

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: P243599

Luminaire Tested: **S124RDR-H1020D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243599
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-H1020D830-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: 3761.0 lumens
Efficiency: N/A
Efficacy: 119.4 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

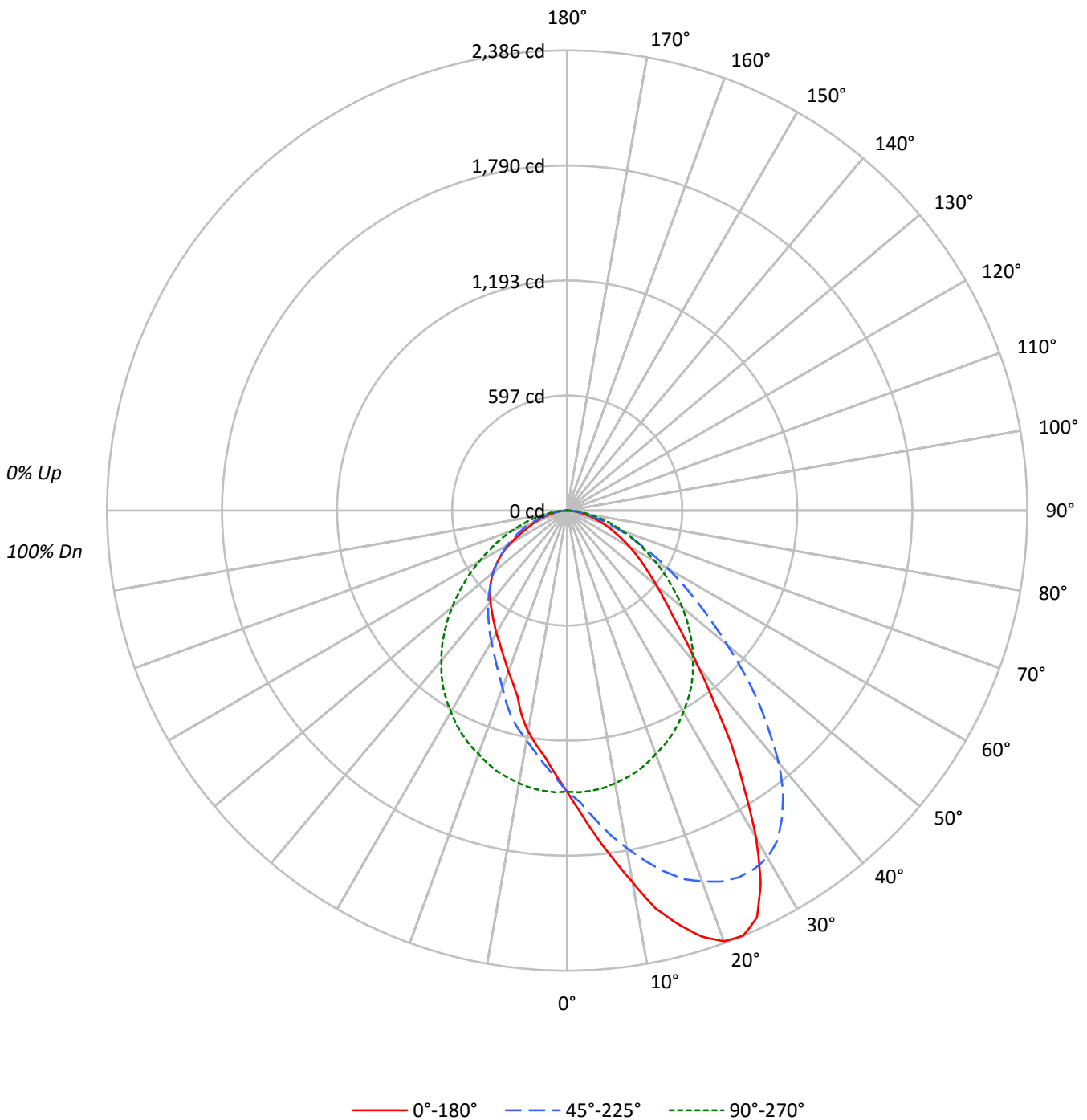
Input Watts (W): 31.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P243599

CATALOG NUMBER: S124RDR-H1020D830-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot





