

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: P243089

Luminaire Tested: **S121RDR-H1025D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243089
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-67)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-H1025D835-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3288.4 lumens
Efficiency: N/A
Efficacy: 87.2 lumens/watt
Spacing Criteria (0/90/45): 0.89 / 1.21 / 1.07
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

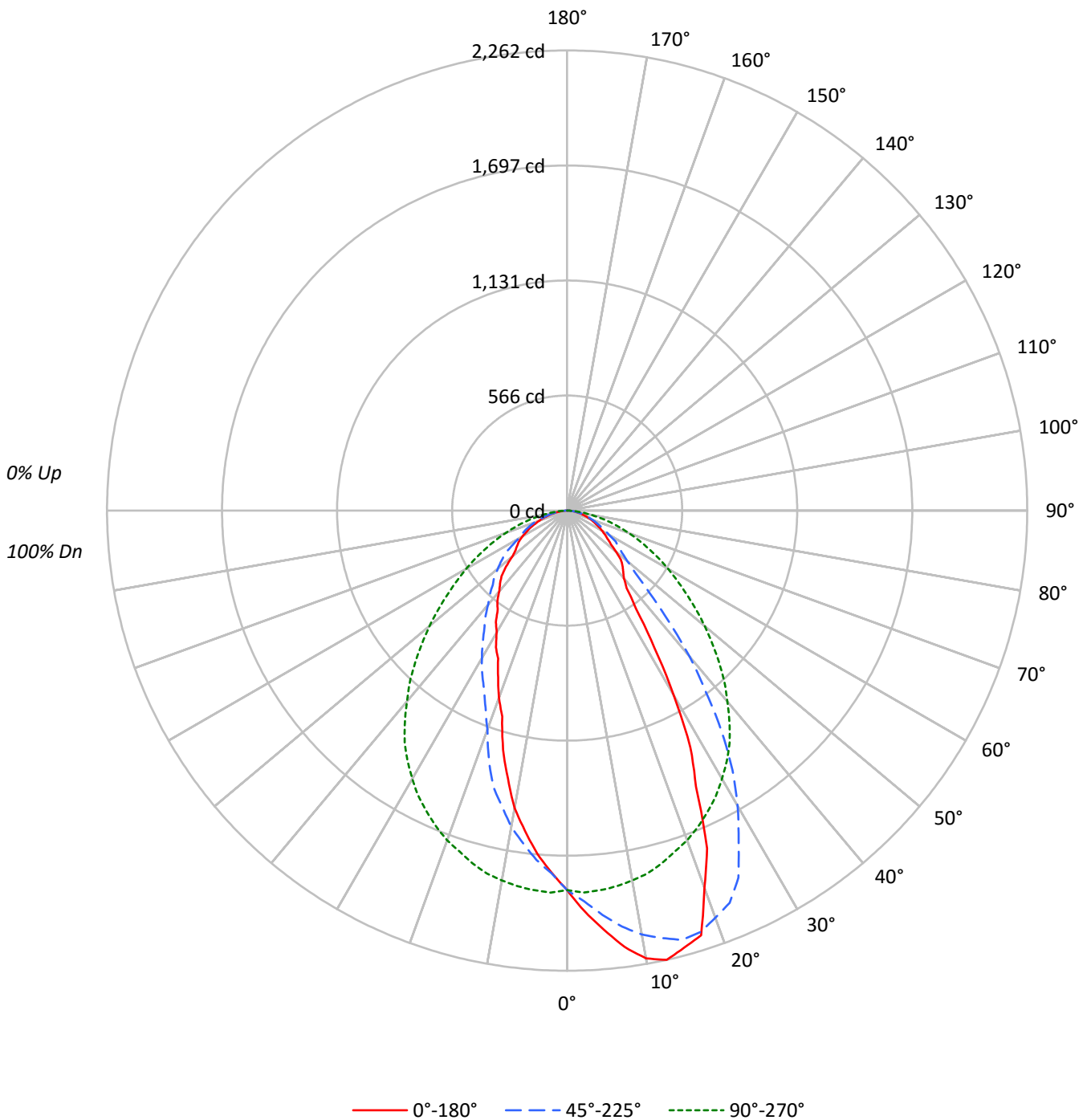
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89	87
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76
3	94	85	78	73	92	84	77	72	81	75	71	78	73	70	76	72	68	66
4	87	77	69	63	85	76	69	63	73	67	62	71	66	61	69	64	61	59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52
6	76	64	56	50	74	63	55	50	61	55	50	60	54	49	58	53	49	47
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44	42
8	66	54	46	41	65	53	46	41	52	46	41	51	45	41	50	44	40	39
9	62	50	43	38	61	50	42	38	49	42	37	48	42	37	47	41	37	35
10	59	47	39	35	58	46	39	35	45	39	34	44	38	34	44	38	34	33

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	55268	55268	55268
5°	61502	55708	50334
10°	67250	55549	44694
15°	68221	55083	37325
20°	62186	54379	30872
25°	48977	53394	26259
30°	35808	52100	23679
35°	21370	50372	21522
40°	16760	47389	20078
45°	16149	44237	19099
50°	14396	40689	16212
55°	12574	37023	15477
60°	11751	33885	15004
65°	10944	30820	13903
70°	10361	27783	12674
75°	9502	24716	11276
80°	8634	20049	9845
85°	8125	15298	7173



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	178.1	5.4
10°-20°	496.7	15.1
20°-30°	660.5	20.1
30°-40°	630.1	19.2
40°-50°	522.9	15.9
50°-60°	388.8	11.8
60°-70°	251.8	7.7
70°-80°	128.2	3.9
80°-90°	31.4	1.0
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°	1335.3	40.6
0°-40°	1965.4	59.8
0°-60°	2877.1	87.5
0°-90°	3288.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3288.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1865	1865	1865	1865	1865	
5°	2068	1995	1873	1724	1692	203
15°	2224	2185	1796	1404	1217	619
25°	1498	1991	1633	966	803	695
35°	591	1323	1393	710	595	402
45°	385	570	1056	518	456	294
55°	243	309	717	374	300	221
65°	156	177	440	225	198	156
75°	83	91	216	112	98	88
85°	24	23	45	24	21	26
