

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: P242420

Luminaire Tested: **S122RDR-S865D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242420
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-29)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S122RDR-S865D940-X4F0-XX-UDD-A-W
Description: DEFINE 2 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2827.8 lumens
Efficiency: N/A
Efficacy: 81.3 lumens/watt
Spacing Criteria (0/90/45): 0.85 / 1.16 / 1.02
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

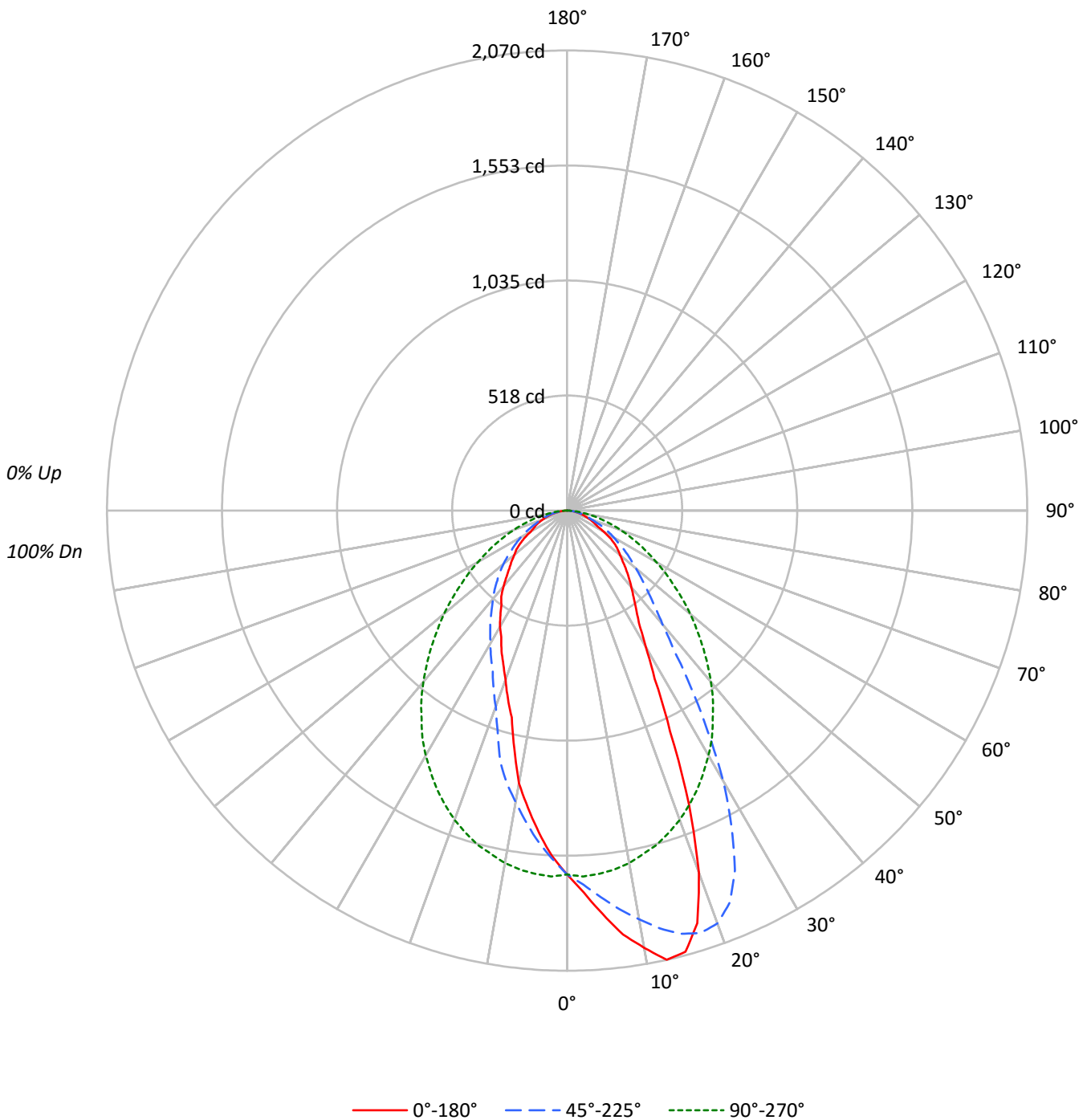
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	106	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	72	92	84	77	72	81	75	71	78	73	69	76	72	68	66
4	87	77	69	63	85	76	68	63	73	67	62	71	66	61	69	64	60	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	54	49	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	45	41	51	45	40	50	44	40	39
9	62	50	43	38	61	50	42	37	49	42	37	47	41	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°	31170	31170	31170
5°	34813	31365	27811
10°	38623	31146	24107
15°	40522	30690	18994
20°	35130	30014	16435
25°	23041	29087	14674
30°	15508	27964	13282
35°	12561	26550	11980
40°	11169	25012	11085
45°	10110	23204	9894
50°	9201	21416	9165
55°	8648	19430	8535
60°	7234	17612	7147
65°	6098	15991	6918
70°	5636	14279	6522
75°	5269	12430	6027
80°	4870	10234	5364
85°	4480	8086	4721



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	155.2	5.5
10°-20°	433.2	15.3
20°-30°	557.6	19.7
30°-40°	529.0	18.7
40°-50°	453.2	16.0
50°-60°	345.3	12.2
60°-70°	217.8	7.7
70°-80°	108.7	3.8
80°-90°	27.9	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°	1146.0	40.5
0°-40°	1675.0	59.2
0°-60°	2473.5	87.5
0°-90°	2827.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2827.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1636	1636	1636	1636	1636	
5°	1821	1746	1640	1495	1454	179
15°	2055	1971	1556	1165	963	559
25°	1096	1786	1384	793	698	518
35°	540	971	1142	602	515	344
45°	375	512	861	444	367	290
