159.2	160.6
80°	170.4	177.4	168.3	156.5	141.1	129.9	122.9	119.4	115.2	113.8	116.6
82.5°	110.4	112.5	109.0	102.0	91.5	85.2	81.0	76.8	76.8	77.5	76.8
85°	63.6	62.9	62.2	55.2	51.7	46.8	44.0	43.3	42.6	44.0	45.4
87.5°	26.5	27.2	26.5	23.7	21.7	19.6	18.9	18.2	18.9	19.6	20.3
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°	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1	1686.1
2.5°	1645.6	1639.3	1630.2	1617.6	1607.2	1596.0	1593.2	1589.0	1597.4	1590.4	1588.3
5°	1599.5	1584.8	1566.0	1544.3	1531.7	1513.6	1510.1	1503.1	1496.1	1495.4	1488.4
7.5°	1551.3	1531.0	1507.3	1484.9	1465.4	1445.8	1433.2	1431.9	1420.7	1415.1	1408.1
10°	1505.2	1478.6	1450.0	1429.1	1405.3	1384.4	1369.7	1361.3	1354.3	1346.6	1339.7
12.5°	1450.7	1422.1	1399.7	1376.7	1347.3	1332.7	1306.1	1290.1	1290.1	1292.2	1271.2
15°	1410.9	1383.0	1346.6	1314.5	1299.1	1268.4	1255.1	1238.4	1227.9	1217.4	1209.0
17.5°	1362.0	1327.8	1299.8	1263.5	1234.9	1211.8	1193.7	1184.6	1167.8	1152.5	1142.0
20°	1316.6	1279.6	1249.6	1210.4	1178.3	1148.3	1133.6	1119.6	1107.8	1095.2	1083.3
22.5°	1270.5	1231.4	1193.0	1155.3	1125.9	1093.8	1079.8	1059.6	1048.4	1042.8	1030.9
25°	1221.6	1179.7	1137.8	1101.5	1070.7	1042.8	1023.9	1009.3	996.7	991.1	983.4
27.5°	1168.5	1127.3	1087.5	1045.6	1010.0	989.7	974.4	962.5	954.8	946.4	942.9
30°	1118.2	1074.9	1031.6	993.2	961.1	940.8	926.9	919.2	913.6	910.1	906.6
32.5°	1067.3	1024.6	978.5	944.3	916.4	898.9	889.1	881.5	879.4	878.7	878.0
35°	1012.1	968.8	926.9	895.4	868.2	861.2	852.1	847.9	846.5	851.4	853.5
37.5°	959.0	918.5	879.4	847.9	829.8	818.6	815.1	814.4	819.3	823.5	828.4
40°	908.0	868.9	832.6	806.0	789.3	783.0	781.6	785.1	790.7	795.6	801.1
42.5°	858.4	820.0	787.9	763.4	752.9	747.4	748.8	752.2	760.6	766.9	776.0
45°	806.7	774.6	742.5	722.2	712.4	713.8	713.8	720.1	727.8	736.9	746.0
47.5°	758.5	725.7	698.5	681.0	676.1	674.0	677.5	685.9	696.4	706.8	719.4
50°	709.6	678.9	655.9	640.5	634.9	637.0	642.6	650.3	663.5	677.5	690.8
52.5°	660.0	632.8	611.9	597.9	594.4	598.6	604.2	617.4	628.6	644.0	660.7
55°	608.4	584.6	567.9	557.4	556.0	558.1	564.4	577.6	594.4	613.3	628.6
57.5°	557.4	537.1	521.1	513.4	514.1	515.5	525.2	541.3	558.1	578.3	597.9
60°	505.7	487.5	475.0	469.4	470.1	474.3	486.8	501.5	523.8	543.4	564.4
62.5°	456.8	441.4	429.6	424.7	423.3	433.7	445.6	461.0	483.3	505.7	528.7
65°	403.7	391.1	381.4	378.6	380.7	387.6	403.0	423.3	442.1	465.2	488.9
67.5°	352.0	341.5	334.6	336.0	338.1	347.8	361.1	378.6	399.5	423.3	447.7
70°	303.1	293.4	287.8	288.5	292.7	305.2	316.4	333.9	356.9	381.4	400.9
72.5°	252.8	247.3	242.4	245.9	250.1	257.7	272.4	289.9	309.4	331.8	352.7
75°	201.9	201.9	199.1	201.2	207.4	215.8	226.3	244.5	264.7	282.9	299.6
77.5°	158.6	156.5	157.9	159.9	164.1	174.6	186.5	199.8	215.8	234.7	248.7
80°	114.5	115.2	118.7	122.9	124.3	132.0	144.6	156.5	168.3	183.7	197.0
82.5°	78.9	79.6	81.0	86.6	88.0	96.4	103.4	115.2	125.7	134.8	145.3
85°	46.8	46.8	50.3	52.4	55.9	61.5	66.4	73.3	83.1	90.1	100.6
87.5°	22.4	22.4	25.1	26.5	28.6	32.1	33.5	41.2	44.0	47.5	53.8
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: P242637

CATALOG NUMBER: S124DR-S1195D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1686.1	1686.1	1686.1	1686.1
2.5°	1586.9	1585.5	1580.6	1579.9
5°	1484.2	1480.7	1478.6	1486.3
7.5°	1406.7	1403.9	1397.6	1395.5
10°	1332.7	1329.9	1324.3	1322.9
12.5°	1261.4	1255.1	1255.1	1257.2
15°	1200.0	1197.2	1189.5	1191.6
17.5°	1137.1	1134.3	1123.8	1134.3
20°	1078.4	1072.8	1068.0	1067.3
22.5°	1022.6	1017.7	1018.4	1012.8
25°	977.9	973.0	971.6	968.1
27.5°	941.5	938.7	935.9	937.3
30°	908.7	908.0	906.6	906.6
32.5°	881.5	881.5	882.9	882.9
35°	856.3	858.4	859.8	857.7
37.5°	834.0	835.4	837.5	839.6
40°	807.4	812.3	813.7	817.2
42.5°	782.3	787.9	792.1	792.1
45°	756.4	762.0	766.9	766.9
47.5°	729.9	737.6	742.5	743.2
50°	702.7	712.4	717.3	720.8
52.5°	676.1	685.9	692.9	694.3
55°	644.7	658.7	666.3	669.1
57.5°	616.7	629.3	637.7	639.8
60°	583.2	597.2	608.4	610.5
62.5°	549.0	563.7	573.4	579.7
65°	508.5	523.2	532.9	535.0
67.5°	465.9	481.2	487.5	491.7
70°	420.5	432.3	439.3	442.8
72.5°	368.8	381.4	389.7	389.7
75°	315.7	326.9	331.1	331.1
77.5°	260.5	266.8	272.4	273.8
80°	207.4	210.9	215.1	215.1
82.5°	153.0	155.8	159.9	159.2
85°	99.2	105.5	104.8	103.4
87.5°	55.9	56.6	58.7	60.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)