

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: P243610

Luminaire Tested: **S124RDR-H1195D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243610
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-H1195D840-X4F0-XX-UDD-A-W
Description: DEFINE 4 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4707.4 lumens
Efficiency: N/A
Efficacy: 124.9 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

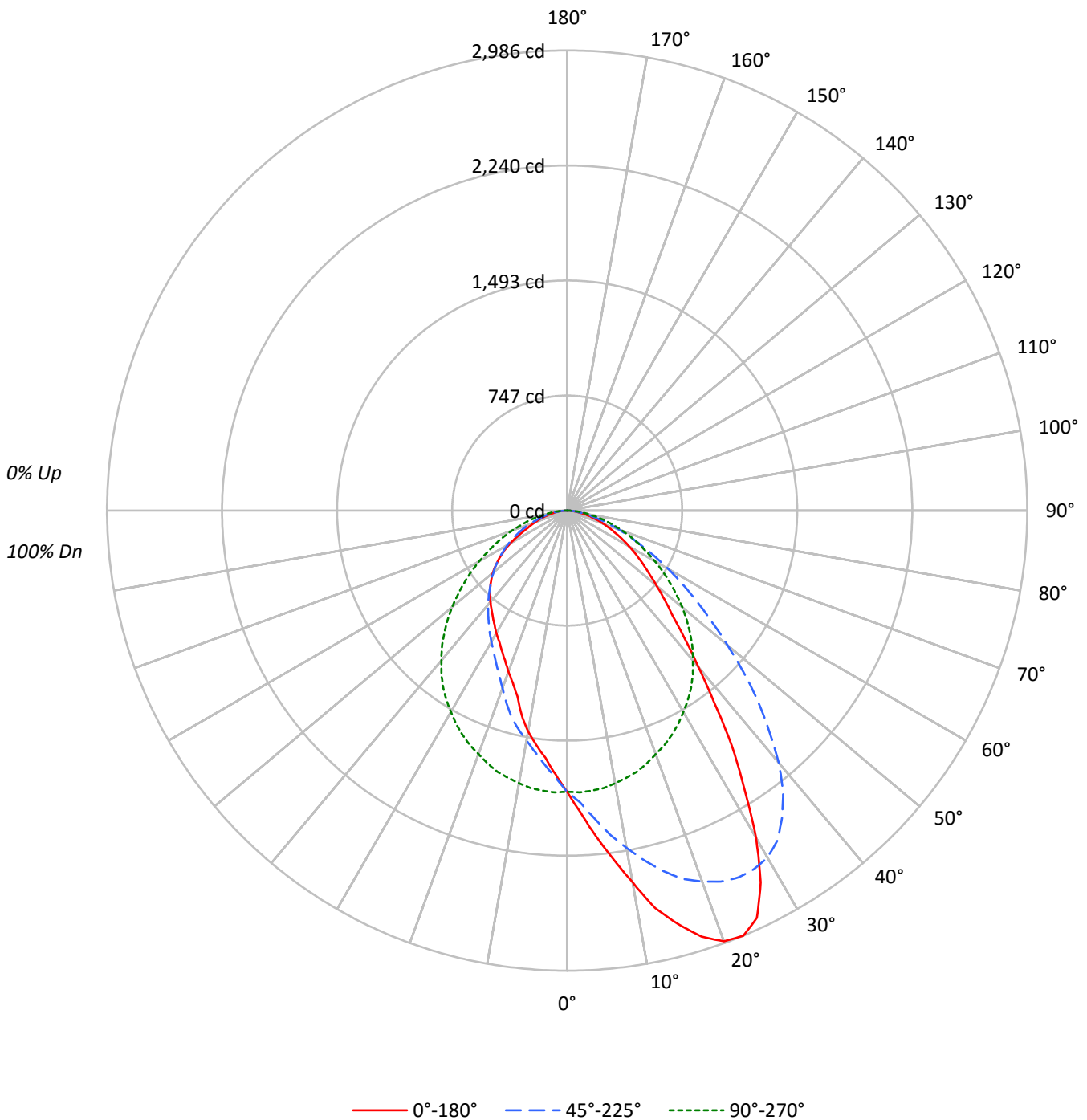
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	105	102	98	107	103	100	97	99	96	93	95	93	91	92	90	88	86
2	101	93	87	82	98	91	86	81	88	83	79	85	81	77	82	78	75	73
3	92	83	75	69	90	81	74	68	78	72	67	76	70	66	73	69	65	63
4	85	74	66	59	83	73	65	59	70	63	58	68	62	57	66	61	57	55
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50	48
6	73	60	52	46	71	59	51	45	58	50	45	56	50	45	54	49	44	42
7	68	55	46	41	66	54	46	40	53	45	40	51	45	40	50	44	40	38
8	63	50	42	36	62	50	42	36	48	41	36	47	41	36	46	40	36	34
9	59	46	38	33	58	46	38	33	45	38	33	43	37	33	42	37	32	31
10	56	43	35	30	54	42	35	30	41	35	30	40	34	30	39	34	30	28

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	16212	16212	16212
5°	18885	16281	14373
10°	22117	16213	13142
15°	25556	16131	11477
20°	28137	15903	10521
25°	28589	15757	9836
30°	25165	15477	9434
35°	20192	15214	9125
40°	15362	14727	8984
45°	12196	14187	8875
50°	10470	13486	8722
55°	9246	12613	8299
60°	8283	11705	7602
65°	7290	10815	6394
70°	6497	9821	5759
75°	5660	8929	5124
80°	4802	7673	4725
85°	4202	6588	4783



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	177.0	3.8
10°-20°	536.7	11.4
20°-30°	837.6	17.8
30°-40°	934.0	19.8
40°-50°	839.6	17.8
50°-60°	663.4	14.1
60°-70°	440.6	9.4
70°-80°	220.9	4.7
80°-90°	57.5	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°	1551.3	33.0
0°-40°	2485.3	52.8
0°-60°	3988.3	84.7
0°-90°	4707.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4707.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1824	1824	1824	1824	1824	
5°	2116	2002	1825	1656	1611	212
15°	2777	2423	1753	1388	1247	789
25°	2915	2627	1607	1092	1003	1304
35°	1861	2431	1402	887	841	1156
45°	970	1752	1129	710	706	769
55°	597	1028	814	538	536	538
65°	347	527	514	352	304	347
75°	165	209	260	174	149	176
85°	41	44	65	48	47	46
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°	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9
