

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: P242755

Luminaire Tested: **S124RDR-S1195D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242755
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-31)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124RDR-S1195D930-X4F0-XX-UDD-A-W
Description: DEFINE 4 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3790.7 lumens
Efficiency: N/A
Efficacy: 92.2 lumens/watt
Spacing Criteria (0/90/45): 1.27 / 1.22 / 1.39
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

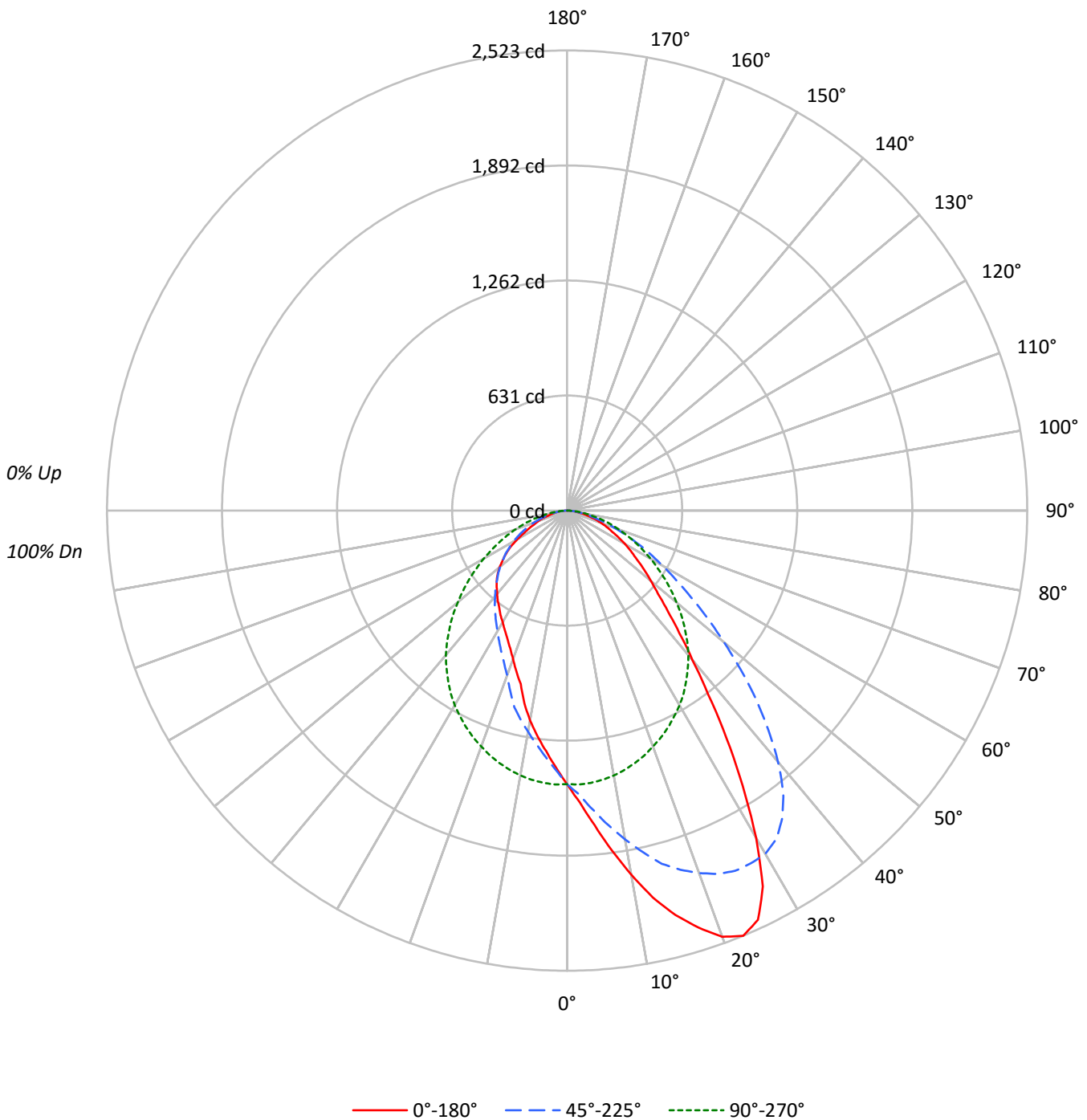
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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			
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88					86				
2	101	93	87	82	98	92	86	81	88	83	79	85	81	77	82	79	76					74				
3	93	83	76	70	90	81	75	69	79	73	68	76	71	67	73	69	65					63				
4	85	74	66	60	83	73	65	59	71	64	59	68	63	58	66	61	57					55				
5	79	67	58	52	77	66	58	52	64	57	51	62	56	51	60	55	50					48				
6	73	61	52	46	71	60	52	46	58	51	46	56	50	45	55	49	45					43				
7	68	55	47	41	66	54	47	41	53	46	41	52	45	40	50	44	40					38				
8	64	51	42	37	62	50	42	37	49	42	37	47	41	36	46	40	36					34				
9	59	47	39	33	58	46	38	33	45	38	33	44	38	33	43	37	33					31				
10	56	43	35	30	55	43	35	30	42	35	30	41	34	30	40	34	30					28				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	13330	13330	13330
5°	15462	13369	11817
10°	18290	13312	10547
15°	21127	13188	9063
20°	23524	13019	8196
25°	24283	12852	7609
30°	21258	12650	7256
35°	16547	12352	7041
40°	12409	12009	6926
45°	9798	11461	6866
50°	8271	10828	6667
55°	7209	10131	6311
60°	6487	9410	5586
65°	5719	8628	4804
70°	5151	7820	4335
75°	4317	6931	3692
80°	3650	5907	3466
85°	3080	4620	3080



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	145.2	3.8
10°-20°	438.5	11.6
20°-30°	686.9	18.1
30°-40°	762.7	20.1
40°-50°	675.9	17.8
50°-60°	526.7	13.9
60°-70°	344.5	9.1
70°-80°	169.0	4.5
80°-90°	41.2	1.1
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°	1270.5	33.5
0°-40°	2033.3	53.6
0°-60°	3235.9	85.4
0°-90°	3790.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3790.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1500	1500	1500	1500	1500	
5°	1733	1649	1498	1356	1324	174
15°	2296	2005	1433	1116	985	653
25°	2476	2180	1310	854	776	1106
35°	1525	2056	1138	686	649	954
45°	779	1465	912	546	546	615
