

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: P242228

Luminaire Tested: **S121RDR-S880D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242228  
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-S880D835-X4F0-XX-UDD-A-W  
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3073.1 lumens  
Efficiency: N/A  
Efficacy: 88.3 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

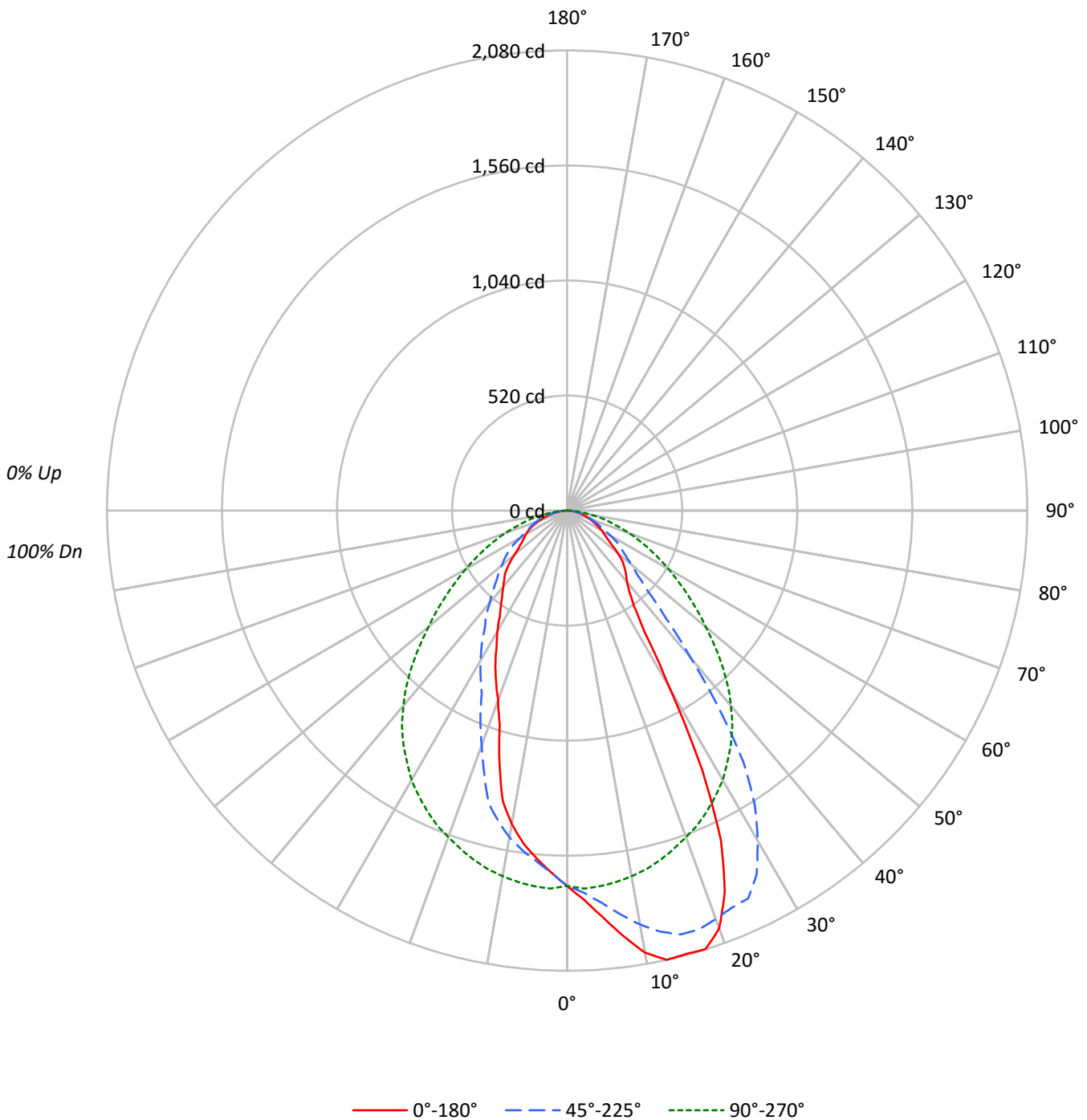
Input Watts (W): 34.8  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				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°	50258	50258	50258
5°	54849	50697	46958
10°	61046	50495	43283
15°	63647	50114	36224
20°	63375	49523	28753
25°	53744	48970	25098
30°	31634	48128	21554
35°	19004	46661	18820
40°	16280	44543	17363
45°	15391	41521	16514
50°	13755	37711	14285
55°	11463	34425	12914
60°	10655	31366	12847
65°	9836	28570	12430
70°	9278	25738	11713
75°	8758	22770	10658
80°	7832	19042	9351
85°	7377	14958	7377



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	162.6	5.3
10°-20°	463.2	15.1
20°-30°	632.7	20.6
30°-40°	589.5	19.2
40°-50°	487.3	15.9
50°-60°	359.3	11.7
60°-70°	229.8	7.5
70°-80°	118.2	3.8
80°-90°	30.4	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°	1258.6	41.0
0°-40°	1848.1	60.1
0°-60°	2694.8	87.7
0°-90°	3073.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3073.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1696	1696	1696	1696	1696	
5°	1844	1779	1704	1591	1579	182
15°	2075	1983	1634	1370	1181	585
25°	1644	1935	1498	914	768	714
35°	525	1390	1290	648	520	357
45°	367	518	991	454	394	281
55°	222	297	666	325	250	204
65°	140	162	408	189	177	140
75°	76	84	199	105	93	80
85°	22	22	44	25	22	24
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°	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2
2.5°	1761.2	1759.9	1761.9	1760.6	1759.3	1756.1	1753.6	1745.9	1734.4	1728.1	1734.4
5°	1844.1	1849.2	1847.3	1844.7	1839.0	1833.9	1822.4	1815.4	1795.0	1779.1	1783.5
7.5°	1938.5	1944.9	1936.6	1930.8	1927.6	1913.0	1900.2	1880.5	1858.1	1840.3	1830.1
10°	2029.0	2030.9	2028.4	2023.3	2012.5	1996.5	1978.0	1955.7	1927.6	1900.2	1881.7
12.5°	2080.0	2083.2	2087.1	2078.1	2069.8	2057.1	2038.0	2015.6	1981.2	1949.3	1928.3
