

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: P243600

Luminaire Tested: **S124RDR-H1195D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243600
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-70)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124RDR-H1195D830-X4F0-XX-UDD-A-W
Description: DEFINE 4 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4393.5 lumens
Efficiency: N/A
Efficacy: 116.5 lumens/watt
Spacing Criteria (0/90/45): 1.27 / 1.23 / 1.39
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

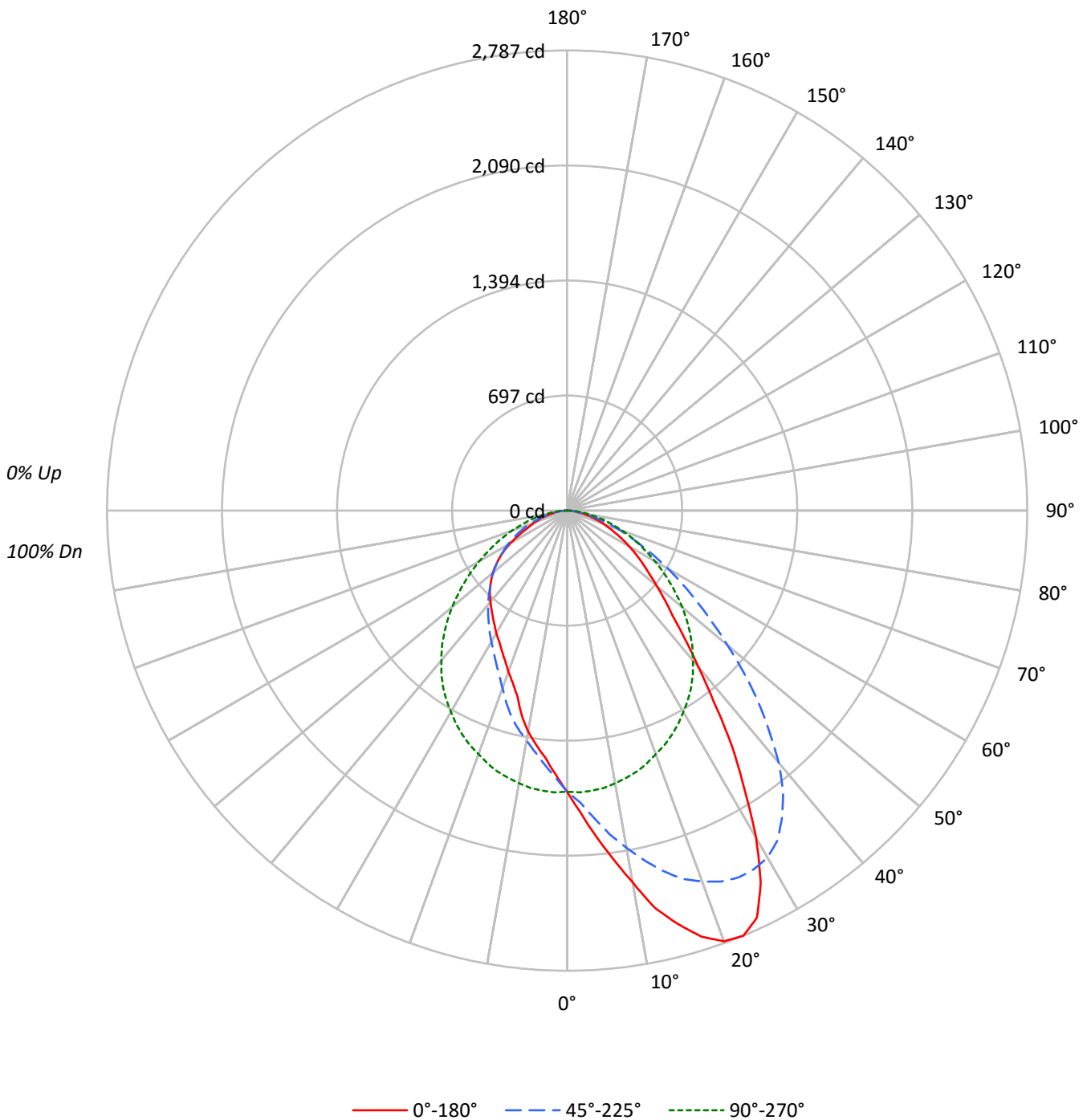
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	100	100	100	100	100	100		
1	110	105	102	98	107	103	100	97	99	96	93	95	93	91	92	90	88	86	86	86	86	86	86	86		
2	101	93	87	82	98	91	86	81	88	83	79	85	81	77	82	78	75	73	73	73	73	73	73	73		
3	92	83	75	69	90	81	74	68	78	72	67	76	70	66	73	69	65	63	63	63	63	63	63	63		
4	85	74	66	59	83	73	65	59	70	63	58	68	62	57	66	61	57	55	55	55	55	55	55	55		
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50	48	48	48	48	48	48	48		
6	73	60	52	46	71	59	51	45	58	50	45	56	50	45	54	49	44	42	42	42	42	42	42	42		
7	68	55	46	41	66	54	46	40	53	45	40	51	45	40	50	44	40	38	38	38	38	38	38	38		
8	63	50	42	36	62	50	42	36	48	41	36	47	41	36	46	40	36	34	34	34	34	34	34	34		
9	59	46	38	33	58	46	38	33	45	38	33	43	37	33	42	37	32	31	31	31	31	31	31	31		
10	56	43	35	30	54	42	35	30	41	35	30	40	34	30	39	34	30	28	28	28	28	28	28	28		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	15132	15132	15132
5°	17626	15196	13416
10°	20643	15132	12265
15°	23852	15055	10712
20°	26261	14843	9820
25°	26682	14707	9180
30°	23487	14445	8804
35°	18847	14200	8517
40°	14337	13746	8385
45°	11383	13241	8283
50°	9771	12587	8141
55°	8629	11773	7746
60°	7732	10924	7095
65°	6804	10094	5967
70°	6063	9166	5375
75°	5282	8332	4781
80°	4479	7161	4413
85°	3916	6150	4467



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	165.2	3.8
10°-20°	500.9	11.4
20°-30°	781.8	17.8
30°-40°	871.7	19.8
40°-50°	783.7	17.8
50°-60°	619.2	14.1
60°-70°	411.2	9.4
70°-80°	206.2	4.7
80°-90°	53.7	1.2
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°	1447.8	33.0
0°-40°	2319.6	52.8
0°-60°	3722.4	84.7
0°-90°	4393.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4393.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1702	1702	1702	1702	1702	
5°	1975	1869	1703	1546	1504	198
15°	2592	2262	1636	1296	1164	737
25°	2720	2452	1500	1019	936	1217