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°	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3
2.5°	1972.2	1967.3	1972.9	1970.8	1961.6	1963.8	1952.5	1945.5	1928.6	1922.3	1922.3
5°	2067.8	2074.9	2070.7	2072.1	2062.9	2057.3	2045.3	2032.0	2010.9	1995.4	1989.8
7.5°	2163.5	2165.6	2167.7	2162.1	2151.5	2141.7	2124.8	2105.1	2081.9	2062.2	2046.7
10°	2235.2	2240.2	2237.4	2228.9	2221.2	2206.4	2188.1	2167.0	2141.7	2115.7	2096.7
12.5°	2262.0	2266.2	2272.5	2267.6	2266.9	2259.9	2241.6	2215.6	2184.6	2152.3	2130.4
15°	2224.0	2221.2	2238.1	2233.8	2232.4	2229.6	2234.5	2228.9	2212.7	2184.6	2157.9
17.5°	2188.8	2187.4	2204.3	2208.5	2202.2	2193.0	2187.4	2180.4	2172.6	2173.4	2169.8
20°	1972.2	2015.1	2023.5	2046.0	2093.9	2125.5	2157.2	2155.8	2133.3	2129.7	2128.3
22.5°	1797.8	1813.9	1806.2	1842.8	1868.8	1925.8	1981.3	2051.7	2098.8	2086.8	2079.1
25°	1498.1	1548.8	1572.0	1617.7	1683.8	1756.3	1787.9	1862.5	1934.9	1991.2	2034.1
27.5°	1312.5	1323.7	1338.5	1385.6	1410.2	1476.3	1594.5	1695.8	1763.3	1824.5	1937.7
30°	1046.6	1051.5	1102.9	1128.9	1201.3	1266.0	1368.7	1450.3	1586.1	1676.8	1764.0
32.5°	799.0	794.8	851.1	881.3	953.0	1040.3	1154.9	1230.9	1363.8	1512.2	1616.3
35°	590.8	590.1	620.4	641.5	720.2	787.0	932.6	1031.8	1177.4	1323.0	1457.3
37.5°	481.1	480.4	486.7	505.0	538.1	613.3	683.7	830.7	972.7	1116.2	1284.3
40°	433.3	436.8	438.2	446.6	457.9	480.4	523.3	626.0	765.2	936.2	1105.0
42.5°	407.9	407.9	409.3	411.5	417.1	423.4	449.4	488.8	600.7	737.1	926.3
45°	385.4	386.1	387.5	389.0	387.5	391.1	403.0	419.2	462.8	570.4	753.3
47.5°	358.7	358.0	361.5	363.6	366.4	370.7	371.4	379.8	398.8	455.1	588.0
50°	312.3	313.0	316.5	324.9	334.1	341.8	346.8	352.4	358.7	385.4	455.8
52.5°	270.1	270.8	272.9	279.2	287.7	297.5	313.0	325.7	330.6	339.0	378.4
55°	243.4	243.4	246.2	249.7	251.8	258.8	269.4	283.5	301.7	308.8	325.7
57.5°	220.9	220.9	222.3	222.3	225.1	228.6	235.6	242.7	258.1	280.6	291.2
60°	198.3	198.3	199.8	199.8	203.3	204.7	209.6	213.8	222.3	237.7	258.8
62.5°	177.2	175.8	177.2	177.9	180.1	182.2	185.7	190.6	195.5	204.7	220.1
65°	156.1	155.4	156.8	158.3	159.7	162.5	164.6	168.1	172.3	177.2	185.0
67.5°	137.9	137.2	137.9	140.0	139.3	140.7	144.2	145.6	149.8	154.7	161.1
70°	119.6	118.2	119.6	119.6	120.3	122.4	122.4	125.9	129.4	132.2	137.9
72.5°	99.9	100.6	99.9	100.6	102.0	102.7	104.1	106.2	108.3	111.1	114.6