15°	2074.9	2077.5	2084.5	2081.3	2077.5	2071.8	2060.9	2042.4	2018.2	1983.1	1953.1
17.5°	2078.8	2080.7	2083.9	2072.4	2066.0	2059.0	2045.0	2032.2	2011.8	1984.4	1962.1
20°	2009.9	2041.1	2037.3	2052.6	2059.0	2058.4	2045.0	2020.7	1992.7	1964.6	1954.4
22.5°	1862.0	1886.8	1890.0	1913.6	1942.9	1966.5	1995.9	2006.7	1985.0	1942.9	1928.9
25°	1643.9	1661.7	1679.6	1713.4	1744.6	1810.3	1870.3	1915.5	1940.4	1934.7	1907.2
27.5°	1321.2	1302.1	1372.9	1411.8	1499.1	1594.8	1679.0	1761.9	1801.4	1854.3	1881.1
30°	924.6	922.7	976.3	1043.8	1174.6	1262.6	1420.1	1553.3	1657.3	1722.3	1795.0
32.5°	649.1	658.7	698.2	739.7	811.7	955.2	1075.7	1259.4	1436.6	1578.8	1668.1
35°	525.4	526.7	535.6	560.5	604.5	684.2	777.9	956.5	1196.9	1390.1	1523.4
37.5°	460.4	464.2	466.8	480.8	496.7	530.5	589.8	713.5	912.5	1128.0	1359.5
40°	420.9	424.0	426.6	431.1	440.6	456.6	495.5	554.8	669.5	867.9	1125.5
42.5°	394.1	392.8	398.5	400.4	405.6	414.5	431.7	463.6	529.9	664.4	886.3
45°	367.3	369.2	369.2	371.8	376.2	381.3	388.3	408.1	441.9	518.4	692.5
47.5°	339.2	338.6	342.4	344.3	348.8	353.3	358.4	368.6	388.3	433.0	533.7
50°	298.4	299.7	306.7	313.1	319.5	325.2	331.6	338.0	350.7	374.9	436.8
52.5°	255.1	255.1	262.7	267.2	276.1	290.1	301.0	310.5	318.8	330.9	367.9
55°	221.9	222.5	225.1	228.9	235.3	242.3	256.3	272.9	286.9	297.1	317.6
57.5°	198.9	199.6	200.2	203.4	206.6	209.2	217.4	230.2	248.7	267.2	279.3
60°	179.8	179.2	179.2	181.1	183.6	186.8	191.3	196.4	206.6	226.4	248.0
62.5°	158.1	159.4	159.4	161.3	163.2	166.4	168.3	173.4	179.2	188.1	210.4
65°	140.3	141.6	140.3	142.2	143.5	145.4	148.6	151.1	156.2	162.0	170.9
67.5°	122.4	123.1	124.3	125.0	126.3	126.9	129.4	132.6	135.8	139.6	146.7
70°	107.1	107.1	107.1	108.4	109.7	109.7	111.6	112.9	116.1	119.9	123.7
72.5°	90.5	91.2	91.2	90.5	93.1	93.7	94.4	95.6	98.2	101.4	104.6
75°	76.5	75.2	75.2	75.9	77.8	77.8	78.4	79.1	81.0	83.5	85.4
77.5°	59.9	59.9	60.6	61.2	61.9	61.9	63.1	63.1	65.7	67.0	68.2
80°	45.9	47.2	47.8	47.2	47.2	47.8	47.8	49.1	49.7	50.4	51.7
82.5°	34.4	35.1	33.8	33.8	34.4	34.4	35.1	35.1	35.7	36.3	36.3
85°	21.7	21.7	22.3	21.7	22.3	21.7	21.7	23.0	22.3	22.3	23.0
87.5°	10.2	10.8	10.2	10.8	10.2	10.8	10.8	10.8	10.8	10.8	10.2