35°	1737	2269	1309	828	785	1079
45°	906	1635	1053	662	659	717
55°	557	960	760	502	500	502
65°	324	492	480	329	284	324
75°	154	195	243	162	139	165
85°	38	41	60	45	44	43
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°	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3
2.5°	1828.3	1821.6	1821.0	1812.4	1811.7	1803.1	1800.4	1793.1	1778.6	1767.3	1767.9
5°	1975.4	1970.1	1969.5	1960.9	1958.2	1947.6	1931.0	1911.1	1887.9	1868.7	1856.1
7.5°	2126.6	2135.9	2125.9	2125.9	2106.7	2094.1	2061.6	2045.0	2005.3	1977.4	1948.3
10°	2287.0	2295.6	2291.6	2283.7	2258.5	2232.6	2198.8	2166.4	2118.0	2074.2	2045.0
12.5°	2466.0	2440.1	2456.7	2432.2	2411.6	2370.5	2338.0	2273.1	2234.6	2171.0	2114.0
15°	2591.9	2582.0	2581.3	2564.8	2542.2	2497.1	2462.0	2394.4	2328.8	2261.8	2197.5
17.5°	2704.6	2705.9	2696.7	2670.2	2641.0	2597.2	2549.5	2489.2	2414.3	2340.0	2263.8
20°	2776.2	2776.9	2770.3	2756.3	2724.5	2684.7	2635.7	2556.8	2471.9	2389.7	2313.5
22.5°	2786.8	2788.8	2786.8	2778.2	2756.3	2723.8	2678.8	2611.8	2526.3	2432.2	2341.4
25°	2720.5	2727.2	2727.8	2739.8	2728.5	2715.9	2682.7	2626.4	2547.5	2452.1	2353.3
27.5°	2538.9	2557.5	2574.7	2595.9	2615.1	2632.4	2635.0	2605.2	2537.6	2448.7	2354.6
30°	2288.3	2310.2	2344.7	2367.2	2426.9	2464.7	2515.7	2527.0	2494.5	2426.2	2335.4
32.5°	1996.6	2019.9	2033.1	2107.4	2192.9	2254.5	2339.4	2389.7	2402.3	2369.9	2295.6
35°	1736.8	1740.8	1750.7	1834.9	1919.8	2013.2	2118.6	2206.1	2265.8	2269.1	2232.6
37.5°	1458.4	1463.0	1502.1	1566.4	1640.0	1742.8	1864.1	1988.7	2098.1	2148.5	2137.8
40°	1235.6	1234.3	1276.1	1331.8	1403.4	1510.1	1635.4	1771.3	1887.9	1993.3	2018.5
42.5°	1055.3	1060.0	1095.8	1128.3	1197.2	1272.1	1406.0	1547.2	1697.0	1812.4	1889.3
45°	905.5	917.5	942.0	972.5	1024.2	1093.1	1202.5	1343.0	1496.2	1634.7	1726.8
47.5°	802.1	805.4	818.0	855.8	890.3	946.0	1039.4	1158.7	1294.6	1449.8	1571.1
50°	706.6	714.6	719.2	741.8	775.6	828.6	900.9	989.7	1124.3	1266.8	1418.6
52.5°	624.4	629.1	637.7	658.3	684.8	721.9	778.9	857.1	969.2	1101.1	1244.3
55°	556.8	557.5	566.1	580.7	601.2	629.8	684.1	740.5	839.9	959.9	1089.8
57.5°	495.8	491.9	499.8	508.4	528.3	552.9	588.0	645.7	723.2	825.3	942.6
60°	434.9	438.2	437.5	447.5	458.1	482.6	512.4	550.2	613.8	707.3	806.7
62.5°	377.9	377.2	383.8	389.8	397.1	417.0	441.5	472.6	522.4	591.3	687.4
65°	323.5	324.8	330.1	334.8	342.7	355.3	373.9	399.1	438.8	491.9	572.7
67.5°	274.4	279.1	281.7	283.1	290.3	299.6	315.5	336.1	363.3	405.7	473.3
