

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: P242750

Luminaire Tested: **S124RDR-S1195D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242750
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-S1195D840-X4F0-XX-UDD-A-W
Description: DEFINE 4 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4695.3 lumens
Efficiency: N/A
Efficacy: 114.2 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

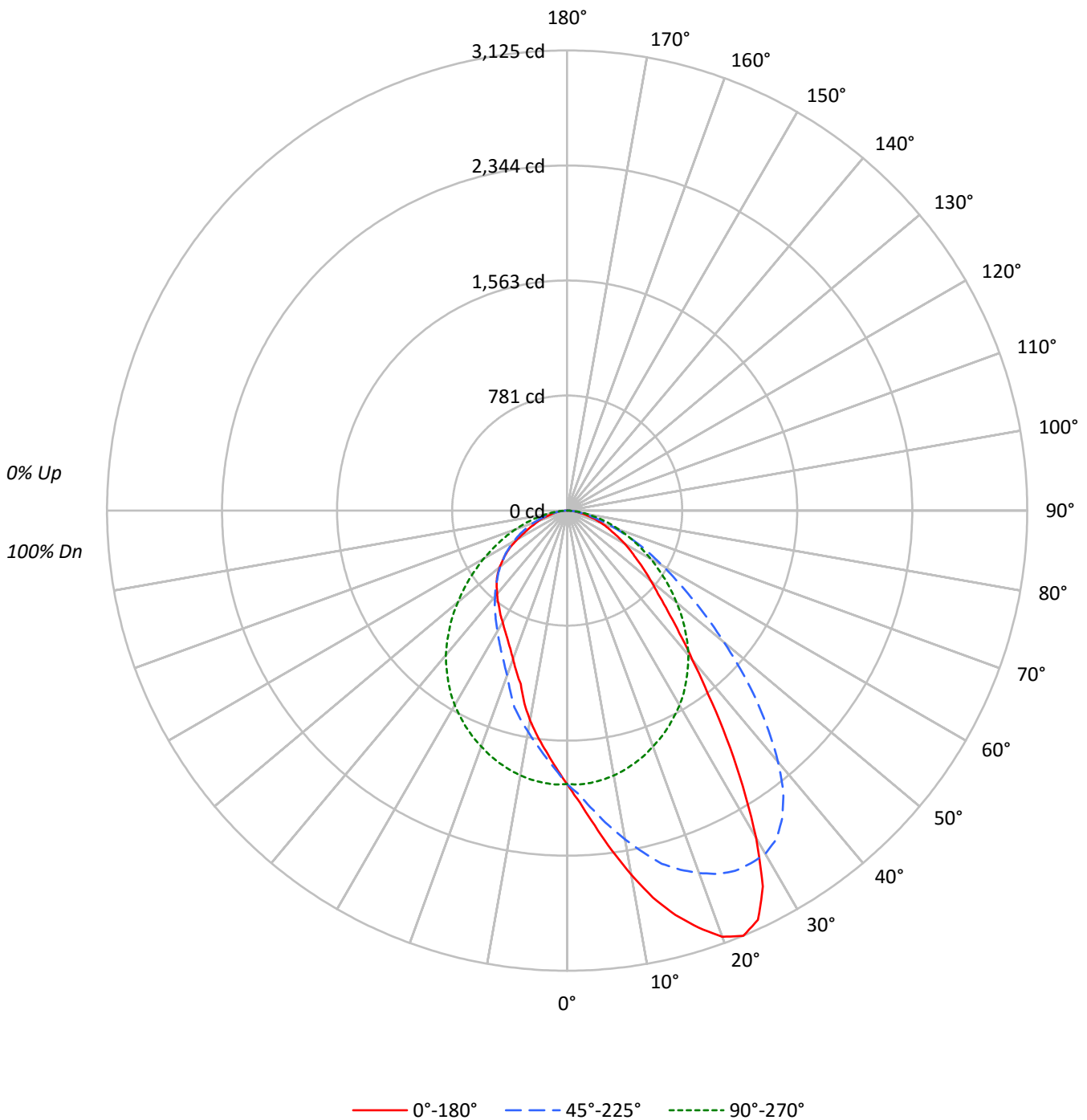
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P242750