55°	260	318	585	301	257	229
65°	135	182	355	181	154	137
75°	72	80	169	92	82	76
85°	20	21	37	22	22	23
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°	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4
2.5°	1719.5	1721.2	1722.9	1718.9	1718.9	1715.5	1708.1	1702.4	1686.5	1684.2	1684.2
5°	1820.7	1819.5	1821.8	1814.4	1804.2	1801.9	1791.1	1776.9	1762.1	1745.6	1742.2
7.5°	1923.0	1916.2	1913.4	1916.8	1906.0	1891.2	1873.0	1855.9	1830.3	1809.3	1796.2
10°	1996.9	2015.7	2004.3	1984.4	1988.4	1961.7	1947.5	1923.0	1902.6	1866.7	1858.8
12.5°	2069.7	2074.3	2072.6	2063.5	2056.1	2039.6	2019.1	1998.7	1956.6	1925.3	1892.3
15°	2054.9	2065.7	2068.6	2065.2	2068.0	2066.9	2056.6	2039.0	2006.0	1970.8	1940.1
17.5°	1945.8	1958.3	1968.5	1977.6	1991.8	2019.7	2028.2	2031.6	2018.0	1993.0	1967.4
20°	1733.1	1720.6	1772.9	1799.6	1822.4	1879.2	1928.1	1946.9	1977.0	1976.5	1970.8
22.5°	1431.8	1438.6	1487.5	1520.5	1597.8	1654.6	1712.1	1795.7	1861.0	1909.4	1938.9
25°	1096.3	1117.9	1167.3	1210.6	1284.5	1390.2	1486.3	1597.8	1703.0	1786.0	1865.0
27.5°	852.9	855.8	900.7	944.5	989.9	1081.5	1210.0	1343.6	1493.7	1601.8	1738.2
30°	705.1	701.7	718.1	742.6	780.1	847.2	938.2	1069.0	1218.5	1405.0	1571.1
32.5°	600.4	601.6	613.0	629.4	659.0	698.8	754.0	854.0	993.4	1175.9	1377.7
35°	540.2	539.6	548.7	561.8	574.9	603.9	646.5	702.2	799.5	970.6	1169.6
37.5°	490.1	493.0	497.0	505.5	521.4	538.5	565.2	604.4	678.3	784.7	963.2
40°	449.2	450.3	456.6	463.4	471.9	484.5	505.5	535.6	586.2	667.0	789.2
42.5°	411.7	412.8	416.8	423.0	429.3	441.8	458.3	483.3	522.0	580.5	676.1
45°	375.3	375.3	379.3	382.1	389.5	400.9	415.1	436.7	465.1	511.7	578.8
47.5°	340.0	340.0	342.9	348.0	353.1	362.2	377.0	395.2	415.7	453.7	513.5
50°	310.5	311.0	312.7	316.7	319.6	327.5	338.3	353.7	375.3	403.1	450.9
52.5°	286.6	286.0	288.3	289.4	291.1	296.2	303.6	316.7	335.5	358.8	396.3
55°	260.4	258.1	261.6	264.4	266.1	268.4	272.9	281.5	297.9	318.4	348.0
57.5°	229.7	228.6	230.3	233.1	238.2	243.9	246.8	252.5	261.0	276.9	308.2
