

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: P242224

Luminaire Tested: **S121RDR-S1025D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242224
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-28)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-S1025D830-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3366.4 lumens
Efficiency: N/A
Efficacy: 81.9 lumens/watt
Spacing Criteria (0/90/45): 0.96 / 1.23 / 1.1
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

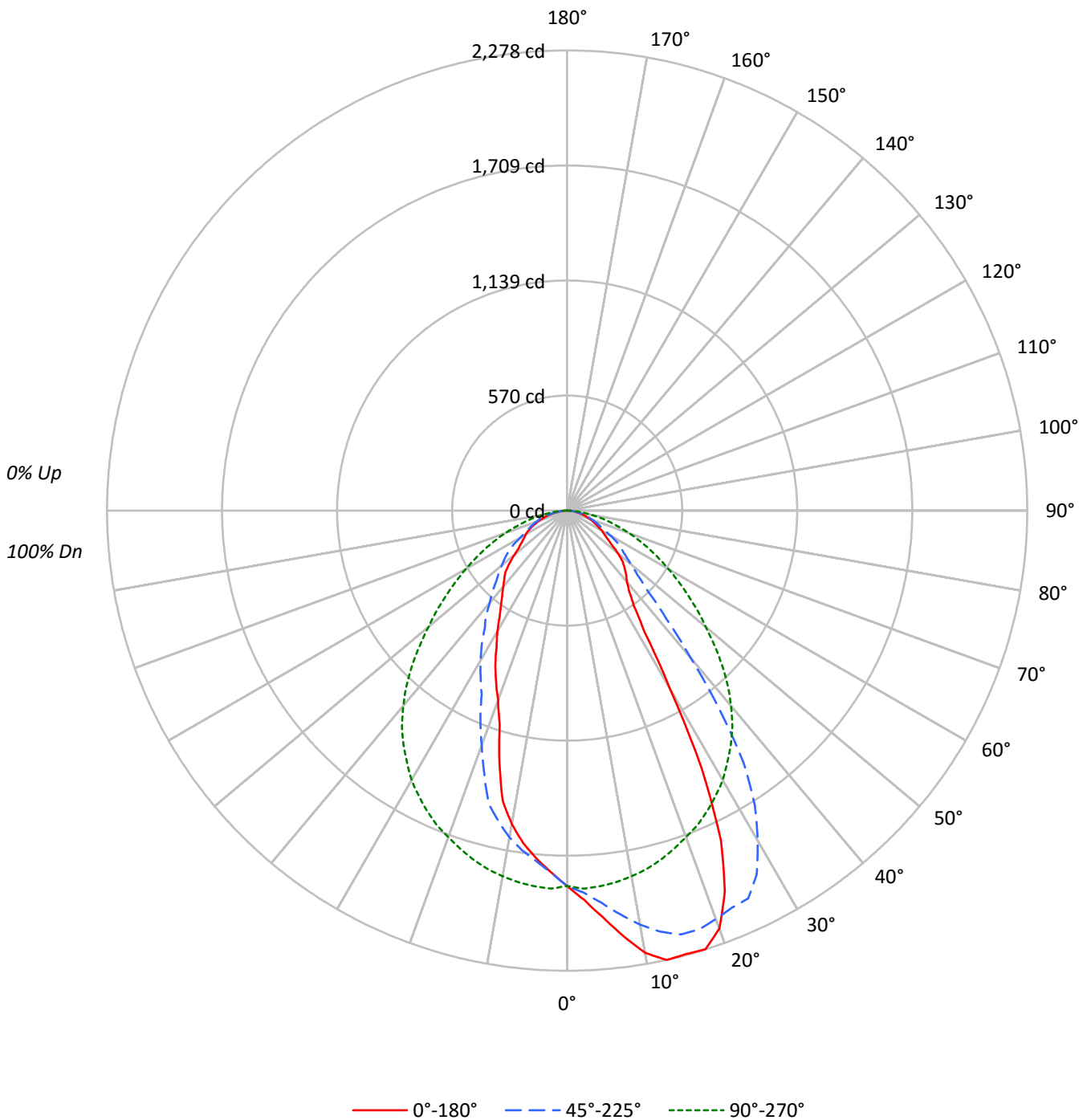
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	82	87	83	80	84	81	78	76
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	68	67
4	88	77	69	64	85	76	69	63	73	67	62	71	66	61	69	65	61	59
5	81	70	62	56	79	69	62	56	67	60	55	65	59	55	63	58	54	52
6	76	64	56	50	74	63	56	50	61	55	50	60	54	49	58	53	49	47
7	71	59	51	45	69	58	51	45	57	50	45	55	49	45	54	48	44	43
8	67	54	47	41	65	54	46	41	52	46	41	51	45	41	50	45	40	39
9	63	50	43	38	61	50	43	38	49	42	37	48	42	37	47	41	37	35
10	59	47	40	35	58	46	39	35	45	39	35	44	39	34	44	38	34	33

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	55052	55052	55052
5°	60084	55533	51440
10°	66871	55315	47411
15°	69721	54896	39681
20°	69422	54246	31497
25°	58870	53642	27495
30°	34651	52719	23611
35°	20820	51114	20618
40°	17831	48793	19018
45°	16857	45485	18089
50°	15069	41311	15649
55°	12558	37705	14144
60°	11674	34359	14074
65°	10776	31290	13615
70°	10162	28199	12830
75°	9593	24945	11677
80°	8583	20851	10255
85°	8057	16386	8057



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	178.1	5.3
10°-20°	507.4	15.1
20°-30°	693.1	20.6
30°-40°	645.8	19.2
40°-50°	533.8	15.9
50°-60°	393.6	11.7
60°-70°	251.7	7.5
70°-80°	129.5	3.8
80°-90°	33.3	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°	1378.7	41.0
0°-40°	2024.4	60.1
0°-60°	2951.9	87.7
0°-90°	3366.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3366.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1858	1858	1858	1858	1858	
5°	2020	1949	1867	1743	1730	199
15°	2273	2172	1790	1501	1294	640
25°	1801	2119	1641	1002	841	782
35°	576	1523	1413	710	570	391
45°	402	568	1086	497	432	308
55°	243	326	730	356	274	224
65°	154	177	446	207	194	153
75°	84	92	218	115	102	88
85°	24	24	48	27	24	27
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°	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0