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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	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°	16510	16510	16510
5°	19151	16560	14637
10°	22655	16488	13063
15°	26169	16335	11225
20°	29137	16125	10151
25°	30078	15920	9424
30°	26330	15669	8987
35°	20496	15299	8721
40°	15370	14875	8580
45°	12136	14196	8504
50°	10246	13412	8258
55°	8930	12548	7817
60°	8036	11655	6917
65°	7084	10687	5950
70°	6380	9686	5367
75°	5347	8583	4575
80°	4520	7315	4290
85°	3814	5722	3814



TEST NUMBER: P242750

CATALOG NUMBER: S124RDR-S1195D840-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.8	3.8
10°-20°	543.1	11.6
20°-30°	850.8	18.1
30°-40°	944.8	20.1
40°-50°	837.2	17.8
50°-60°	652.4	13.9
60°-70°	426.8	9.1
70°-80°	209.4	4.5
80°-90°	51.0	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°	1573.7	33.5
0°-40°	2518.5	53.6
0°-60°	4008.1	85.4
0°-90°	4695.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4695.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1857	1857	1857	1857	1857	
5°	2146	2043	1856	1679	1640	216
15°	2844	2483	1775	1383	1220	809
25°	3067	2700	1623	1057	961	1369
35°	1889	2547	1410	850	804	1182
45°	965	1815	1129	676	676	761
55°	576	1027	810	510	504	523
65°	337	528	508	330	283	338
75°	156	201	250	160	133	171
85°	37	40	56	40	37	43
90°	0	0	0	0	0	



TEST NUMBER: P242750

CATALOG NUMBER: S124RDR-S1195D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4
2.5°	1984.6	1991.4	1984.6	1983.9	1976.4	1974.2	1971.2	1961.4	1943.5	1933.0	1935.2
5°	2146.3	2165.0	2154.5	2153.0	2136.5	2120.1	2109.6	2085.7	2060.2	2043.0	2028.8
7.5°	2325.9	2337.1	2329.6	2321.4	2292.9	2284.0	2259.3	2230.8	2188.2	2156.0	2126.8
10°	2510.0	2519.0	2516.0	2496.5	2477.0	2437.4	2414.9	2370.8	2313.2	2267.5	2224.8
12.5°	2691.1	2700.8	2668.6	2674.6	2633.4	2604.3	2565.3	2507.0	2438.1	2376.0	2319.9
15°	2843.7	2831.8	2831.8	2816.8	2775.6	2732.2	2695.6	2637.2	2553.4	2483.0	2408.9
17.5°	2969.5	2974.7	2968.7	2930.5	2900.6	2856.5	2790.6	2724.0	2651.4	2557.1	2483.8
20°	3080.2	3080.2	3073.5	3049.5	3007.6	2959.7	2887.1	2813.1	2714.3	2619.2	2533.9
22.5°	3125.1	3128.1	3119.9	3101.2	3064.5	3018.1	2959.0	2883.4	2780.9	2670.9	2560.1
25°	3066.7	3081.0	3082.5	3077.2	3066.0	3037.6	2984.4	2907.3	2816.0	2700.1	2586.3
27.5°	2878.2	2896.9	2904.4	2920.8	2951.5	2962.7	2956.0	2904.4	2816.0	2701.5	2588.5
30°	2565.3	2580.3	2629.0	2692.6	2742.0	2786.9	2825.8	2836.3	2791.4	2691.1	2570.6
32.5°	2218.1	2239.8	2288.5	2358.1	2448.6	2532.4	2632.0	2685.1	2694.8	2644.7	2535.4
35°	1888.8	1903.8	1948.7	2020.5	2119.3	2232.3	2370.8	2478.5	2551.9	2546.6	2478.5
37.5°	1573.0	1594.0	1639.6	1698.8	1796.0	1940.5	2071.4	2215.9	2347.6	2411.9	2377.5
40°	1324.6	1325.3	1369.5	1430.8	1520.7	1642.6	1788.6	1953.2	2104.4	2227.8	2251.8
42.5°	1128.5	1128.5	1154.0	1221.3	1279.7	1392.7	1530.4	1693.5	1876.9	2024.3	2097.6
45°	965.4	972.1	996.1	1035.7	1086.6	1183.9	1295.4	1447.3	1645.6	1814.8	1920.3
47.5°	836.7	848.6	862.8	898.8	940.7	1008.8	1103.8	1246.0	1410.6	1598.5	1744.4
50°	740.9	742.4	761.8	779.8	815.0	866.6	947.4	1061.2	1209.3	1388.2	1555.1
52.5°	658.5	657.8	667.5	691.5	718.4	755.8	817.2	918.2	1045.4	1201.1	1374.7
55°	576.2	580.0	589.0	606.9	628.6	657.1	708.7	786.5	889.8	1026.7	1183.1
57.5°	513.4	515.6	523.8	530.6	551.5	572.5	614.4	670.5	761.1	875.6	1029.0
60°	452.0	452.8	455.0	466.2	481.9	501.4	527.6	573.2	646.6	749.1	864.3
62.5°	392.1	393.6	397.4	404.9	416.1	428.1	455.7	490.2	547.8	631.6	732.6
65°	336.8	337.5	342.7	345.7	355.5	367.4	387.6	412.3	454.2	527.6	606.2
67.5°	290.4	290.4	290.4	294.9	302.3	310.6	324.0	345.0	378.7	425.8	499.2
70°	245.5	245.5	247.0	249.2	252.9	259.7	266.4	281.4	304.6	341.2	394.4
72.5°	203.6	204.3	205.8	205.8	207.3	212.5	217.0	225.3	241.0	266.4	306.8
75°	155.7	157.9	161.6	164.6	168.4	167.6	172.9	178.9	184.1	200.6	225.3
77.5°	122.7	121.2	121.2	124.2	125.0	125.7	129.5	134.7	139.2	148.2	157.2
80°	88.3	88.3	90.6	91.3	90.6	91.3	95.0	97.3	98.8	101.8	110.0
82.5°	61.4	62.9	61.4	62.1	62.9	63.6	66.6	66.6	68.1	68.8	71.1
85°	37.4	38.2	38.9	37.4	37.4	37.4	38.9	39.7	41.2	40.4	41.9
87.5°	16.5	15.7	16.5	16.5	17.2	16.5	17.2	18.7	17.2	18.0	18.0
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: P242750