2.5°	1958.9	1951.8	1951.0	1941.8	1941.1	1931.9	1929.0	1921.2	1905.6	1893.5	1894.2
5°	2116.5	2110.9	2110.1	2100.9	2098.1	2086.7	2068.9	2047.6	2022.8	2002.2	1988.7
7.5°	2278.5	2288.4	2277.8	2277.8	2257.2	2243.7	2208.9	2191.1	2148.5	2118.7	2087.4
10°	2450.4	2459.6	2455.3	2446.8	2419.8	2392.1	2355.9	2321.1	2269.2	2222.4	2191.1
12.5°	2642.1	2614.4	2632.2	2605.9	2583.9	2539.8	2505.0	2435.4	2394.2	2326.1	2265.0
15°	2777.1	2766.4	2765.7	2747.9	2723.8	2675.5	2637.9	2565.4	2495.1	2423.4	2354.5
17.5°	2897.8	2899.2	2889.3	2860.9	2829.6	2782.7	2731.6	2667.0	2586.7	2507.2	2425.5
20°	2974.5	2975.2	2968.1	2953.2	2919.1	2876.5	2823.9	2739.4	2648.5	2560.4	2478.8
22.5°	2985.9	2988.0	2985.9	2976.6	2953.2	2918.4	2870.1	2798.4	2706.7	2605.9	2508.6
25°	2914.9	2922.0	2922.7	2935.4	2923.4	2909.9	2874.4	2814.0	2729.5	2627.2	2521.4
27.5°	2720.2	2740.1	2758.6	2781.3	2801.9	2820.4	2823.2	2791.3	2718.8	2623.7	2522.8
30°	2451.8	2475.2	2512.1	2536.3	2600.2	2640.7	2695.4	2707.5	2672.7	2599.5	2502.2
32.5°	2139.3	2164.1	2178.3	2257.9	2349.5	2415.5	2506.5	2560.4	2573.9	2539.1	2459.6
35°	1860.8	1865.1	1875.8	1966.0	2056.9	2157.0	2269.9	2363.7	2427.6	2431.2	2392.1
37.5°	1562.5	1567.5	1609.4	1678.3	1757.1	1867.2	1997.2	2130.7	2247.9	2301.9	2290.5
40°	1323.9	1322.5	1367.2	1426.9	1503.6	1617.9	1752.2	1897.8	2022.8	2135.7	2162.7
42.5°	1130.7	1135.7	1174.0	1208.8	1282.7	1363.0	1506.4	1657.7	1818.2	1941.8	2024.2
45°	970.2	983.0	1009.3	1041.9	1097.3	1171.2	1288.4	1439.0	1603.0	1751.5	1850.2
47.5°	859.4	862.9	876.4	916.9	953.9	1013.5	1113.7	1241.5	1387.1	1553.3	1683.3
50°	757.1	765.6	770.6	794.8	831.0	887.8	965.2	1060.4	1204.6	1357.3	1519.9
52.5°	669.1	674.0	683.3	705.3	733.7	773.5	834.5	918.3	1038.4	1179.7	1333.1
55°	596.6	597.3	606.6	622.2	644.2	674.7	733.0	793.3	899.9	1028.4	1167.6
57.5°	531.3	527.0	535.5	544.8	566.1	592.3	630.0	691.8	774.9	884.3	1010.0
60°	465.9	469.5	468.8	479.4	490.8	517.1	549.0	589.5	657.7	757.8	864.4
62.5°	404.8	404.1	411.2	417.6	425.4	446.7	473.0	506.4	559.7	633.5	736.5
65°	346.6	348.0	353.7	358.7	367.2	380.7	400.6	427.6	470.2	527.0	613.7
67.5°	294.0	299.0	301.9	303.3	311.1	321.0	338.1	360.1	389.2	434.7	507.1
70°	250.0	251.4	252.8	257.8	261.4	267.1	279.8	291.9	318.2	351.6	404.1
72.5°	208.8	207.4	211.7	213.1	214.5	220.2	228.0	234.4	251.4	279.8	312.5
75°	164.8	165.5	166.2	168.3	174.0	174.7	178.3	185.4	197.4	208.8	230.8