2.5°	1929.3	1927.9	1930.0	1928.6	1927.2	1923.7	1920.9	1912.5	1899.9	1892.9	1899.9
5°	2020.1	2025.6	2023.6	2020.8	2014.5	2008.9	1996.3	1988.6	1966.3	1948.8	1953.7
7.5°	2123.4	2130.4	2121.3	2115.1	2111.6	2095.5	2081.5	2059.9	2035.4	2015.9	2004.7
10°	2222.6	2224.7	2221.9	2216.3	2204.5	2187.0	2166.7	2142.3	2111.6	2081.5	2061.3
12.5°	2278.5	2282.0	2286.2	2276.4	2267.3	2253.4	2232.4	2208.0	2170.2	2135.3	2112.3
15°	2272.9	2275.7	2283.4	2279.9	2275.7	2269.4	2257.6	2237.3	2210.8	2172.3	2139.5
17.5°	2277.1	2279.2	2282.7	2270.1	2263.1	2255.5	2240.1	2226.1	2203.8	2173.7	2149.3
20°	2201.7	2235.9	2231.7	2248.5	2255.5	2254.8	2240.1	2213.5	2182.8	2152.1	2140.9
22.5°	2039.6	2066.9	2070.4	2096.2	2128.3	2154.2	2186.3	2198.2	2174.4	2128.3	2113.0
25°	1800.7	1820.3	1839.8	1876.9	1911.1	1983.0	2048.7	2098.3	2125.5	2119.2	2089.2
27.5°	1447.3	1426.3	1503.9	1546.5	1642.2	1746.9	1839.1	1930.0	1973.3	2031.2	2060.6
30°	1012.8	1010.7	1069.4	1143.4	1286.6	1383.0	1555.6	1701.5	1815.4	1886.6	1966.3
32.5°	711.1	721.6	764.9	810.3	889.2	1046.4	1178.4	1379.5	1573.7	1729.5	1827.3
35°	575.6	577.0	586.7	614.0	662.2	749.5	852.2	1047.7	1311.1	1522.7	1668.7
37.5°	504.3	508.5	511.3	526.7	544.1	581.2	646.1	781.6	999.6	1235.6	1489.2
40°	461.0	464.5	467.3	472.2	482.7	500.1	542.7	607.7	733.4	950.7	1232.9
42.5°	431.7	430.3	436.6	438.7	444.2	454.0	472.9	507.8	580.5	727.8	970.9
45°	402.3	404.4	404.4	407.2	412.1	417.7	425.4	447.0	484.1	567.9	758.6
47.5°	371.6	370.9	375.1	377.2	382.1	387.0	392.6	403.7	425.4	474.3	584.6
50°	326.9	328.3	336.0	343.0	349.9	356.2	363.2	370.2	384.2	410.7	478.5
52.5°	279.4	279.4	287.8	292.7	302.5	317.8	329.7	340.2	349.2	362.5	403.0
55°	243.1	243.8	246.6	250.8	257.7	265.4	280.8	299.0	314.3	325.5	347.9
57.5°	217.9	218.6	219.3	222.8	226.3	229.1	238.2	252.2	272.4	292.7	305.9
60°	197.0	196.3	196.3	198.4	201.2	204.7	209.5	215.1	226.3	248.0	271.7
62.5°	173.2	174.6	174.6	176.7	178.8	182.3	184.4	190.0	196.3	206.1	230.5
65°	153.7	155.1	153.7	155.8	157.2	159.3	162.8	165.5	171.1	177.4	187.2
67.5°	134.1	134.8	136.2	136.9	138.3	139.0	141.8	145.3	148.8	153.0	160.7
70°	117.3	117.3	117.3	118.7	120.1	120.1	122.2	123.6	127.1	131.3	135.5
72.5°	99.2	99.9	99.9	99.2	102.0	102.7	103.4	104.8	107.6	111.1	114.6
75°	83.8	82.4	82.4	83.1	85.2	85.2	85.9	86.6	88.7	91.5	93.6