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°	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2
2.5°	1732.5	1731.9	1728.7	1721.7	1716.6	1707.0	1707.0	1710.2	1693.6	1682.1	1681.5
5°	1772.7	1766.3	1755.5	1742.1	1730.0	1713.4	1707.0	1704.5	1682.1	1664.9	1659.2
7.5°	1815.4	1799.5	1781.0	1759.3	1738.9	1715.3	1703.2	1693.6	1664.9	1643.9	1631.1
10°	1860.1	1834.5	1805.9	1774.6	1746.5	1714.7	1694.9	1678.3	1645.2	1615.8	1601.2
12.5°	1899.6	1863.9	1827.5	1786.7	1748.5	1708.3	1680.9	1659.2	1620.3	1585.2	1567.4
15°	1918.1	1879.8	1849.8	1793.7	1742.1	1701.3	1666.2	1633.7	1592.2	1553.3	1525.9
17.5°	1934.0	1891.9	1852.4	1799.5	1739.5	1686.6	1644.5	1603.1	1558.4	1517.6	1483.8
20°	1929.6	1893.8	1845.4	1789.3	1732.5	1671.3	1623.5	1570.6	1515.1	1473.6	1437.9
22.5°	1904.0	1874.7	1824.3	1770.8	1715.9	1650.3	1596.1	1538.7	1470.4	1425.2	1385.0
25°	1871.5	1843.5	1793.7	1738.3	1684.1	1620.3	1556.5	1497.9	1424.5	1370.3	1318.7
27.5°	1846.0	1803.9	1754.2	1692.3	1640.1	1579.5	1512.5	1453.2	1374.2	1314.2	1254.3
30°	1816.7	1768.9	1707.7	1642.0	1586.5	1531.0	1466.0	1406.7	1319.3	1251.1	1176.5
32.5°	1732.5	1733.2	1660.5	1587.1	1527.8	1468.5	1410.5	1347.4	1260.7	1180.3	1103.8
35°	1622.8	1665.6	1612.0	1527.8	1454.5	1399.7	1351.8	1290.0	1193.7	1110.8	1024.1
37.5°	1476.2	1551.4	1557.8	1470.4	1389.5	1325.1	1277.9	1226.2	1129.3	1040.0	953.9
40°	1329.5	1429.0	1468.5	1408.0	1320.0	1246.0	1198.8	1151.6	1060.4	964.1	884.4
42.5°	1149.7	1311.0	1360.1	1342.3	1247.9	1168.2	1118.5	1075.7	987.1	892.7	813.7
45°	946.9	1165.0	1236.4	1254.9	1175.2	1089.8	1032.4	990.9	913.1	830.2	748.0
47.5°	760.7	1000.5	1118.5	1137.6	1095.5	1012.6	946.9	903.6	841.7	770.3	688.7
50°	580.3	825.8	994.7	1024.1	1013.9	929.7	869.1	818.1	770.9	707.2	630.6
52.5°	461.7	660.0	860.8	915.7	918.9	852.6	788.8	742.2	696.3	645.9	576.4
55°	368.6	510.1	713.5	806.6	815.6	769.7	711.0	666.4	631.9	584.7	526.1
57.5°	310.5	394.7	571.3	697.0	700.8	688.0	631.9	594.9	566.2	525.4	473.8
60°	265.3	313.1	440.6	587.3	606.4	606.4	561.8	529.3	501.8	471.2	422.1
62.5°	229.6	255.7	334.1	466.8	515.9	523.5	495.5	466.8	446.4	415.8	370.5
65°	193.2	213.0	258.9	360.9	428.5	442.5	428.5	407.5	391.5	359.6	323.9
67.5°	158.8	177.9	206.6	273.6	347.5	364.7	362.2	351.4	334.8	311.2	273.6