TEST NUMBER: P243599

CATALOG NUMBER: S124RDR-H1020D830-X4F0-XX-UDD-A-W

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°	12953	12953	12953
5°	15089	13008	11484
10°	17670	12953	10500
15°	20418	12888	9170
20°	22480	12706	8406
25°	22840	12589	7858
30°	20106	12365	7537
35°	16133	12156	7291
40°	12273	11766	7177
45°	9744	11335	7091
50°	8365	10774	6968
55°	7388	10078	6631
60°	6619	9351	6073
65°	5824	8640	5109
70°	5190	7846	4600
75°	4523	7133	4094
80°	3834	6127	3778
85°	3355	5263	3825



TEST NUMBER: P243599

CATALOG NUMBER: S124RDR-H1020D830-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	141.4	3.8
10°-20°	428.8	11.4
20°-30°	669.2	17.8
30°-40°	746.2	19.8
40°-50°	670.8	17.8
50°-60°	530.0	14.1
60°-70°	352.0	9.4
70°-80°	176.5	4.7
80°-90°	46.0	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°	1239.4	33.0
0°-40°	1985.6	52.8
0°-60°	3186.5	84.7
0°-90°	3761.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3761.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1457	1457	1457	1457	1457	
5°	1691	1600	1458	1323	1287	169
15°	2219	1936	1400	1109	996	630
25°	2329	2099	1284	872	801	1042
35°	1487	1942	1120	709	672	924
45°	775	1399	902	567	564	614
55°	477	822	650	430	428	430
65°	277	421	411	282	243	277
75°	132	167	208	139	119	141
85°	33	35	52	39	38	37
90°	0	0	0	0	0	



TEST NUMBER: P243599

CATALOG NUMBER: S124RDR-H1020D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2
2.5°	1565.0	1559.4	1558.8	1551.4	1550.9	1543.5	1541.2	1535.0	1522.5	1512.8	1513.4
5°	1691.0	1686.5	1685.9	1678.5	1676.3	1667.2	1653.0	1636.0	1616.1	1599.7	1588.9
7.5°	1820.4	1828.3	1819.8	1819.8	1803.4	1792.6	1764.8	1750.6	1716.6	1692.7	1667.8
10°	1957.7	1965.1	1961.7	1954.9	1933.3	1911.2	1882.3	1854.5	1813.0	1775.6	1750.6
12.5°	2110.9	2088.8	2103.0	2082.0	2064.4	2029.2	2001.4	1945.8	1912.9	1858.4	1809.6
15°	2218.8	2210.2	2209.7	2195.5	2176.2	2137.6	2107.5	2049.7	1993.5	1936.2	1881.1
17.5°	2315.2	2316.4	2308.4	2285.7	2260.7	2223.3	2182.4	2130.8	2066.7	2003.1	1937.9
20°	2376.5	2377.1	2371.4	2359.5	2332.2	2298.2	2256.2	2188.7	2116.0	2045.7	1980.4
22.5°	2385.6	2387.3	2385.6	2378.2	2359.5	2331.7	2293.1	2235.8	2162.6	2082.0	2004.3
25°	2328.8	2334.5	2335.1	2345.3	2335.7	2324.9	2296.5	2248.3	2180.7	2099.0	2014.5
27.5°	2173.4	2189.2	2204.0	2222.2	2238.6	2253.4	2255.6	2230.1	2172.2	2096.2	2015.6
30°	1958.9	1977.6	2007.1	2026.4	2077.5	2109.8	2153.5	2163.1	2135.3	2076.9	1999.2
32.5°	1709.2	1729.0	1740.4	1803.9	1877.1	1929.9	2002.6	2045.7	2056.5	2028.7	1965.1
35°	1486.7	1490.1	1498.7	1570.7	1643.4	1723.4	1813.6	1888.5	1939.6	1942.4	1911.2
37.5°	1248.4	1252.4	1285.9	1340.9	1403.9	1491.8	1595.7	1702.4	1796.0	1839.1	1830.0
40°	1057.7	1056.6	1092.4	1140.0	1201.3	1292.7	1399.9	1516.2	1616.1	1706.3	1727.9
42.5°	903.4	907.4	938.0	965.8	1024.8	1089.0	1203.6	1324.4	1452.7	1551.4	1617.3
45°	775.1	785.4	806.4	832.5	876.7	935.7	1029.4	1149.7	1280.8	1399.3	1478.2
47.5°	686.6	689.5	700.2	732.6	762.1	809.8	889.8	991.9	1108.2	1241.0	1344.9
50°	604.9	611.7	615.7	635.0	663.9	709.3	771.2	847.2	962.4	1084.4	1214.4
52.5°	534.5	538.5	545.9	563.5	586.2	618.0	666.8	733.7	829.6	942.5	1065.1
55°	476.7	477.2	484.6	497.1	514.7	539.1	585.6	633.8	719.0	821.7	932.9
57.5°	424.5	421.1	427.9	435.2	452.3	473.3	503.3	552.7	619.1	706.5	806.9
60°	372.3	375.1	374.5	383.0	392.1	413.1	438.6	471.0	525.5	605.5	690.6
62.5°	323.5	322.9	328.6	333.7	339.9	356.9	377.9	404.6	447.2	506.2	588.5
65°	276.9	278.1	282.6	286.6	293.4	304.2	320.0	341.6	375.7	421.1	490.3
67.5°	234.9	238.9	241.2	242.3	248.5	256.5	270.1	287.7	311.0	347.3	405.2
70°	199.7	200.9	202.0	206.0	208.8	213.4	223.6	233.2	254.2	280.9	322.9
72.5°	166.8	165.7	169.1	170.2	171.4	175.9	182.2	187.3	200.9	223.6	249.7
75°	131.7	132.2	132.8	134.5	139.0	139.6	142.4	148.1	157.8	166.8	184.4
77.5°	98.7	100.4	99.9	101.6	103.3	105.0	106.1	111.2	118.0	125.4	133.9
80°	74.9	74.9	74.9	76.0	74.9	78.9	78.9	80.6	82.3	85.7	91.9
82.5°	51.1	52.2	52.8	53.3	53.9	53.9	54.5	55.6	57.9	59.0	60.7
85°	32.9	31.8	32.3	32.3	32.3	32.3	33.5	34.6	34.6	35.2	36.9
87.5°	14.8	14.8	14.8	14.8	14.2	14.8	15.3	15.3	15.9	15.9	17.0
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: P243599