77.5°	65.7	65.7	66.4	67.1	67.8	67.8	69.2	69.2	71.9	73.3	74.7
80°	50.3	51.7	52.4	51.7	51.7	52.4	52.4	53.8	54.5	55.2	56.6
82.5°	37.7	38.4	37.0	37.0	37.7	37.7	38.4	38.4	39.1	39.8	39.8
85°	23.7	23.7	24.4	23.7	24.4	23.7	23.7	25.1	24.4	24.4	25.1
87.5°	11.2	11.9	11.2	11.9	11.2	11.9	11.9	11.9	11.9	11.9	11.2
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°	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0
2.5°	1897.8	1897.1	1893.6	1885.9	1880.4	1869.9	1869.9	1873.4	1855.2	1842.6	1841.9
5°	1941.8	1934.8	1923.0	1908.3	1895.0	1876.9	1869.9	1867.1	1842.6	1823.8	1817.5
7.5°	1988.6	1971.2	1950.9	1927.2	1904.8	1879.0	1865.7	1855.2	1823.8	1800.7	1786.8
10°	2037.5	2009.6	1978.2	1943.9	1913.2	1878.3	1856.6	1838.5	1802.1	1770.0	1753.9
12.5°	2080.8	2041.7	2001.9	1957.2	1915.3	1871.3	1841.2	1817.5	1774.9	1736.5	1716.9
15°	2101.1	2059.2	2026.3	1964.9	1908.3	1863.6	1825.2	1789.6	1744.2	1701.5	1671.5
17.5°	2118.5	2072.4	2029.1	1971.2	1905.5	1847.5	1801.4	1756.0	1707.1	1662.4	1625.4
20°	2113.7	2074.5	2021.5	1960.0	1897.8	1830.8	1778.4	1720.4	1659.6	1614.2	1575.1
22.5°	2085.7	2053.6	1998.4	1939.7	1879.7	1807.7	1748.3	1685.5	1610.7	1561.1	1517.1
25°	2050.1	2019.4	1964.9	1904.1	1844.7	1774.9	1705.0	1640.8	1560.4	1501.1	1444.5
27.5°	2022.2	1976.1	1921.6	1853.8	1796.5	1730.2	1656.8	1591.9	1505.3	1439.6	1373.9
30°	1990.0	1937.6	1870.6	1798.6	1737.9	1677.1	1605.9	1540.9	1445.2	1370.5	1288.7
32.5°	1897.8	1898.5	1818.9	1738.6	1673.6	1608.6	1545.1	1475.9	1380.9	1292.9	1209.1
35°	1777.7	1824.5	1765.8	1673.6	1593.3	1533.2	1480.8	1413.1	1307.6	1216.8	1121.8
37.5°	1617.0	1699.4	1706.4	1610.7	1522.0	1451.5	1399.8	1343.2	1237.0	1139.3	1045.0
40°	1456.4	1565.3	1608.6	1542.3	1445.9	1364.9	1313.2	1261.5	1161.6	1056.1	968.8
42.5°	1259.4	1436.1	1489.9	1470.3	1367.0	1279.7	1225.2	1178.4	1081.3	977.9	891.3
45°	1037.3	1276.2	1354.4	1374.6	1287.3	1193.7	1130.9	1085.5	1000.3	909.4	819.3
47.5°	833.3	1095.9	1225.2	1246.1	1200.0	1109.2	1037.3	989.8	922.0	843.8	754.4
50°	635.6	904.6	1089.7	1121.8	1110.6	1018.4	952.1	896.2	844.5	774.6	690.8
52.5°	505.7	722.9	943.0	1003.0	1006.5	933.9	864.0	813.1	762.8	707.6	631.4
55°	403.7	558.8	781.6	883.6	893.4	843.1	778.8	729.9	692.2	640.5	576.3
57.5°	340.2	432.4	625.9	763.5	767.7	753.7	692.2	651.7	620.3	575.6	519.0
60°	290.6	343.0	482.7	643.3	664.3	664.3	615.4	579.8	549.7	516.2	462.4