CATALOG NUMBER: S124RDR-S1195D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4
2.5°	1927.8	1917.3	1912.0	1900.1	1885.8	1878.4	1871.6	1861.9	1849.2	1835.7	1826.0
5°	2010.8	1992.9	1970.4	1943.5	1919.5	1896.3	1876.1	1855.9	1832.7	1808.8	1784.8
7.5°	2093.1	2061.0	2026.5	1985.4	1945.7	1909.0	1876.1	1843.9	1807.3	1774.3	1743.7
10°	2179.9	2132.1	2078.9	2022.8	1966.7	1918.0	1870.1	1826.7	1778.8	1736.2	1700.3
12.5°	2250.3	2191.9	2125.3	2052.0	1981.6	1920.3	1863.4	1803.5	1747.4	1700.3	1649.4
15°	2329.6	2252.5	2166.5	2082.7	1995.1	1915.0	1840.9	1775.1	1713.0	1647.9	1602.2
17.5°	2384.2	2295.2	2193.4	2096.1	1995.9	1903.1	1819.2	1742.9	1671.8	1606.7	1552.8
20°	2432.1	2331.1	2215.1	2100.6	1984.6	1883.6	1791.6	1704.7	1630.7	1558.8	1502.7
22.5°	2459.1	2344.6	2215.1	2093.9	1972.7	1861.2	1757.9	1666.6	1584.3	1512.4	1448.8
25°	2460.6	2340.8	2211.4	2073.7	1942.0	1826.0	1721.2	1623.2	1533.4	1461.5	1395.7
27.5°	2454.6	2316.1	2185.9	2046.0	1910.5	1787.1	1678.6	1574.5	1485.5	1409.1	1341.8
30°	2436.6	2285.5	2143.3	1996.6	1858.9	1741.4	1625.4	1526.6	1433.1	1353.0	1284.9
32.5°	2397.7	2248.0	2092.4	1941.2	1801.3	1679.3	1570.8	1471.3	1380.0	1297.6	1224.3
35°	2343.8	2191.9	2025.8	1871.6	1734.7	1609.0	1505.7	1409.9	1322.3	1234.8	1158.4
37.5°	2281.7	2123.1	1959.2	1790.1	1653.9	1534.1	1437.6	1345.5	1260.2	1180.2	1095.6
40°	2185.9	2044.5	1873.9	1706.2	1565.6	1451.1	1363.5	1281.9	1195.9	1116.5	1032.0
42.5°	2069.9	1954.7	1781.8	1613.4	1475.0	1365.7	1285.7	1206.3	1130.0	1053.7	964.6
45°	1938.2	1846.9	1685.3	1523.6	1383.7	1274.4	1199.6	1129.3	1060.4	987.1	904.0
47.5°	1791.6	1724.2	1583.5	1414.4	1283.4	1183.1	1111.3	1052.9	992.3	918.2	843.4
50°	1637.4	1597.7	1463.0	1311.9	1188.4	1097.8	1023.7	969.9	921.2	850.9	785.8
52.5°	1472.8	1456.3	1347.8	1204.8	1086.6	998.3	937.7	890.5	841.1	785.8	725.9
55°	1305.1	1316.4	1219.8	1094.8	982.6	907.8	850.1	809.7	767.8	718.4	671.3
57.5°	1130.8	1173.4	1101.6	988.6	880.1	809.7	765.6	729.6	694.5	652.6	609.9
60°	977.3	1011.8	975.1	878.6	786.5	722.2	681.7	655.6	620.4	583.0	552.3
62.5°	827.7	865.1	847.1	773.8	690.0	636.8	602.4	578.5	554.5	523.1	490.9
65°	707.2	731.1	720.7	666.8	606.2	559.0	526.1	508.1	484.2	460.2	431.8
67.5°	565.8	612.9	605.4	575.5	517.1	479.7	456.5	440.0	417.6	399.6	379.4
70°	445.3	487.9	487.2	464.0	435.5	401.1	386.1	372.7	353.2	336.0	320.3
72.5°	344.2	382.4	389.9	373.4	356.2	332.3	318.0	309.8	291.1	280.6	268.7
75°	255.2	283.6	291.1	291.1	282.1	268.7	255.9	249.9	236.5	226.0	218.5
77.5°	179.6	199.1	210.3	212.5	213.3	208.0	196.1	191.6	181.1	177.4	169.1
80°	118.2	130.2	143.7	148.2	151.9	150.4	145.9	142.9	133.2	129.5	126.5
82.5°	72.6	77.8	88.3	99.5	97.3	102.5	98.8	96.5	89.8	89.1	86.1
85°	42.7	43.4	44.9	51.6	55.4	56.9	57.6	56.1	53.9	53.9	48.6
87.5°	18.0	17.2	18.7	18.7	19.5	22.5	24.7	25.4	23.2	21.0	18.7
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: P242750