70°	233.3	234.7	236.0	240.6	243.9	249.2	261.2	272.5	297.0	328.1	377.2
72.5°	194.9	193.6	197.5	198.9	200.2	205.5	212.8	218.8	234.7	261.2	291.7
75°	153.8	154.5	155.1	157.1	162.4	163.1	166.4	173.0	184.3	194.9	215.4
77.5°	115.3	117.3	116.7	118.7	120.6	122.6	124.0	129.9	137.9	146.5	156.4
80°	87.5	87.5	87.5	88.8	87.5	92.1	92.1	94.1	96.1	100.1	107.4
82.5°	59.7	61.0	61.6	62.3	63.0	63.0	63.6	65.0	67.6	68.9	70.9
85°	38.4	37.1	37.8	37.8	37.8	37.8	39.1	40.4	40.4	41.1	43.1
87.5°	17.2	17.2	17.2	17.2	16.6	17.2	17.9	17.9	18.6	18.6	19.9
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°	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3
2.5°	1764.0	1762.0	1752.0	1741.4	1731.5	1721.5	1718.2	1708.3	1696.4	1685.7	1673.8
5°	1842.9	1826.9	1805.1	1782.5	1759.3	1738.1	1721.5	1703.0	1681.8	1656.6	1636.7
7.5°	1922.4	1893.2	1857.4	1824.3	1784.5	1752.7	1720.9	1694.4	1663.9	1628.1	1600.9
10°	2000.0	1951.6	1907.8	1855.5	1805.1	1761.3	1720.9	1676.5	1636.0	1597.6	1559.8
12.5°	2061.6	2013.2	1950.2	1885.9	1821.0	1764.0	1709.6	1657.2	1606.9	1560.5	1518.7
15°	2131.9	2062.3	1984.7	1913.8	1825.0	1754.7	1692.4	1636.0	1578.4	1522.0	1476.3
17.5°	2183.6	2101.4	2005.3	1923.7	1838.2	1750.7	1675.8	1604.9	1538.6	1479.6	1432.5
20°	2223.4	2125.9	2029.8	1926.4	1824.3	1734.8	1650.6	1569.1	1502.1	1437.8	1388.1
22.5°	2240.6	2137.8	2031.1	1919.1	1810.4	1709.0	1621.4	1537.3	1461.7	1395.4	1337.7
25°	2247.9	2135.2	2024.5	1897.2	1787.2	1683.8	1586.3	1499.5	1421.9	1347.0	1290.0
27.5°	2241.9	2121.3	1994.0	1874.0	1749.4	1648.0	1544.6	1456.4	1375.5	1303.3	1239.6
30°	2226.0	2089.5	1962.8	1828.3	1708.3	1601.6	1500.8	1407.3	1325.8	1252.2	1189.2
32.5°	2184.9	2053.7	1909.8	1778.6	1649.3	1543.9	1452.4	1360.3	1277.4	1200.5	1139.5
35°	2133.9	2005.3	1854.8	1717.6	1589.6	1482.9	1390.8	1308.6	1227.0	1145.5	1083.2
37.5°	2069.6	1939.0	1793.8	1646.0	1520.7	1417.3	1333.1	1250.2	1169.4	1094.4	1024.8
40°	1982.7	1863.4	1717.6	1569.1	1443.1	1343.7	1260.8	1184.6	1113.0	1039.4	964.5
42.5°	1874.7	1783.9	1633.4	1486.9	1363.6	1264.8	1191.2	1122.9	1054.0	978.4	910.8
45°	1759.3	1681.8	1545.2	1397.4	1280.1	1183.9	1113.7	1053.3	988.4	921.4	850.5
47.5°	1629.4	1571.7	1453.7	1307.2	1183.9	1101.7	1036.8	981.8	922.8	863.1	794.2
50°	1482.9	1447.8	1347.0	1213.8	1096.4	1012.9	959.2	910.2	859.8	800.1	741.1
52.5°	1336.4	1329.8	1235.6	1118.3	1007.6	930.0	877.7	832.6	791.5	735.2	685.4
55°	1182.6	1202.5	1124.3	1016.2	917.5	842.5	796.1	759.7	723.9	676.2	628.4