60°	189.9	189.9	195.0	196.7	203.0	211.0	218.9	223.5	232.0	241.7	263.3
62.5°	154.7	155.2	156.9	158.6	161.5	171.7	183.7	195.0	203.0	212.1	224.6
65°	135.3	136.5	136.5	137.6	139.9	142.2	146.7	154.7	168.9	182.0	192.8
67.5°	118.3	118.3	118.8	120.0	120.5	123.4	125.1	129.1	131.9	146.7	161.5
70°	101.2	102.9	102.3	103.5	104.1	105.2	107.5	109.2	114.3	117.1	125.1
72.5°	85.3	86.4	86.4	87.0	88.7	88.7	90.4	92.1	95.0	97.2	100.6
75°	71.6	71.1	71.6	72.8	73.4	73.9	73.9	76.2	77.9	80.2	83.0
77.5°	58.0	58.6	58.6	58.6	58.6	59.7	59.7	60.8	62.5	63.7	65.4
80°	44.4	44.9	44.4	44.9	45.5	46.1	45.5	46.1	47.8	48.9	48.9
82.5°	31.8	31.8	32.4	32.4	32.4	32.4	33.5	33.5	34.7	34.1	34.7
85°	20.5	19.9	19.9	19.9	20.5	21.0	20.5	20.5	21.0	21.0	21.0
87.5°	9.1	9.7	9.7	9.7	9.7	9.7	9.7	10.2	9.7	10.2	9.7
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°	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4
2.5°	1685.3	1680.8	1676.8	1666.6	1661.5	1650.1	1648.4	1647.8	1633.0	1618.8	1614.8
5°	1733.1	1724.0	1710.4	1694.4	1678.0	1660.9	1649.5	1640.4	1617.7	1596.1	1583.6
7.5°	1780.3	1763.8	1742.2	1714.9	1691.6	1664.3	1645.5	1628.5	1597.2	1568.8	1550.0
10°	1834.3	1802.5	1771.2	1729.7	1697.3	1665.4	1635.9	1610.3	1573.9	1533.0	1504.0
12.5°	1867.9	1832.0	1786.0	1745.6	1701.3	1658.6	1616.5	1581.9	1537.5	1494.9	1459.0
15°	1897.4	1859.9	1807.6	1749.6	1695.6	1642.7	1597.2	1556.3	1500.6	1449.9	1407.9
17.5°	1924.7	1873.0	1819.0	1751.9	1692.2	1627.9	1570.5	1519.3	1458.5	1398.8	1351.0
20°	1936.7	1885.5	1820.7	1753.6	1679.7	1600.6	1537.5	1480.7	1414.1	1347.6	1290.7
22.5°	1929.3	1892.3	1818.4	1734.8	1658.6	1575.0	1501.7	1433.5	1357.8	1289.6	1221.4
25°	1890.6	1877.0	1808.7	1721.2	1634.7	1538.6	1456.2	1384.0	1299.8	1227.1	1155.4
27.5°	1819.5	1839.4	1791.1	1696.2	1602.9	1499.4	1409.6	1328.3	1242.4	1161.1	1089.4
30°	1707.0	1774.6	1756.4	1670.0	1562.5	1461.3	1357.3	1271.4	1178.2	1094.0	1023.5
32.5°	1552.9	1675.7	1702.4	1633.6	1521.6	1407.9	1297.6	1212.3	1113.9	1024.1	955.8
35°	1387.4	1554.6	1631.3	1585.3	1473.8	1353.9	1241.3	1141.8	1044.0	956.4	888.2