75°	83.0	83.0	83.7	84.4	85.8	85.8	86.5	87.9	89.3	90.7	95.0
77.5°	66.1	66.8	67.5	68.2	68.2	68.9	69.6	70.3	72.4	73.1	75.3
80°	50.6	51.3	51.3	51.3	52.8	51.3	52.8	54.2	54.2	54.9	56.3
82.5°	36.6	37.3	36.6	37.3	38.0	38.0	37.3	38.0	38.0	39.4	39.4
85°	23.9	22.5	22.5	22.5	22.5	22.5	23.2	23.9	23.2	23.2	23.9
87.5°	9.8	9.8	9.8	9.8	10.6	9.8	10.6	10.6	10.6	9.8	10.6
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3
2.5°	1925.8	1920.1	1915.2	1906.8	1896.2	1880.8	1878.6	1879.4	1860.4	1842.1	1839.3
5°	1977.8	1968.7	1953.2	1934.9	1918.0	1892.0	1880.8	1873.0	1844.2	1819.6	1809.7
7.5°	2033.4	2011.6	1990.5	1961.6	1933.5	1899.7	1878.6	1862.5	1824.5	1792.1	1775.3
10°	2077.0	2050.3	2020.0	1983.4	1944.8	1903.3	1871.6	1846.3	1800.6	1760.5	1739.4
12.5°	2107.9	2077.7	2041.8	1998.2	1953.9	1899.0	1860.4	1826.6	1771.0	1723.2	1697.9
15°	2124.1	2091.8	2047.5	1999.6	1953.9	1896.2	1844.9	1795.7	1740.8	1681.0	1649.4
17.5°	2138.9	2096.7	2046.7	1991.9	1945.5	1885.0	1821.7	1757.7	1695.8	1639.5	1588.2
20°	2128.3	2092.5	2036.9	1979.9	1927.9	1857.5	1790.7	1724.6	1647.2	1581.8	1530.5
22.5°	2079.1	2072.8	2013.0	1951.8	1892.0	1824.5	1747.1	1681.7	1598.7	1521.3	1459.5
25°	2021.4	2013.7	1981.3	1915.9	1848.4	1778.1	1708.4	1633.2	1537.5	1457.3	1386.3
27.5°	1972.9	1955.3	1932.1	1870.9	1798.5	1728.1	1656.4	1583.2	1481.3	1391.9	1311.0
30°	1874.4	1891.3	1865.3	1823.1	1739.4	1671.2	1602.2	1522.8	1421.5	1318.8	1235.8
32.5°	1718.3	1820.3	1794.2	1760.5	1678.2	1603.6	1538.2	1460.2	1348.3	1247.0	1161.2
35°	1580.4	1668.3	1727.4	1686.6	1614.2	1527.7	1460.9	1392.6	1275.9	1172.5	1090.2
37.5°	1446.8	1540.3	1638.8	1601.5	1541.7	1448.9	1378.6	1311.0	1202.7	1098.6	1016.3
40°	1271.7	1408.1	1503.1	1517.8	1456.6	1363.1	1294.9	1225.2	1129.6	1026.2	938.3
42.5°	1103.6	1278.7	1355.4	1431.3	1368.7	1280.8	1204.8	1145.8	1053.6	962.9	867.2
45°	927.7	1126.8	1240.0	1298.4	1275.9	1195.7	1112.7	1055.7	978.4	894.0	803.2
47.5°	775.1	964.3	1126.1	1159.1	1180.9	1102.1	1024.8	967.1	900.3	830.7	744.1
50°	614.7	811.0	984.0	1043.8	1085.3	1013.5	932.6	882.7	826.4	763.8	687.2
52.5°	478.3	661.9	843.3	945.3	959.4	922.1	847.5	798.3	753.3	697.0	627.4
55°	379.8	521.9	703.4	822.2	835.6	826.4	759.6	716.7	683.7	636.5	578.2
57.5°	315.1	405.8	569.7	706.9	726.6	735.0	680.1	641.5	611.9	574.6	521.9
60°	272.2	320.0	445.2	579.6	633.7	648.5	600.0	571.8	547.2	513.4	464.2