70°	131.4	142.8	163.9	202.8	272.9	299.1	306.7	297.1	282.5	257.0	229.6
72.5°	108.4	117.3	127.5	155.6	204.1	238.5	251.2	246.1	235.3	211.1	188.1
75°	88.6	94.4	101.4	114.8	146.7	185.6	200.2	198.9	188.1	167.7	149.2
77.5°	71.4	73.3	78.4	86.7	102.7	137.7	149.2	153.0	144.7	127.5	112.9
80°	53.6	56.1	58.7	63.1	70.8	91.2	105.9	111.6	104.6	94.4	79.7
82.5°	37.6	38.3	40.8	43.4	47.2	55.5	70.8	77.2	70.8	59.9	55.5
85°	23.6	23.0	23.6	24.2	28.1	30.0	39.5	44.0	42.7	36.3	31.2
87.5°	10.8	10.8	10.2	10.8	10.2	12.1	14.0	20.4	15.3	13.4	12.1
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°	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2	1696.2
2.5°	1676.4	1674.5	1668.1	1659.2	1651.5	1638.8	1638.8	1642.0	1641.3	1642.6	1641.3
5°	1649.6	1640.7	1631.1	1619.0	1607.5	1591.0	1589.0	1590.3	1589.7	1589.0	1585.2
7.5°	1615.2	1605.0	1592.9	1577.6	1564.8	1548.9	1544.4	1543.1	1538.0	1536.1	1531.0
10°	1582.0	1569.9	1554.0	1535.5	1518.3	1499.8	1488.3	1481.9	1473.6	1464.7	1457.1
12.5°	1545.0	1529.1	1508.7	1486.4	1457.7	1437.3	1420.1	1409.2	1397.7	1382.4	1371.6
15°	1505.5	1473.0	1448.8	1412.4	1377.3	1370.3	1344.2	1309.8	1307.2	1232.6	1206.5
17.5°	1452.6	1425.8	1380.5	1333.3	1285.5	1246.6	1247.3	1154.2	1125.5	1124.8	1078.9
20°	1397.7	1360.8	1308.5	1260.7	1210.3	1129.9	1066.2	1035.6	989.0	971.2	945.0
22.5°	1333.3	1284.9	1223.7	1158.6	1088.5	1023.4	961.0	931.6	908.0	888.3	877.4
25°	1256.8	1207.7	1134.4	1053.4	975.0	914.4	880.0	866.6	826.4	812.4	799.0
27.5°	1179.7	1126.1	1030.5	952.7	888.3	846.8	811.1	788.8	769.7	733.9	718.0
30°	1106.3	1020.3	941.2	869.8	821.3	782.4	756.3	711.0	684.2	667.6	660.6
32.5°	1026.6	934.8	863.4	801.5	751.8	718.0	679.1	648.5	636.4	614.7	583.5
35°	945.0	861.5	786.9	737.1	694.4	648.5	624.3	594.9	564.3	547.7	545.2
37.5°	865.9	786.9	733.3	681.0	629.4	602.6	566.9	535.6	524.8	509.5	492.9
40°	794.5	726.9	677.2	617.3	586.0	544.6	517.1	501.2	475.1	469.3	464.2
42.5°	735.9	677.8	621.7	568.2	531.8	498.6	474.4	455.9	447.6	433.6	429.1
45°	676.6	623.0	565.6	523.5	482.1	454.0	437.4	421.5	411.9	408.1	400.4
47.5°	623.0	570.7	517.8	466.1	438.1	419.6	401.1	392.8	387.1	378.8	374.3
50°	572.0	514.0	464.2	431.7	401.7	385.1	373.0	365.4	356.5	347.5	334.8
52.5°	520.3	470.6	422.8	388.3	366.0	355.2	343.7	335.4	317.6	300.3	289.5