77.5°	123.6	125.7	125.0	127.1	129.3	131.4	132.8	139.2	147.7	157.0	167.6
80°	93.8	93.8	93.8	95.2	93.8	98.7	98.7	100.9	103.0	107.2	115.1
82.5°	63.9	65.3	66.1	66.8	67.5	67.5	68.2	69.6	72.4	73.9	76.0
85°	41.2	39.8	40.5	40.5	40.5	40.5	41.9	43.3	43.3	44.0	46.2
87.5°	18.5	18.5	18.5	18.5	17.8	18.5	19.2	19.2	19.9	19.9	21.3
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9
2.5°	1890.0	1887.8	1877.2	1865.8	1855.2	1844.5	1841.0	1830.3	1817.5	1806.2	1793.4
5°	1974.5	1957.4	1934.0	1909.9	1885.0	1862.3	1844.5	1824.6	1801.9	1774.9	1753.6
7.5°	2059.7	2028.5	1990.1	1954.6	1912.0	1877.9	1843.8	1815.4	1782.7	1744.4	1715.2
10°	2142.8	2091.0	2044.1	1988.0	1934.0	1887.1	1843.8	1796.2	1752.9	1711.7	1671.2
12.5°	2208.9	2157.0	2089.5	2020.7	1951.0	1890.0	1831.7	1775.6	1721.6	1671.9	1627.2
15°	2284.2	2209.6	2126.5	2050.5	1955.3	1880.0	1813.3	1752.9	1691.1	1630.7	1581.7
17.5°	2339.6	2251.5	2148.5	2061.1	1969.5	1875.8	1795.5	1719.5	1648.5	1585.3	1534.8
20°	2382.2	2277.8	2174.8	2064.0	1954.6	1858.7	1768.5	1681.2	1609.4	1540.5	1487.3
22.5°	2400.6	2290.5	2176.2	2056.2	1939.7	1831.0	1737.3	1647.1	1566.1	1495.1	1433.3
25°	2408.4	2287.7	2169.1	2032.7	1914.8	1804.0	1699.6	1606.6	1523.5	1443.2	1382.1
27.5°	2402.1	2272.8	2136.4	2007.9	1874.3	1765.7	1654.9	1560.4	1473.8	1396.3	1328.2
30°	2385.0	2238.7	2103.0	1958.9	1830.3	1716.0	1608.0	1507.9	1420.5	1341.7	1274.2
32.5°	2341.0	2200.3	2046.2	1905.6	1767.1	1654.2	1556.1	1457.4	1368.6	1286.3	1220.9
35°	2286.3	2148.5	1987.3	1840.2	1703.2	1588.8	1490.1	1402.0	1314.7	1227.3	1160.5
37.5°	2217.4	2077.5	1921.9	1763.5	1629.3	1518.5	1428.3	1339.5	1252.9	1172.6	1098.0
40°	2124.3	1996.5	1840.2	1681.2	1546.2	1439.7	1350.9	1269.2	1192.5	1113.7	1033.4
42.5°	2008.6	1911.3	1750.0	1593.1	1461.0	1355.2	1276.3	1203.2	1129.3	1048.3	975.9
45°	1885.0	1801.9	1655.6	1497.2	1371.5	1268.5	1193.2	1128.6	1059.0	987.2	911.2
47.5°	1745.8	1684.0	1557.6	1400.6	1268.5	1180.4	1110.8	1051.9	988.7	924.7	850.9
50°	1588.8	1551.2	1443.2	1300.5	1174.7	1085.3	1027.7	975.2	921.2	857.3	794.1
52.5°	1431.9	1424.8	1323.9	1198.2	1079.6	996.5	940.4	892.1	848.0	787.7	734.4
55°	1267.1	1288.4	1204.6	1088.8	983.0	902.7	853.0	813.9	775.6	724.5	673.3
57.5°	1120.8	1144.9	1087.4	980.9	882.1	813.9	771.3	735.8	702.4	655.6	621.5
60°	958.8	1002.9	972.3	875.0	787.7	726.6	686.8	658.4	630.7	590.2	560.4