CATALOG NUMBER: S124RDR-S1195D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4	1857.4
2.5°	1815.5	1808.0	1798.3	1787.1	1773.6	1761.6	1756.4	1760.9	1763.1	1757.1	1756.4
5°	1768.4	1749.6	1734.7	1712.2	1694.3	1679.3	1668.8	1664.3	1665.8	1653.9	1650.9
7.5°	1716.0	1695.8	1671.1	1645.6	1621.7	1600.7	1589.5	1584.3	1571.5	1566.3	1558.1
10°	1665.8	1635.9	1611.9	1580.5	1552.1	1525.9	1513.2	1502.7	1490.0	1484.0	1471.3
12.5°	1614.2	1578.3	1551.3	1518.4	1489.2	1456.3	1444.3	1422.6	1400.9	1386.7	1369.5
15°	1566.3	1524.4	1492.2	1453.3	1418.9	1383.0	1350.8	1314.9	1301.4	1272.9	1256.5
17.5°	1509.4	1466.0	1430.1	1380.0	1328.3	1284.9	1249.0	1211.6	1191.4	1171.9	1163.7
20°	1453.3	1414.4	1359.0	1298.4	1239.3	1189.9	1162.2	1139.7	1117.3	1104.6	1095.6
22.5°	1400.2	1347.8	1281.2	1214.6	1155.5	1119.5	1097.1	1073.9	1056.7	1044.7	1032.0
25°	1339.5	1274.4	1206.3	1131.5	1091.1	1057.4	1032.0	1013.3	1002.0	986.3	980.3
27.5°	1280.4	1201.9	1124.8	1073.9	1032.0	999.8	976.6	963.1	948.2	937.7	929.5
30°	1210.1	1130.0	1062.7	1014.8	972.1	946.7	928.7	912.2	901.0	892.8	886.8
32.5°	1140.5	1060.4	1006.5	954.1	922.7	898.0	878.6	867.3	859.1	847.9	844.9
35°	1073.9	1002.8	953.4	907.0	872.6	850.1	835.2	822.4	815.0	812.0	809.7
37.5°	1008.8	949.7	895.0	857.6	825.4	808.2	788.8	782.8	777.5	770.8	773.8
40°	947.4	892.8	845.6	805.2	780.5	761.1	750.6	743.1	738.6	738.6	738.6
42.5°	894.3	841.1	795.5	760.3	735.6	719.9	707.9	702.0	701.2	700.5	704.9
45°	838.9	789.5	743.1	713.2	692.2	675.8	669.0	663.8	663.8	666.8	667.5
47.5°	783.5	737.1	699.7	665.3	645.8	635.4	629.4	626.4	626.4	630.1	633.1
50°	733.4	687.7	651.1	621.1	603.2	593.4	588.2	586.7	588.2	588.2	593.4
52.5°	678.8	639.1	603.2	579.2	558.3	549.3	547.0	544.8	545.5	548.5	550.0
55°	625.6	589.0	554.5	530.6	515.6	509.6	502.9	503.6	502.1	503.6	503.6
57.5°	571.7	539.6	505.9	486.4	473.7	464.7	457.2	459.5	457.2	457.2	456.5
60°	520.1	484.2	458.7	441.5	426.6	419.1	412.3	413.8	411.6	410.1	407.1
62.5°	464.0	435.5	411.6	395.1	383.9	374.9	368.2	365.9	360.0	354.0	346.5
65°	410.1	385.4	363.7	348.0	336.8	330.0	324.8	320.3	309.1	297.1	291.1
67.5°	357.0	339.0	318.0	304.6	295.6	286.6	276.9	268.7	257.4	249.9	246.2
70°	306.1	288.9	271.7	258.9	249.2	241.0	229.7	224.5	217.0	214.0	210.3
72.5°	257.4	241.7	226.0	214.8	204.3	198.3	190.1	184.8	182.6	181.8	178.1
75°	208.0	195.3	183.3	172.9	164.6	160.1	156.4	152.7	151.2	144.4	140.7
77.5°	160.1	151.2	143.7	135.5	130.2	127.2	119.0	113.7	110.8	107.0	106.3
80°	118.2	112.3	104.8	100.3	92.0	89.1	86.1	85.3	84.6	83.8	83.1
82.5°	81.6	75.6	68.1	65.9	65.1	63.6	62.1	61.4	60.6	61.4	61.4
85°	44.9	41.9	41.9	41.2	40.4	39.7	38.9	38.9	38.2	38.9	38.2
87.5°	18.7	18.0	18.0	16.5	17.2	17.2	16.5	16.5	17.2	15.7	15.7
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: P242750