57.5°	1046.1	1068.6	1014.9	915.5	823.3	759.7	719.9	686.8	655.6	611.9	580.0
60°	894.9	936.0	907.5	816.7	735.2	678.1	641.0	614.5	588.7	550.9	523.0
62.5°	775.6	804.1	787.5	719.9	647.7	601.2	568.1	543.6	523.0	493.9	466.7
65°	647.7	683.4	674.8	630.4	566.8	524.4	499.2	479.9	458.7	435.5	413.0
67.5°	532.3	569.4	567.4	536.9	489.9	454.7	430.9	417.0	399.7	377.2	363.3
70°	428.2	462.7	464.0	448.8	415.6	382.5	365.3	352.7	339.4	322.8	312.9
72.5°	332.8	363.9	369.2	361.9	340.7	318.9	303.6	295.0	283.7	269.8	261.2
75°	248.6	271.1	283.7	280.4	271.8	257.2	248.6	242.6	231.4	221.4	214.1
77.5°	177.0	194.9	207.5	212.8	208.8	202.8	194.9	190.3	178.3	173.7	169.7
80°	118.7	134.6	145.8	149.2	151.1	149.8	142.5	139.9	133.9	131.9	127.9
82.5°	72.9	81.5	89.5	98.1	102.1	102.1	98.1	98.8	93.5	90.8	89.5
85°	44.4	46.4	47.7	54.4	59.7	61.6	59.7	60.3	58.3	56.3	54.4
87.5°	20.5	20.5	21.2	22.5	23.9	27.8	29.2	31.2	28.5	28.5	23.9
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°	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3	1702.3
2.5°	1666.5	1657.9	1651.3	1640.7	1632.1	1618.1	1613.5	1613.5	1616.1	1612.8	1616.1
5°	1622.8	1606.9	1589.6	1574.4	1557.8	1545.9	1533.9	1531.3	1530.0	1522.0	1522.7
7.5°	1579.0	1557.8	1535.9	1516.0	1495.5	1476.9	1464.3	1459.0	1454.4	1449.1	1443.1
10°	1532.0	1507.4	1481.6	1459.0	1439.2	1414.0	1401.4	1397.4	1384.1	1381.5	1372.2
12.5°	1482.2	1457.0	1431.2	1402.0	1382.8	1358.3	1339.7	1331.1	1318.5	1309.2	1295.3
15°	1443.1	1411.3	1376.8	1348.3	1323.1	1296.0	1270.8	1254.2	1237.6	1211.8	1199.2
17.5°	1394.7	1358.3	1328.4	1298.0	1261.5	1221.7	1191.9	1167.4	1149.5	1128.3	1115.7
20°	1342.4	1308.6	1271.4	1228.4	1189.9	1144.8	1117.6	1097.1	1083.2	1070.6	1064.0
22.5°	1296.0	1256.9	1205.8	1164.7	1111.0	1075.2	1053.3	1040.1	1026.8	1013.6	1006.9
25°	1245.6	1199.8	1137.5	1087.2	1046.7	1018.9	997.7	985.1	971.1	963.2	953.2
27.5°	1195.9	1136.9	1074.6	1028.8	997.0	964.5	946.6	936.7	926.1	914.8	906.8
30°	1135.5	1068.6	1016.9	975.1	943.3	916.1	902.9	888.3	879.0	872.4	867.7
32.5°	1072.6	1008.3	961.2	925.4	894.2	873.7	857.1	847.8	839.9	832.6	827.3
35°	1013.6	951.3	911.5	877.0	851.2	828.0	815.4	806.7	800.1	794.2	791.5
37.5°	955.2	902.2	859.1	831.9	804.8	786.2	774.3	766.3	762.3	756.4	757.0
40°	897.6	849.8	815.4	784.2	759.0	743.1	733.8	730.5	724.5	722.6	724.5
42.5°	845.9	802.1	769.0	739.8	717.9	702.7	695.4	690.7	688.8	688.1	688.8
45°	795.5	754.4	722.6	698.7	676.2	662.2	656.3	653.0	651.0	654.3	654.9