62.5°	831.0	861.5	843.8	771.3	693.9	644.2	608.7	582.4	560.4	529.1	500.0
65°	693.9	732.3	723.0	675.4	607.3	561.8	534.8	514.2	491.5	466.6	442.5
67.5°	570.3	610.1	608.0	575.3	524.9	487.2	461.7	446.7	428.3	404.1	389.2
70°	458.8	495.8	497.2	480.8	445.3	409.8	391.3	377.9	363.6	345.9	335.2
72.5°	356.5	389.9	395.6	387.8	365.1	341.6	325.3	316.1	304.0	289.1	279.8
75°	266.3	290.5	304.0	300.4	291.2	275.6	266.3	260.0	247.9	237.2	229.4
77.5°	189.6	208.8	222.3	228.0	223.7	217.3	208.8	203.8	191.1	186.1	181.8
80°	127.1	144.2	156.3	159.8	161.9	160.5	152.7	149.9	143.5	141.3	137.1
82.5°	78.1	87.4	95.9	105.1	109.4	109.4	105.1	105.8	100.1	97.3	95.9
85°	47.6	49.7	51.1	58.2	63.9	66.1	63.9	64.6	62.5	60.4	58.2
87.5°	22.0	22.0	22.7	24.1	25.6	29.8	31.3	33.4	30.5	30.5	25.6
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°	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9	1823.9
2.5°	1785.6	1776.3	1769.2	1757.9	1748.6	1733.7	1728.7	1728.7	1731.6	1728.0	1731.6
5°	1738.7	1721.6	1703.2	1686.8	1669.1	1656.3	1643.5	1640.7	1639.2	1630.7	1631.4
7.5°	1691.8	1669.1	1645.6	1624.3	1602.3	1582.4	1568.9	1563.3	1558.3	1552.6	1546.2
10°	1641.4	1615.1	1587.4	1563.3	1541.9	1515.0	1501.5	1497.2	1483.0	1480.2	1470.2
12.5°	1588.1	1561.1	1533.4	1502.2	1481.6	1455.3	1435.4	1426.2	1412.7	1402.7	1387.8
15°	1546.2	1512.1	1475.2	1444.6	1417.7	1388.5	1361.5	1343.8	1326.0	1298.3	1284.8
17.5°	1494.4	1455.3	1423.3	1390.7	1351.6	1309.0	1277.0	1250.7	1231.6	1208.8	1195.3
20°	1438.2	1402.0	1362.3	1316.1	1274.9	1226.6	1197.5	1175.5	1160.5	1147.0	1139.9
22.5°	1388.5	1346.6	1291.9	1247.9	1190.4	1152.0	1128.6	1114.4	1100.2	1086.0	1078.9
25°	1334.6	1285.5	1218.8	1164.8	1121.5	1091.6	1068.9	1055.4	1040.5	1032.0	1021.3
27.5°	1281.3	1218.1	1151.3	1102.3	1068.2	1033.4	1014.2	1003.6	992.2	980.1	971.6
30°	1216.7	1144.9	1089.5	1044.8	1010.7	981.6	967.4	951.7	941.8	934.7	929.7
32.5°	1149.2	1080.3	1029.9	991.5	958.1	936.1	918.3	908.4	899.9	892.1	886.4
35°	1086.0	1019.2	976.6	939.7	912.0	887.1	873.6	864.4	857.3	850.9	848.0
37.5°	1023.5	966.6	920.5	891.4	862.2	842.4	829.6	821.0	816.8	810.4	811.1
40°	961.7	910.5	873.6	840.2	813.2	796.2	786.2	782.7	776.3	774.2	776.3
42.5°	906.3	859.4	823.9	792.6	769.2	752.9	745.0	740.1	737.9	737.2	737.9
45°	852.3	808.3	774.2	748.6	724.5	709.5	703.1	699.6	697.5	701.0	701.7
47.5°	798.3	758.5	728.0	698.2	678.3	667.6	661.2	658.4	660.5	661.9	666.9