62.5°	251.5	280.1	366.0	511.3	565.1	573.5	542.7	511.3	488.9	455.4	405.8
65°	211.6	233.3	283.6	395.4	469.4	484.8	469.4	446.3	428.9	394.0	354.8
67.5°	173.9	194.9	226.3	299.7	380.7	399.5	396.7	384.9	366.7	340.9	299.7
70°	143.9	156.5	179.5	222.1	299.0	327.6	336.0	325.5	309.4	281.5	251.5
72.5°	118.7	128.5	139.7	170.4	223.5	261.2	275.2	269.6	257.7	231.2	206.1
75°	97.1	103.4	111.1	125.7	160.7	203.3	219.3	217.9	206.1	183.7	163.4
77.5°	78.2	80.3	85.9	95.0	112.5	150.9	163.4	167.6	158.6	139.7	123.6
80°	58.7	61.5	64.3	69.2	77.5	99.9	116.0	122.2	114.6	103.4	87.3
82.5°	41.2	41.9	44.7	47.5	51.7	60.8	77.5	84.5	77.5	65.7	60.8
85°	25.8	25.1	25.8	26.5	30.7	32.8	43.3	48.2	46.8	39.8	34.2
87.5°	11.9	11.9	11.2	11.9	11.2	13.3	15.4	22.4	16.8	14.7	13.3
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0	1858.0
2.5°	1836.4	1834.3	1827.3	1817.5	1809.1	1795.1	1795.1	1798.6	1797.9	1799.3	1797.9
5°	1807.0	1797.2	1786.8	1773.5	1760.9	1742.8	1740.7	1742.1	1741.4	1740.7	1736.5
7.5°	1769.3	1758.1	1744.9	1728.1	1714.1	1696.7	1691.8	1690.4	1684.8	1682.7	1677.1
10°	1733.0	1719.7	1702.2	1682.0	1663.1	1642.9	1630.3	1623.3	1614.2	1604.5	1596.1
12.5°	1692.5	1675.0	1652.7	1628.2	1596.8	1574.4	1555.6	1543.7	1531.1	1514.3	1502.5
15°	1649.2	1613.5	1587.0	1547.2	1508.8	1501.1	1472.4	1434.7	1431.9	1350.2	1321.6
17.5°	1591.2	1561.8	1512.3	1460.6	1408.2	1365.6	1366.3	1264.3	1232.9	1232.2	1181.9
20°	1531.1	1490.6	1433.3	1380.9	1325.8	1237.7	1167.9	1134.4	1083.4	1063.8	1035.2
22.5°	1460.6	1407.5	1340.4	1269.2	1192.3	1121.1	1052.6	1020.5	994.7	973.0	961.1
25°	1376.7	1323.0	1242.6	1153.9	1068.0	1001.6	963.9	949.3	905.3	889.9	875.2
27.5°	1292.2	1233.6	1128.8	1043.6	973.0	927.6	888.5	864.0	843.1	804.0	786.5
30°	1211.9	1117.6	1031.0	952.8	899.7	857.1	828.4	778.8	749.5	731.3	723.6
32.5°	1124.6	1024.0	945.8	878.0	823.5	786.5	743.9	710.4	697.1	673.4	639.1
35°	1035.2	943.7	861.9	807.5	760.7	710.4	683.8	651.7	618.2	600.0	597.2
37.5°	948.6	861.9	803.3	746.0	689.4	660.1	621.0	586.7	574.9	558.1	539.9
40°	870.3	796.3	741.8	676.1	641.9	596.5	566.5	549.0	520.4	514.1	508.5
42.5°	806.1	742.5	681.0	622.4	582.5	546.2	519.7	499.4	490.3	475.0	470.1
45°	741.1	682.4	619.6	573.5	528.1	497.3	479.2	461.7	451.2	447.0	438.7
47.5°	682.4	625.2	567.2	510.6	479.9	459.6	439.4	430.3	424.0	414.9	410.0