47.5°	745.1	708.0	679.5	651.6	633.1	623.1	617.2	614.5	616.5	617.8	622.5
50°	695.4	660.9	631.1	606.6	592.0	582.7	580.7	576.1	579.4	581.4	584.7
52.5°	645.0	613.8	587.3	564.1	548.9	542.9	538.3	536.3	540.9	540.9	544.2
55°	594.0	566.8	542.3	521.0	509.1	501.8	498.5	495.8	498.5	499.2	498.5
57.5°	546.2	520.4	494.5	476.6	466.7	458.7	455.4	454.1	453.4	456.1	455.4
60°	495.8	471.3	450.8	432.2	422.3	417.6	410.3	411.7	411.7	411.7	405.0
62.5°	445.5	420.9	403.0	390.4	378.5	370.6	369.2	367.2	363.3	362.6	354.0
65°	393.8	375.2	360.0	347.4	335.4	328.8	326.8	320.8	316.2	307.6	301.6
67.5°	346.0	332.8	314.9	304.3	294.3	286.4	279.1	274.4	265.2	256.5	251.2
70°	298.3	284.4	272.5	261.2	251.2	243.9	235.3	226.7	220.7	215.4	211.5
72.5°	250.6	238.6	228.7	218.1	207.5	200.2	193.6	186.9	184.3	181.6	179.6
75°	206.2	194.9	185.6	177.0	171.0	162.4	159.1	156.4	153.8	150.5	146.5
77.5°	163.1	154.5	147.2	139.9	134.6	129.9	127.3	119.3	112.7	111.4	110.0
80°	121.3	114.7	110.0	104.7	98.8	92.1	90.2	87.5	86.2	86.2	86.8
82.5°	84.9	80.9	75.6	70.9	68.9	66.3	66.3	65.6	65.0	65.6	65.6
85°	51.7	46.4	45.1	44.4	45.1	45.1	45.1	45.1	44.4	45.1	43.8
87.5°	22.5	24.5	25.2	23.2	23.9	22.5	23.2	23.2	23.2	23.9	23.2
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: P243600

CATALOG NUMBER: S124RDR-H1195D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1702.3	1702.3	1702.3	1702.3
2.5°	1612.2	1612.2	1605.5	1600.2
5°	1521.4	1512.7	1511.4	1503.5
7.5°	1436.5	1435.2	1431.9	1431.9
10°	1368.9	1364.2	1359.6	1358.9
12.5°	1273.4	1280.1	1272.1	1270.1
15°	1189.9	1184.6	1178.0	1164.0
17.5°	1112.3	1102.4	1099.7	1093.8
20°	1051.4	1044.1	1041.4	1038.1
22.5°	993.7	992.4	984.4	982.4
25°	951.3	944.6	939.3	936.0
27.5°	904.9	900.2	897.6	892.3
30°	862.4	861.1	857.8	857.8
32.5°	824.0	820.0	820.0	819.3
35°	788.8	790.2	786.2	784.9
37.5°	755.7	753.7	754.4	753.1
40°	723.2	721.9	721.9	722.6
42.5°	690.1	690.7	692.1	692.1
45°	656.9	657.6	658.9	658.9
47.5°	625.8	624.4	625.8	624.4
50°	586.0	590.0	589.3	588.7
52.5°	545.6	544.2	546.9	546.2
55°	501.8	499.8	502.5	499.8
57.5°	452.8	453.4	453.4	452.1
60°	403.7	401.7	399.1	399.1
62.5°	346.7	340.7	336.8	339.4
65°	291.7	287.0	285.7	283.7
67.5°	247.9	242.6	240.6	240.0
70°	210.1	207.5	206.8	206.8
72.5°	178.3	178.3	176.3	175.0
75°	145.2	142.5	139.2	139.2
77.5°	108.7	108.1	107.4	107.4
80°	84.9	84.9	85.5	86.2
82.5°	63.6	64.3	65.0	65.0
85°	43.1	43.1	43.8	43.8
87.5°	23.2	23.2	23.2	22.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)