37.5°	1191.2	1414.1	1532.4	1527.3	1420.9	1298.7	1176.4	1078.1	977.4	891.0	819.9
40°	1001.3	1248.1	1414.7	1451.7	1365.2	1230.5	1106.5	1005.9	908.1	823.9	739.2
42.5°	830.7	1076.4	1290.7	1361.8	1297.6	1163.9	1039.4	933.1	838.7	760.2	673.2
45°	699.4	914.3	1140.1	1254.9	1216.8	1092.9	961.5	861.4	772.2	703.4	620.3
47.5°	605.6	761.9	988.8	1138.9	1134.4	1016.7	885.9	789.8	705.6	642.0	571.4
50°	527.7	659.6	844.4	1020.6	1035.4	940.5	817.7	722.7	645.4	577.7	523.7
52.5°	457.7	560.6	722.1	889.3	938.2	859.2	740.9	655.0	580.5	519.7	475.4
55°	398.6	482.7	609.0	767.0	830.7	772.7	667.0	585.1	524.3	471.9	432.1
57.5°	346.8	412.8	518.0	650.5	722.7	683.5	593.1	525.4	471.4	422.5	390.6
60°	298.5	350.3	436.1	542.5	624.3	598.7	524.3	462.3	417.9	377.0	347.4
62.5°	253.0	295.7	366.2	447.5	520.8	514.0	456.6	407.1	369.6	333.2	309.3
65°	211.0	243.4	300.8	368.5	428.7	433.8	390.1	354.8	320.1	290.6	268.4
67.5°	174.6	196.7	240.0	299.7	345.7	361.6	332.1	303.6	275.2	251.3	231.4
70°	141.6	158.6	188.2	234.3	275.8	292.8	277.5	256.4	232.6	213.8	197.3
72.5°	108.0	124.5	144.4	175.1	209.2	228.0	225.2	211.5	193.3	178.5	163.2
75°	86.4	91.5	106.3	129.1	156.9	172.9	176.8	168.9	153.5	141.6	132.5
77.5°	67.1	70.5	78.5	92.1	111.4	125.7	131.9	130.8	119.4	111.4	102.9
80°	51.2	52.9	56.3	61.4	75.1	89.3	93.3	93.3	85.9	83.0	74.5
82.5°	35.8	37.0	38.7	40.9	45.5	57.4	62.0	63.1	59.1	55.2	48.9
85°	22.2	21.6	22.7	24.5	25.6	29.0	35.8	37.0	35.8	31.3	29.6
87.5°	9.7	10.2	10.2	9.7	10.2	10.8	13.6	16.5	14.2	12.5	11.4
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°	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4	1636.4
2.5°	1607.4	1603.5	1596.1	1584.7	1577.9	1565.9	1558.0	1562.5	1563.7	1562.5	1561.4
5°	1569.9	1558.0	1541.5	1525.6	1510.8	1494.9	1485.8	1481.8	1473.8	1469.3	1467.0
7.5°	1527.3	1509.6	1486.3	1460.7	1436.9	1414.1	1403.9	1395.9	1381.1	1373.2	1365.8
10°	1478.4	1446.0	1422.7	1386.3	1364.1	1331.7	1309.5	1310.1	1287.9	1275.4	1266.3
12.5°	1424.4	1388.0	1345.3	1313.5	1280.5	1256.1	1228.2	1214.5	1190.7	1178.7	1150.3