55°	465	829	654	411	407	423
65°	272	426	410	266	228	273
75°	126	162	202	129	108	138
85°	30	33	45	32	30	35
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°	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6
2.5°	1602.3	1607.7	1602.3	1601.7	1595.6	1593.8	1591.4	1583.5	1569.0	1560.6	1562.4
5°	1732.8	1747.9	1739.4	1738.2	1724.9	1711.6	1703.2	1683.8	1663.3	1649.4	1637.9
7.5°	1877.8	1886.8	1880.8	1874.1	1851.2	1843.9	1824.0	1801.0	1766.6	1740.6	1717.1
10°	2026.4	2033.6	2031.2	2015.5	1999.8	1967.8	1949.7	1914.0	1867.5	1830.6	1796.2
12.5°	2172.6	2180.5	2154.5	2159.3	2126.1	2102.5	2071.1	2024.0	1968.4	1918.2	1872.9
15°	2295.8	2286.2	2286.2	2274.1	2240.9	2205.8	2176.2	2129.1	2061.4	2004.6	1944.8
17.5°	2397.3	2401.6	2396.7	2365.9	2341.8	2306.1	2253.0	2199.2	2140.6	2064.5	2005.2
20°	2486.8	2486.8	2481.3	2462.0	2428.2	2389.5	2330.9	2271.1	2191.3	2114.6	2045.7
22.5°	2523.0	2525.4	2518.8	2503.7	2474.1	2436.6	2388.9	2327.9	2245.1	2156.3	2066.9
25°	2475.9	2487.4	2488.6	2484.3	2475.3	2452.3	2409.4	2347.2	2273.5	2179.8	2088.0
27.5°	2323.6	2338.7	2344.8	2358.1	2382.8	2391.9	2386.5	2344.8	2273.5	2181.1	2089.8
30°	2071.1	2083.2	2122.5	2173.8	2213.7	2249.9	2281.3	2289.8	2253.6	2172.6	2075.3
32.5°	1790.8	1808.3	1847.6	1903.7	1976.8	2044.5	2124.9	2167.8	2175.6	2135.1	2046.9
35°	1524.9	1537.0	1573.3	1631.3	1711.0	1802.2	1914.0	2001.0	2060.2	2056.0	2001.0
37.5°	1270.0	1286.9	1323.7	1371.5	1450.0	1566.6	1672.3	1788.9	1895.3	1947.2	1919.4
40°	1069.4	1070.0	1105.6	1155.2	1227.7	1326.2	1444.0	1576.9	1698.9	1798.6	1817.9
42.5°	911.1	911.1	931.6	986.0	1033.1	1124.4	1235.5	1367.2	1515.3	1634.3	1693.5
45°	779.4	784.8	804.2	836.2	877.3	955.8	1045.8	1168.5	1328.6	1465.1	1550.3
47.5°	675.5	685.1	696.6	725.6	759.4	814.4	891.2	1005.9	1138.9	1290.5	1408.3
50°	598.1	599.3	615.0	629.5	657.9	699.6	764.9	856.7	976.3	1120.7	1255.5
52.5°	531.7	531.1	538.9	558.3	580.0	610.2	659.8	741.3	844.0	969.7	1109.9
55°	465.2	468.2	475.5	490.0	507.5	530.5	572.1	635.0	718.4	828.9	955.2
57.5°	414.5	416.3	422.9	428.4	445.3	462.2	496.0	541.3	614.4	706.9	830.7
60°	364.9	365.5	367.3	376.4	389.1	404.8	425.9	462.8	522.0	604.8	697.8
62.5°	316.6	317.8	320.8	326.9	335.9	345.6	367.9	395.7	442.3	509.9	591.5
65°	271.9	272.5	276.7	279.1	287.0	296.6	313.0	332.9	366.7	425.9	489.4
67.5°	234.4	234.4	234.4	238.0	244.1	250.7	261.6	278.5	305.7	343.8	403.0
70°	198.2	198.2	199.4	201.2	204.2	209.6	215.1	227.2	245.9	275.5	318.4