62.5°	240.5	262.3	340.4	469.8	539.5	552.1	527.5	506.4	486.0	453.7	410.1
65°	200.5	223.7	262.3	362.9	448.7	455.1	460.0	439.6	423.4	396.7	358.0
67.5°	168.1	186.4	211.7	278.5	360.1	378.4	391.1	381.9	366.4	339.7	306.7
70°	142.8	153.3	171.6	208.9	275.0	314.4	327.8	320.7	313.0	284.2	256.0
72.5°	118.9	127.3	137.9	160.4	207.5	249.7	269.4	265.9	257.4	235.6	212.4
75°	98.5	102.0	110.4	123.1	150.5	189.9	213.1	215.9	206.1	185.7	167.4
77.5°	77.4	80.9	85.8	93.5	111.1	137.9	156.8	163.9	157.6	142.8	124.5
80°	59.1	61.2	64.7	68.2	75.3	93.5	113.2	117.5	113.9	102.0	90.7
82.5°	39.4	40.8	43.6	46.4	49.9	58.4	75.3	78.1	77.4	66.8	59.1
85°	23.9	23.9	24.6	26.7	28.1	31.7	40.8	45.0	42.9	35.9	32.4
87.5°	9.8	10.6	9.8	9.8	9.8	10.6	13.4	18.3	14.1	10.6	9.8
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°	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3	1865.3
2.5°	1831.5	1828.7	1818.2	1808.3	1797.1	1783.7	1784.4	1786.5	1781.6	1780.2	1785.1
5°	1795.7	1785.8	1769.6	1753.5	1740.8	1723.9	1714.1	1719.0	1715.5	1709.1	1704.9
7.5°	1757.7	1743.6	1720.4	1700.0	1683.1	1651.5	1644.4	1636.0	1629.0	1614.9	1612.1
10°	1712.7	1692.3	1662.7	1633.9	1602.9	1578.3	1555.1	1545.3	1526.3	1513.6	1510.1
12.5°	1666.2	1632.5	1599.4	1557.2	1522.0	1486.2	1465.8	1451.7	1432.7	1401.8	1387.0
15°	1618.4	1567.1	1522.8	1476.3	1452.4	1403.9	1365.2	1321.6	1298.4	1246.3	1216.1
17.5°	1554.4	1495.3	1435.5	1397.6	1347.6	1280.1	1215.4	1192.9	1157.7	1124.0	1090.2
20°	1467.9	1413.7	1356.8	1299.8	1223.8	1145.8	1121.1	1082.5	1043.8	1023.4	1005.8
22.5°	1388.4	1330.0	1262.5	1187.3	1109.2	1048.0	1015.6	987.5	963.6	945.3	924.9
25°	1313.2	1252.7	1156.3	1079.6	1011.4	966.4	950.2	913.7	888.3	875.0	857.4
27.5°	1230.2	1147.2	1069.8	990.3	929.8	904.5	867.2	838.4	811.7	785.6	779.3
30°	1151.4	1059.2	982.6	917.9	873.6	838.4	800.4	766.7	749.1	739.2	723.0
32.5°	1073.3	979.8	908.0	857.4	809.6	772.3	736.4	718.8	692.1	670.3	656.2
35°	989.6	908.0	851.1	792.0	746.3	709.7	691.4	651.3	636.5	630.2	615.4
37.5°	915.8	843.3	785.6	740.6	690.7	661.1	625.3	616.1	596.4	579.6	574.6
40°	854.6	786.3	732.2	673.8	642.9	604.2	586.6	562.0	554.9	548.6	537.4
42.5°	787.8	729.4	667.5	628.1	582.4	564.8	537.4	530.3	513.4	507.1	502.9
45°	730.8	676.6	617.5	569.7	543.7	517.7	507.1	489.5	481.8	474.1	466.3
47.5°	675.2	618.9	571.8	526.8	498.0	486.0	467.0	454.4	445.9	438.2	430.5