CATALOG NUMBER: S124RDR-H1020D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2
2.5°	1510.0	1508.3	1499.8	1490.7	1482.2	1473.7	1470.8	1462.3	1452.1	1443.0	1432.8
5°	1577.5	1563.9	1545.2	1525.9	1506.0	1487.9	1473.7	1457.8	1439.6	1418.1	1401.1
7.5°	1645.6	1620.7	1590.0	1561.6	1527.6	1500.4	1473.1	1450.4	1424.3	1393.7	1370.4
10°	1712.0	1670.6	1633.1	1588.3	1545.2	1507.7	1473.1	1435.1	1400.5	1367.6	1335.2
12.5°	1764.8	1723.4	1669.5	1614.4	1558.8	1510.0	1463.5	1418.6	1375.5	1335.8	1300.0
15°	1824.9	1765.4	1699.0	1638.2	1562.2	1502.1	1448.7	1400.5	1351.1	1302.9	1263.7
17.5°	1869.2	1798.8	1716.6	1646.8	1573.6	1498.7	1434.5	1373.8	1317.1	1266.6	1226.3
20°	1903.3	1819.8	1737.6	1649.0	1561.6	1485.0	1413.0	1343.2	1285.9	1230.8	1188.3
22.5°	1918.0	1830.0	1738.7	1642.8	1549.7	1462.9	1388.0	1315.9	1251.2	1194.5	1145.1
25°	1924.2	1827.8	1733.0	1624.1	1529.9	1441.3	1357.9	1283.6	1217.2	1153.1	1104.3
27.5°	1919.1	1815.9	1706.9	1604.2	1497.5	1410.7	1322.2	1246.7	1177.5	1115.6	1061.1
30°	1905.5	1788.6	1680.2	1565.0	1462.3	1371.0	1284.7	1204.7	1134.9	1071.9	1018.0
32.5°	1870.3	1758.0	1634.8	1522.5	1411.8	1321.6	1243.3	1164.4	1093.5	1027.7	975.5
35°	1826.6	1716.6	1587.7	1470.3	1360.8	1269.4	1190.5	1120.2	1050.4	980.6	927.2
37.5°	1771.6	1659.8	1535.5	1409.0	1301.7	1213.2	1141.2	1070.2	1001.0	936.9	877.3
40°	1697.3	1595.1	1470.3	1343.2	1235.4	1150.2	1079.3	1014.0	952.8	889.8	825.7
42.5°	1604.8	1527.0	1398.2	1272.8	1167.3	1082.7	1019.7	961.3	902.3	837.6	779.7
45°	1506.0	1439.6	1322.7	1196.2	1095.8	1013.5	953.3	901.7	846.1	788.8	728.0
47.5°	1394.8	1345.4	1244.4	1119.0	1013.5	943.1	887.5	840.4	789.9	738.8	679.8
50°	1269.4	1239.3	1153.1	1039.0	938.6	867.1	821.1	779.1	736.0	684.9	634.4
52.5°	1144.0	1138.3	1057.7	957.3	862.5	796.1	751.3	712.7	677.5	629.3	586.8
55°	1012.3	1029.4	962.4	869.9	785.4	721.2	681.5	650.3	619.7	578.8	537.9
57.5°	895.4	914.7	868.8	783.7	704.8	650.3	616.3	587.9	561.2	523.8	496.5
60°	766.1	801.2	776.8	699.1	629.3	580.5	548.7	526.0	503.9	471.6	447.7
62.5°	663.9	688.3	674.1	616.3	554.4	514.7	486.3	465.3	447.7	422.8	399.5
65°	554.4	585.0	577.7	539.7	485.2	448.9	427.3	410.8	392.7	372.8	353.5
67.5°	455.7	487.4	485.7	459.6	419.4	389.3	368.8	356.9	342.2	322.9	311.0
70°	366.6	396.1	397.2	384.2	355.8	327.4	312.7	301.9	290.5	276.4	267.8
72.5°	284.9	311.5	316.1	309.8	291.7	272.9	259.9	252.5	242.9	231.0	223.6
75°	212.8	232.1	242.9	240.0	232.7	220.2	212.8	207.7	198.0	189.5	183.3
77.5°	151.5	166.8	177.6	182.2	178.7	173.6	166.8	162.9	152.6	148.7	145.3
80°	101.6	115.2	124.8	127.7	129.4	128.2	122.0	119.7	114.6	112.9	109.5
82.5°	62.4	69.8	76.6	84.0	87.4	87.4	84.0	84.6	80.0	77.7	76.6
85°	38.0	39.7	40.9	46.5	51.1	52.8	51.1	51.6	49.9	48.2	46.5
87.5°	17.6	17.6	18.2	19.3	20.4	23.8	25.0	26.7	24.4	24.4	20.4
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: P243599