72.5°	164.3	164.9	166.1	166.1	167.4	171.6	175.2	181.9	194.5	215.1	247.7
75°	125.7	127.5	130.5	132.9	135.9	135.3	139.6	144.4	148.6	161.9	181.9
77.5°	99.1	97.9	97.9	100.3	100.9	101.5	104.5	108.8	112.4	119.6	126.9
80°	71.3	71.3	73.1	73.7	73.1	73.7	76.7	78.5	79.8	82.2	88.8
82.5°	49.5	50.8	49.5	50.1	50.8	51.4	53.8	53.8	55.0	55.6	57.4
85°	30.2	30.8	31.4	30.2	30.2	30.2	31.4	32.0	33.2	32.6	33.8
87.5°	13.3	12.7	13.3	13.3	13.9	13.3	13.9	15.1	13.9	14.5	14.5
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°	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6
2.5°	1556.3	1547.9	1543.7	1534.0	1522.5	1516.5	1511.0	1503.2	1492.9	1482.0	1474.2
5°	1623.4	1608.9	1590.8	1569.0	1549.7	1531.0	1514.7	1498.3	1479.6	1460.3	1440.9
7.5°	1689.9	1663.9	1636.1	1602.9	1570.8	1541.2	1514.7	1488.7	1459.1	1432.5	1407.7
10°	1759.9	1721.3	1678.4	1633.1	1587.8	1548.5	1509.8	1474.8	1436.1	1401.7	1372.7
12.5°	1816.7	1769.6	1715.8	1656.6	1599.8	1550.3	1504.4	1456.1	1410.7	1372.7	1331.6
15°	1880.8	1818.6	1749.1	1681.4	1610.7	1546.1	1486.3	1433.1	1382.9	1330.4	1293.5
17.5°	1924.9	1853.0	1770.8	1692.3	1611.3	1536.4	1468.7	1407.1	1349.7	1297.2	1253.7
20°	1963.6	1882.0	1788.3	1695.9	1602.3	1520.7	1446.4	1376.3	1316.5	1258.5	1213.2
22.5°	1985.3	1892.9	1788.3	1690.5	1592.6	1502.6	1419.2	1345.5	1279.0	1221.0	1169.7
25°	1986.5	1889.8	1785.3	1674.2	1567.8	1474.2	1389.6	1310.4	1237.9	1179.9	1126.8
27.5°	1981.7	1869.9	1764.8	1651.8	1542.4	1442.8	1355.2	1271.2	1199.3	1137.7	1083.3
30°	1967.2	1845.1	1730.3	1611.9	1500.8	1405.9	1312.3	1232.5	1157.0	1092.3	1037.4
32.5°	1935.8	1814.9	1689.3	1567.2	1454.2	1355.8	1268.2	1187.8	1114.1	1047.6	988.4
35°	1892.3	1769.6	1635.5	1511.0	1400.5	1299.0	1215.6	1138.3	1067.6	996.9	935.3
37.5°	1842.1	1714.0	1581.7	1445.2	1335.2	1238.5	1160.6	1086.3	1017.4	952.8	884.5
40°	1764.8	1650.6	1512.8	1377.5	1263.9	1171.5	1100.8	1034.9	965.5	901.4	833.2
42.5°	1671.1	1578.1	1438.5	1302.6	1190.8	1102.6	1038.0	973.9	912.3	850.7	778.8
45°	1564.8	1491.1	1360.6	1230.1	1117.1	1028.9	968.5	911.7	856.1	796.9	729.8
47.5°	1446.4	1392.0	1278.4	1141.9	1036.2	955.2	897.2	850.1	801.1	741.3	680.9
50°	1321.9	1289.9	1181.2	1059.1	959.4	886.3	826.5	783.0	743.7	686.9	634.4
52.5°	1189.0	1175.7	1088.1	972.7	877.3	806.0	757.0	719.0	679.1	634.4	586.0
55°	1053.7	1062.7	984.8	883.9	793.3	732.9	686.3	653.7	619.9	580.0	541.9