55°	468.0	417.0	378.1	352.0	336.0	324.6	311.2	286.9	270.4	260.8	255.7
57.5°	420.9	374.9	340.5	318.8	307.4	288.2	264.6	249.3	241.0	237.2	234.7
60°	370.5	330.9	302.3	285.7	267.8	242.3	229.6	221.9	219.4	218.1	216.2
62.5°	327.1	292.0	269.7	251.2	225.7	212.3	205.3	201.5	201.5	199.6	198.3
65°	281.2	253.8	234.7	207.9	194.5	188.7	186.2	184.3	182.4	181.7	179.2
67.5°	243.6	219.4	194.5	180.5	172.2	169.0	166.4	165.8	163.2	161.3	159.4
70°	205.3	181.7	161.3	155.0	150.5	149.2	146.7	144.1	142.2	139.6	138.4
72.5°	167.1	144.7	137.7	134.5	130.1	128.2	125.0	123.1	119.9	118.6	117.3
75°	127.5	118.6	114.8	112.2	109.0	104.6	103.3	101.4	100.1	98.2	96.3
77.5°	101.4	96.3	91.8	88.6	86.1	82.9	80.3	79.7	78.4	76.5	75.9
80°	75.9	72.1	70.1	67.0	63.8	61.9	60.6	59.9	58.0	57.4	56.8
82.5°	52.3	49.1	47.8	44.0	42.7	42.7	42.1	40.8	39.5	38.9	38.3
85°	29.3	28.1	26.1	26.8	24.9	24.9	24.2	23.6	23.0	22.3	21.7
87.5°	11.5	10.8	10.2	9.6	9.6	7.7	7.7	7.7	8.3	7.7	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: P242228

CATALOG NUMBER: S121RDR-S880D835-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1696.2	1696.2	1696.2	1696.2
2.5°	1643.2	1644.5	1640.1	1637.5
5°	1585.2	1583.3	1580.8	1578.8
7.5°	1525.9	1524.0	1524.0	1516.4
10°	1453.9	1448.8	1444.9	1438.6
12.5°	1362.0	1354.4	1351.8	1344.2
15°	1188.6	1172.7	1161.8	1180.9
17.5°	1068.1	1026.6	1029.8	1013.9
20°	944.4	927.8	936.1	911.9
22.5°	864.0	853.8	844.3	839.2
25°	789.4	777.3	762.6	767.7
27.5°	695.7	695.7	686.1	689.9
30°	647.9	642.8	626.8	630.0
32.5°	573.3	566.9	565.0	566.2
35°	537.5	527.3	524.2	520.3
37.5°	487.8	484.0	484.6	482.1
40°	454.7	451.5	447.6	448.9
42.5°	426.0	424.0	420.2	420.9
45°	397.9	396.0	394.1	394.1
47.5°	366.7	362.8	359.6	355.8
50°	325.8	318.2	312.5	309.9
52.5°	281.8	278.0	274.2	274.2
55°	253.8	251.9	250.6	250.0
57.5°	234.0	232.7	232.7	230.8
60°	216.2	216.2	215.5	216.8
62.5°	198.9	197.0	197.7	197.7
65°	179.2	178.5	177.9	177.3
67.5°	158.1	157.5	158.1	156.9
70°	137.1	137.1	136.5	135.2
72.5°	115.4	116.7	115.4	114.8
75°	95.0	94.4	95.0	93.1
77.5°	75.9	73.3	74.6	75.2
80°	56.1	56.1	55.5	54.8
82.5°	37.6	38.3	37.0	37.0
85°	21.7	21.7	20.4	21.7
87.5°	6.4	6.4	6.4	7.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)