50°	626.6	563.0	508.5	472.9	440.1	421.9	408.6	400.2	390.5	380.7	366.7
52.5°	570.0	515.5	463.1	425.4	400.9	389.1	376.5	367.4	347.9	329.0	317.1
55°	512.7	456.8	414.2	385.6	368.1	355.5	340.9	314.3	296.2	285.7	280.1
57.5°	461.0	410.7	373.0	349.2	336.7	315.7	289.9	273.1	264.0	259.8	257.0
60°	405.8	362.5	331.1	312.9	293.4	265.4	251.5	243.1	240.3	238.9	236.8
62.5°	358.3	319.9	295.5	275.2	247.3	232.6	224.9	220.7	220.7	218.6	217.2
65°	308.0	278.0	257.0	227.7	213.0	206.8	204.0	201.9	199.8	199.1	196.3
67.5°	266.8	240.3	213.0	197.7	188.6	185.1	182.3	181.6	178.8	176.7	174.6
70°	224.9	199.1	176.7	169.7	164.8	163.4	160.7	157.9	155.8	153.0	151.6
72.5°	183.0	158.6	150.9	147.4	142.5	140.4	136.9	134.8	131.3	129.9	128.5
75°	139.7	129.9	125.7	122.9	119.4	114.6	113.2	111.1	109.7	107.6	105.5
77.5°	111.1	105.5	100.6	97.1	94.3	90.8	88.0	87.3	85.9	83.8	83.1
80°	83.1	78.9	76.8	73.3	69.8	67.8	66.4	65.7	63.6	62.9	62.2
82.5°	57.3	53.8	52.4	48.2	46.8	46.8	46.1	44.7	43.3	42.6	41.9
85°	32.1	30.7	28.6	29.3	27.2	27.2	26.5	25.8	25.1	24.4	23.7
87.5°	12.6	11.9	11.2	10.5	10.5	8.4	8.4	8.4	9.1	8.4	7.7
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: P242224

CATALOG NUMBER: S121RDR-S1025D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1858.0	1858.0	1858.0	1858.0
2.5°	1800.0	1801.4	1796.5	1793.7
5°	1736.5	1734.4	1731.6	1729.5
7.5°	1671.5	1669.4	1669.4	1661.0
10°	1592.6	1587.0	1582.8	1575.8
12.5°	1492.0	1483.6	1480.8	1472.4
15°	1302.0	1284.5	1272.7	1293.6
17.5°	1170.0	1124.6	1128.1	1110.6
20°	1034.5	1016.3	1025.4	998.9
22.5°	946.5	935.3	924.8	919.2
25°	864.7	851.5	835.4	841.0
27.5°	762.1	762.1	751.6	755.8
30°	709.7	704.1	686.6	690.1
32.5°	628.0	621.0	618.9	620.3
35°	588.8	577.7	574.2	570.0
37.5°	534.4	530.2	530.9	528.1
40°	498.0	494.5	490.3	491.7
42.5°	466.6	464.5	460.3	461.0
45°	435.9	433.8	431.7	431.7
47.5°	401.6	397.4	394.0	389.8
50°	356.9	348.6	342.3	339.5
52.5°	308.7	304.5	300.4	300.4
55°	278.0	275.9	274.5	273.8
57.5°	256.3	255.0	255.0	252.9
60°	236.8	236.8	236.1	237.5
62.5°	217.9	215.8	216.5	216.5
65°	196.3	195.6	194.9	194.2
67.5°	173.2	172.5	173.2	171.8
70°	150.2	150.2	149.5	148.1
72.5°	126.4	127.8	126.4	125.7
75°	104.1	103.4	104.1	102.0
77.5°	83.1	80.3	81.7	82.4
80°	61.5	61.5	60.8	60.1
82.5°	41.2	41.9	40.5	40.5
85°	23.7	23.7	22.4	23.7
87.5°	7.0	7.0	7.0	8.4
90°	0.0	0.0	0.0	0.0

(END OF REPORT)