57.5°	912.9	947.3	889.3	798.1	710.5	653.7	618.1	589.1	560.7	526.8	492.4
60°	789.0	816.8	787.2	709.3	635.0	583.0	550.4	529.3	500.9	470.6	445.9
62.5°	668.2	698.4	683.9	624.7	557.0	514.1	486.4	467.0	447.7	422.3	396.3
65°	570.9	590.3	581.8	538.3	489.4	451.3	424.7	410.2	390.9	371.6	348.6
67.5°	456.8	494.8	488.8	464.6	417.5	387.3	368.5	355.3	337.1	322.6	306.3
70°	359.5	393.9	393.3	374.6	351.6	323.8	311.8	300.9	285.2	271.3	258.6
72.5°	277.9	308.7	314.8	301.5	287.6	268.3	256.8	250.1	235.0	226.6	216.9
75°	206.0	229.0	235.0	235.0	227.8	216.9	206.6	201.8	190.9	182.5	176.4
77.5°	145.0	160.7	169.8	171.6	172.2	168.0	158.3	154.7	146.2	143.2	136.5
80°	95.5	105.1	116.0	119.6	122.6	121.4	117.8	115.4	107.5	104.5	102.1
82.5°	58.6	62.8	71.3	80.4	78.5	82.8	79.8	77.9	72.5	71.9	69.5
85°	34.4	35.0	36.3	41.7	44.7	45.9	46.5	45.3	43.5	43.5	39.3
87.5°	14.5	13.9	15.1	15.1	15.7	18.1	19.9	20.5	18.7	16.9	15.1
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°	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6	1499.6
2.5°	1465.7	1459.7	1451.8	1442.8	1431.9	1422.2	1418.0	1421.6	1423.4	1418.6	1418.0
5°	1427.7	1412.6	1400.5	1382.3	1367.8	1355.8	1347.3	1343.7	1344.9	1335.2	1332.8
7.5°	1385.4	1369.1	1349.1	1328.6	1309.2	1292.3	1283.3	1279.0	1268.8	1264.5	1257.9
10°	1344.9	1320.7	1301.4	1276.0	1253.0	1231.9	1221.6	1213.2	1202.9	1198.1	1187.8
12.5°	1303.2	1274.2	1252.4	1225.9	1202.3	1175.7	1166.0	1148.5	1131.0	1119.5	1105.6
15°	1264.5	1230.7	1204.7	1173.3	1145.5	1116.5	1090.5	1061.5	1050.7	1027.7	1014.4
17.5°	1218.6	1183.6	1154.6	1114.1	1072.4	1037.4	1008.4	978.2	961.8	946.1	939.5
20°	1173.3	1141.9	1097.2	1048.2	1000.5	960.6	938.3	920.2	902.0	891.8	884.5
22.5°	1130.4	1088.1	1034.3	980.6	932.8	903.8	885.7	867.0	853.1	843.4	833.2
25°	1081.5	1028.9	973.9	913.5	880.9	853.7	833.2	818.0	809.0	796.3	791.5
27.5°	1033.7	970.3	908.1	867.0	833.2	807.2	788.4	777.6	765.5	757.0	750.4
30°	976.9	912.3	857.9	819.3	784.8	764.3	749.8	736.5	727.4	720.8	715.9
32.5°	920.8	856.1	812.6	770.3	744.9	725.0	709.3	700.2	693.6	684.5	682.1
35°	867.0	809.6	769.7	732.3	704.5	686.3	674.3	664.0	657.9	655.5	653.7
37.5°	814.4	766.7	722.6	692.4	666.4	652.5	636.8	632.0	627.7	622.3	624.7
40°	764.9	720.8	682.7	650.1	630.1	614.4	606.0	599.9	596.3	596.3	596.3
42.5°	722.0	679.1	642.2	613.8	593.9	581.2	571.5	566.7	566.1	565.5	569.1
45°	677.3	637.4	599.9	575.8	558.9	545.6	540.1	535.9	535.9	538.3	538.9