50°	745.0	708.1	676.2	649.9	634.3	624.3	622.2	617.2	620.8	622.9	626.4
52.5°	691.1	657.7	629.3	604.4	588.1	581.7	576.7	574.6	579.6	579.6	583.1
55°	636.4	607.3	581.0	558.3	545.5	537.7	534.1	531.3	534.1	534.8	534.1
57.5°	585.2	557.5	529.8	510.7	500.0	491.5	487.9	486.5	485.8	488.6	487.9
60°	531.3	505.0	483.0	463.1	452.4	447.5	439.6	441.1	441.1	441.1	434.0
62.5°	477.3	451.0	431.8	418.3	405.6	397.0	395.6	393.5	389.2	388.5	379.3
65°	421.9	402.0	385.7	372.2	359.4	352.3	350.2	343.8	338.8	329.6	323.2
67.5°	370.7	356.5	337.4	326.0	315.3	306.8	299.0	294.0	284.1	274.9	269.2
70°	319.6	304.7	291.9	279.8	269.2	261.4	252.1	242.9	236.5	230.8	226.6
72.5°	268.5	255.7	245.0	233.7	222.3	214.5	207.4	200.3	197.4	194.6	192.5
75°	220.9	208.8	198.9	189.6	183.2	174.0	170.5	167.6	164.8	161.2	157.0
77.5°	174.7	165.5	157.7	149.9	144.2	139.2	136.4	127.8	120.7	119.3	117.9
80°	130.0	122.9	117.9	112.2	105.8	98.7	96.6	93.8	92.3	92.3	93.0
82.5°	90.9	86.7	81.0	76.0	73.9	71.0	71.0	70.3	69.6	70.3	70.3
85°	55.4	49.7	48.3	47.6	48.3	48.3	48.3	48.3	47.6	48.3	46.9
87.5°	24.1	26.3	27.0	24.9	25.6	24.1	24.9	24.9	24.9	25.6	24.9
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: P243610

CATALOG NUMBER: S124RDR-H1195D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1823.9	1823.9	1823.9	1823.9
2.5°	1727.3	1727.3	1720.2	1714.5
5°	1630.0	1620.8	1619.4	1610.8
7.5°	1539.1	1537.7	1534.1	1534.1
10°	1466.7	1461.7	1456.7	1456.0
12.5°	1364.4	1371.5	1363.0	1360.8
15°	1274.9	1269.2	1262.1	1247.2
17.5°	1191.8	1181.1	1178.3	1171.9
20°	1126.5	1118.6	1115.8	1112.2
22.5°	1064.7	1063.2	1054.7	1052.6
25°	1019.2	1012.1	1006.4	1002.9
27.5°	969.5	964.5	961.7	956.0
30°	924.0	922.6	919.1	919.1
32.5°	882.8	878.6	878.6	877.9
35°	845.2	846.6	842.4	840.9
37.5°	809.7	807.6	808.3	806.8
40°	774.9	773.5	773.5	774.2
42.5°	739.4	740.1	741.5	741.5
45°	703.9	704.6	706.0	706.0
47.5°	670.5	669.1	670.5	669.1
50°	627.9	632.1	631.4	630.7
52.5°	584.5	583.1	586.0	585.2
55°	537.7	535.5	538.4	535.5
57.5°	485.1	485.8	485.8	484.4
60°	432.5	430.4	427.6	427.6
62.5°	371.5	365.1	360.8	363.6
65°	312.5	307.5	306.1	304.0
67.5°	265.6	260.0	257.8	257.1
70°	225.1	222.3	221.6	221.6
72.5°	191.1	191.1	188.9	187.5
75°	155.5	152.7	149.2	149.2
77.5°	116.5	115.8	115.1	115.1
80°	90.9	90.9	91.6	92.3
82.5°	68.2	68.9	69.6	69.6
85°	46.2	46.2	46.9	46.9
87.5°	24.9	24.9	24.9	24.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)