50°	623.9	566.9	514.1	481.8	461.4	444.5	432.6	422.0	410.1	393.2	375.6
52.5°	568.3	517.0	474.1	442.4	424.1	407.9	397.4	379.1	355.9	337.6	329.2
55°	512.7	464.2	426.9	401.6	389.0	373.5	349.6	322.8	308.1	305.3	303.1
57.5°	465.6	419.9	385.4	365.7	351.0	323.5	298.2	288.4	284.2	282.7	281.3
60°	412.9	372.1	347.5	326.4	301.7	275.7	268.0	266.6	262.3	260.2	258.8
62.5°	364.3	329.2	306.7	281.3	255.3	250.4	244.8	241.2	239.1	234.2	232.1
65°	317.2	289.1	264.5	237.7	228.6	225.1	220.1	215.2	209.6	206.1	203.3
67.5°	272.2	244.8	218.7	208.9	204.0	198.3	192.0	185.0	182.2	177.2	176.5
70°	227.9	202.6	188.5	182.2	173.0	168.1	161.1	158.3	153.3	151.2	149.1
72.5°	185.7	167.4	161.8	152.6	146.3	138.6	135.0	132.2	129.4	125.9	125.9
75°	144.9	140.0	129.4	122.4	116.1	111.8	110.4	105.5	104.8	102.7	101.3
77.5°	115.3	105.5	102.0	94.2	90.0	87.9	86.5	83.7	80.9	80.2	79.5
80°	81.6	76.7	72.4	68.9	65.4	64.0	62.6	61.9	60.5	59.1	58.4
82.5°	53.5	50.6	47.8	45.7	45.0	42.9	41.5	40.8	39.4	39.4	39.4
85°	28.8	28.1	26.7	25.3	23.9	23.9	23.2	22.5	22.5	20.4	20.4
87.5°	9.1	9.1	8.4	8.4	7.0	7.7	7.0	7.0	6.3	7.0	7.0
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: P243089

CATALOG NUMBER: S121RDR-H1025D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1865.3	1865.3	1865.3	1865.3
2.5°	1779.5	1779.5	1776.7	1779.5
5°	1702.1	1695.8	1693.7	1692.3
7.5°	1603.6	1598.0	1592.4	1586.8
10°	1503.1	1494.6	1489.7	1485.5
12.5°	1372.2	1361.7	1342.0	1347.6
15°	1211.2	1211.9	1166.2	1216.8
17.5°	1079.6	1083.2	1064.9	1062.1
20°	995.9	994.5	987.5	979.1
22.5°	910.1	903.8	901.0	887.6
25°	830.0	818.7	822.2	803.2
27.5°	771.6	762.4	759.6	758.2
30°	713.2	694.2	687.9	692.1
32.5°	654.1	652.7	650.6	651.3
35°	604.2	601.4	595.0	595.0
37.5°	569.7	570.4	566.9	564.1
40°	527.5	524.0	523.3	519.1
42.5°	497.3	490.2	487.4	488.1
45°	462.1	457.9	454.4	455.8
47.5°	420.6	416.4	408.6	406.5
50°	364.3	358.7	355.2	351.7
52.5°	322.1	321.4	320.0	319.3
55°	301.7	299.6	299.6	299.6
57.5°	280.6	279.2	278.5	279.9
60°	257.4	256.0	253.2	253.2
62.5°	228.6	227.2	226.5	223.7
65°	199.8	199.0	197.6	198.3
67.5°	173.0	172.3	172.3	170.2
70°	147.0	147.0	144.9	146.3
72.5°	123.1	122.4	122.4	122.4
75°	99.9	99.2	98.5	98.5
77.5°	78.8	78.8	77.4	77.4
80°	57.0	57.0	56.3	57.7
82.5°	38.0	39.4	38.0	38.0
85°	20.4	21.1	21.1	21.1
87.5°	6.3	5.6	5.6	5.6
90°	0.0	0.0	0.0	0.0

(END OF REPORT)