47.5°	632.6	595.1	564.9	537.1	521.4	512.9	508.1	505.7	505.7	508.7	511.1
50°	592.1	555.2	525.6	501.5	487.0	479.1	474.9	473.7	474.9	474.9	479.1
52.5°	548.0	516.0	487.0	467.6	450.7	443.5	441.6	439.8	440.4	442.9	444.1
55°	505.1	475.5	447.7	428.4	416.3	411.4	406.0	406.6	405.4	406.6	406.6
57.5°	461.6	435.6	408.4	392.7	382.4	375.2	369.1	371.0	369.1	369.1	368.5
60°	419.9	390.9	370.4	356.5	344.4	338.3	332.9	334.1	332.3	331.1	328.7
62.5°	374.6	351.6	332.3	319.0	309.9	302.7	297.3	295.4	290.6	285.8	279.7
65°	331.1	311.1	293.6	280.9	271.9	266.4	262.2	258.6	249.5	239.9	235.0
67.5°	288.2	273.7	256.8	245.9	238.6	231.4	223.5	216.9	207.8	201.8	198.8
70°	247.1	233.2	219.3	209.0	201.2	194.5	185.5	181.3	175.2	172.8	169.8
72.5°	207.8	195.1	182.5	173.4	164.9	160.1	153.5	149.2	147.4	146.8	143.8
75°	168.0	157.7	148.0	139.6	132.9	129.3	126.3	123.3	122.0	116.6	113.6
77.5°	129.3	122.0	116.0	109.4	105.1	102.7	96.1	91.8	89.4	86.4	85.8
80°	95.5	90.6	84.6	81.0	74.3	71.9	69.5	68.9	68.3	67.7	67.1
82.5°	65.9	61.0	55.0	53.2	52.6	51.4	50.1	49.5	48.9	49.5	49.5
85°	36.3	33.8	33.8	33.2	32.6	32.0	31.4	31.4	30.8	31.4	30.8
87.5°	15.1	14.5	14.5	13.3	13.9	13.9	13.3	13.3	13.9	12.7	12.7
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: P242755

CATALOG NUMBER: S124RDR-S1195D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1499.6	1499.6	1499.6	1499.6
2.5°	1414.4	1415.6	1411.3	1410.1
5°	1328.0	1326.8	1323.7	1324.3
7.5°	1253.0	1248.8	1251.8	1247.0
10°	1185.4	1178.7	1173.3	1168.5
12.5°	1092.9	1087.5	1079.7	1082.7
15°	1006.5	997.5	983.0	984.8
17.5°	929.2	930.4	922.0	924.4
20°	871.8	867.6	868.2	866.4
22.5°	831.9	826.5	821.1	816.8
25°	786.0	782.4	777.0	775.8
27.5°	745.5	744.9	742.5	739.5
30°	711.1	709.9	708.7	706.9
32.5°	680.3	679.7	678.5	679.1
35°	651.3	650.7	649.5	648.9
37.5°	624.1	625.9	624.7	624.7
40°	595.7	596.3	597.5	596.9
42.5°	572.1	572.1	574.0	571.5
45°	543.1	546.8	546.2	546.2
47.5°	512.3	516.6	517.2	517.2
50°	482.1	480.9	482.7	482.1
52.5°	445.3	445.9	445.3	444.7
55°	407.2	407.8	406.6	407.2
57.5°	366.7	364.3	366.1	364.9
60°	322.6	317.8	316.6	314.2
62.5°	273.1	270.1	265.2	268.3
65°	230.2	227.8	226.0	228.4
67.5°	195.8	194.5	194.5	193.3
70°	169.8	168.0	168.0	166.8
72.5°	143.2	141.4	142.0	141.4
75°	110.0	106.9	106.9	107.5
77.5°	85.8	85.2	86.4	84.6
80°	67.1	66.5	65.9	67.7
82.5°	48.3	48.3	48.3	50.8
85°	31.4	30.2	31.4	30.2
87.5°	13.9	13.3	12.7	13.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)