CATALOG NUMBER: S124RDR-H1020D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2	1457.2
2.5°	1426.6	1419.2	1413.5	1404.5	1397.1	1385.2	1381.2	1381.2	1383.5	1380.6	1383.5
5°	1389.1	1375.5	1360.8	1347.7	1333.5	1323.3	1313.1	1310.8	1309.7	1302.9	1303.4
7.5°	1351.7	1333.5	1314.8	1297.8	1280.2	1264.3	1253.5	1249.0	1245.0	1240.5	1235.4
10°	1311.4	1290.4	1268.3	1249.0	1231.9	1210.4	1199.6	1196.2	1184.9	1182.6	1174.6
12.5°	1268.8	1247.3	1225.1	1200.2	1183.7	1162.7	1146.8	1139.5	1128.7	1120.7	1108.8
15°	1235.4	1208.1	1178.6	1154.2	1132.6	1109.4	1087.8	1073.6	1059.4	1037.3	1026.5
17.5°	1193.9	1162.7	1137.2	1111.1	1079.9	1045.8	1020.3	999.3	984.0	965.8	955.0
20°	1149.1	1120.2	1088.4	1051.5	1018.6	980.0	956.7	939.1	927.2	916.4	910.8
22.5°	1109.4	1075.9	1032.2	997.0	951.1	920.4	901.7	890.3	879.0	867.6	862.0
25°	1066.3	1027.1	973.8	930.6	896.0	872.2	854.0	843.2	831.3	824.5	816.0
27.5°	1023.7	973.2	919.8	880.7	853.5	825.7	810.3	801.8	792.7	783.1	776.3
30°	972.1	914.7	870.5	834.7	807.5	784.2	772.9	760.4	752.4	746.8	742.8
32.5°	918.1	863.1	822.8	792.2	765.5	747.9	733.7	725.8	719.0	712.7	708.2
35°	867.6	814.3	780.3	750.7	728.6	708.8	698.0	690.6	684.9	679.8	677.5
37.5°	817.7	772.3	735.4	712.2	688.9	673.0	662.8	656.0	652.6	647.5	648.0
40°	768.3	727.5	698.0	671.3	649.7	636.1	628.2	625.3	620.2	618.5	620.2
42.5°	724.1	686.6	658.3	633.3	614.6	601.5	595.3	591.3	589.6	589.0	589.6
45°	680.9	645.8	618.5	598.1	578.8	566.9	561.8	558.9	557.2	560.1	560.6
47.5°	637.8	606.0	581.6	557.8	541.9	533.4	528.3	526.0	527.7	528.9	532.8
50°	595.3	565.8	540.2	519.2	506.7	498.8	497.1	493.1	496.0	497.7	500.5
52.5°	552.1	525.5	502.8	482.9	469.9	464.7	460.8	459.1	463.0	463.0	465.9
55°	508.4	485.2	464.2	446.0	435.8	429.6	426.7	424.5	426.7	427.3	426.7
57.5°	467.6	445.5	423.3	408.0	399.5	392.7	389.8	388.7	388.1	390.4	389.8
60°	424.5	403.5	385.9	370.0	361.5	357.5	351.3	352.4	352.4	352.4	346.7
62.5°	381.3	360.3	345.0	334.2	324.0	317.2	316.1	314.4	311.0	310.4	303.0
65°	337.1	321.2	308.1	297.3	287.1	281.5	279.8	274.6	270.7	263.3	258.2
67.5°	296.2	284.9	269.5	260.5	252.0	245.1	238.9	234.9	227.0	219.6	215.1
70°	255.4	243.4	233.2	223.6	215.1	208.8	201.4	194.1	189.0	184.4	181.0
72.5°	214.5	204.3	195.8	186.7	177.6	171.4	165.7	160.0	157.8	155.5	153.8
75°	176.5	166.8	158.9	151.5	146.4	139.0	136.2	133.9	131.7	128.8	125.4
77.5°	139.6	132.2	126.0	119.7	115.2	111.2	109.0	102.1	96.5	95.3	94.2
80°	103.8	98.2	94.2	89.7	84.6	78.9	77.2	74.9	73.8	73.8	74.3
82.5°	72.6	69.2	64.7	60.7	59.0	56.7	56.7	56.2	55.6	56.2	56.2
85°	44.3	39.7	38.6	38.0	38.6	38.6	38.6	38.6	38.0	38.6	37.5
87.5°	19.3	21.0	21.6	19.9	20.4	19.3	19.9	19.9	19.9	20.4	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