CATALOG NUMBER: S124RDR-S1195D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1857.4	1857.4	1857.4	1857.4
2.5°	1751.9	1753.4	1748.1	1746.7
5°	1644.9	1643.4	1639.6	1640.4
7.5°	1552.1	1546.8	1550.6	1544.6
10°	1468.3	1460.0	1453.3	1447.3
12.5°	1353.8	1347.0	1337.3	1341.0
15°	1246.8	1235.5	1217.6	1219.8
17.5°	1151.0	1152.5	1142.0	1145.0
20°	1079.9	1074.6	1075.4	1073.1
22.5°	1030.5	1023.7	1017.0	1011.8
25°	973.6	969.1	962.4	960.9
27.5°	923.5	922.7	919.7	916.0
30°	880.8	879.3	877.8	875.6
32.5°	842.6	841.9	840.4	841.1
35°	806.7	806.0	804.5	803.7
37.5°	773.0	775.3	773.8	773.8
40°	737.9	738.6	740.1	739.4
42.5°	708.7	708.7	710.9	707.9
45°	672.8	677.3	676.5	676.5
47.5°	634.6	639.8	640.6	640.6
50°	597.2	595.7	597.9	597.2
52.5°	551.5	552.3	551.5	550.8
55°	504.4	505.1	503.6	504.4
57.5°	454.2	451.3	453.5	452.0
60°	399.6	393.6	392.1	389.1
62.5°	338.3	334.5	328.5	332.3
65°	285.1	282.1	279.9	282.9
67.5°	242.5	241.0	241.0	239.5
70°	210.3	208.0	208.0	206.5
72.5°	177.4	175.1	175.9	175.1
75°	136.2	132.5	132.5	133.2
77.5°	106.3	105.5	107.0	104.8
80°	83.1	82.3	81.6	83.8
82.5°	59.9	59.9	59.9	62.9
85°	38.9	37.4	38.9	37.4
87.5°	17.2	16.5	15.7	16.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)