TEST NUMBER: P243599

CATALOG NUMBER: S124RDR-H1020D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1457.2	1457.2	1457.2	1457.2
2.5°	1380.1	1380.1	1374.4	1369.8
5°	1302.3	1294.9	1293.8	1287.0
7.5°	1229.7	1228.5	1225.7	1225.7
10°	1171.8	1167.8	1163.9	1163.3
12.5°	1090.1	1095.8	1089.0	1087.2
15°	1018.6	1014.0	1008.4	996.5
17.5°	952.2	943.7	941.4	936.3
20°	900.0	893.7	891.5	888.6
22.5°	850.6	849.5	842.7	841.0
25°	814.3	808.6	804.1	801.2
27.5°	774.6	770.6	768.3	763.8
30°	738.3	737.1	734.3	734.3
32.5°	705.3	701.9	701.9	701.4
35°	675.3	676.4	673.0	671.9
37.5°	646.9	645.2	645.8	644.6
40°	619.1	618.0	618.0	618.5
42.5°	590.7	591.3	592.4	592.4
45°	562.4	562.9	564.1	564.1
47.5°	535.7	534.5	535.7	534.5
50°	501.6	505.0	504.5	503.9
52.5°	467.0	465.9	468.2	467.6
55°	429.6	427.9	430.1	427.9
57.5°	387.6	388.1	388.1	387.0
60°	345.6	343.9	341.6	341.6
62.5°	296.8	291.7	288.3	290.5
65°	249.7	245.7	244.6	242.9
67.5°	212.2	207.7	206.0	205.4
70°	179.9	177.6	177.0	177.0
72.5°	152.6	152.6	150.9	149.8
75°	124.3	122.0	119.2	119.2
77.5°	93.1	92.5	91.9	91.9
80°	72.6	72.6	73.2	73.8
82.5°	54.5	55.0	55.6	55.6
85°	36.9	36.9	37.5	37.5
87.5°	19.9	19.9	19.9	19.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)