15°	1363.5	1322.0	1281.1	1236.7	1205.4	1165.1	1126.4	1079.2	1041.1	1008.1	999.0
17.5°	1298.7	1247.5	1207.2	1161.7	1112.8	1039.4	991.6	962.7	939.9	922.8	909.2
20°	1231.6	1179.3	1135.5	1057.0	984.8	938.8	905.8	884.8	860.9	842.1	831.9
22.5°	1161.1	1105.9	1042.3	952.4	900.1	865.4	837.0	812.0	797.8	784.1	775.0
25°	1095.1	1035.4	937.1	876.8	831.3	792.6	772.2	757.4	740.3	720.4	711.3
27.5°	1026.3	931.4	856.9	813.1	766.5	742.0	724.4	700.0	684.6	677.2	667.0
30°	947.3	852.3	797.2	748.3	717.6	689.7	668.1	655.6	640.8	625.5	619.2
32.5°	859.2	788.1	735.8	697.1	665.8	643.1	627.2	605.0	595.3	587.4	572.6
35°	789.2	731.8	683.5	650.5	620.9	601.6	581.7	569.7	550.4	542.5	537.3
37.5°	725.5	675.5	639.1	602.7	580.0	557.2	545.9	526.0	518.6	506.1	495.8
40°	673.2	624.3	589.6	561.2	535.1	519.1	503.8	488.4	475.9	470.8	457.7
42.5°	619.8	582.3	547.6	515.7	500.4	483.3	462.8	452.6	439.5	430.4	423.6
45°	571.4	536.2	506.6	481.0	461.7	444.1	431.6	412.8	405.4	388.9	382.1
47.5°	528.8	494.7	466.3	441.2	421.9	411.7	393.5	377.0	366.8	355.4	345.7
50°	482.7	455.5	428.2	406.6	389.5	373.0	354.2	346.8	328.7	323.5	318.4
52.5°	440.7	415.1	390.6	369.6	352.5	336.6	320.7	310.5	299.7	294.5	291.1
55°	402.0	377.0	353.1	334.3	317.3	300.8	290.6	278.6	272.9	269.0	264.4
57.5°	362.2	339.5	320.7	301.4	284.3	270.7	258.1	251.3	245.6	241.1	234.8
60°	324.7	303.1	286.6	269.0	251.3	240.5	231.4	222.9	216.1	208.1	205.8
62.5°	284.9	266.7	251.9	234.8	220.1	210.4	201.9	193.9	185.4	172.9	169.4
65°	249.0	234.3	218.3	204.1	190.5	180.8	168.3	159.2	155.8	154.7	154.1
67.5°	216.1	201.9	188.2	173.4	160.9	150.1	142.7	141.6	139.3	138.7	137.0
70°	183.1	170.0	156.4	142.7	130.8	129.1	126.8	124.5	121.7	120.5	119.4
72.5°	153.5	139.9	126.2	116.0	112.6	110.3	108.0	105.8	104.1	102.9	102.3
75°	122.3	109.7	100.6	96.7	93.8	92.1	88.7	87.0	85.9	84.2	83.6
77.5°	93.3	85.3	80.7	78.5	75.1	73.4	71.1	69.4	67.7	67.7	66.5
80°	67.1	63.7	60.8	57.4	56.3	54.0	53.4	51.7	52.3	50.6	50.6
82.5°	48.3	43.8	41.5	40.4	39.2	37.5	37.0	36.4	36.4	35.3	35.3
85°	26.7	25.6	24.5	23.3	23.3	21.6	22.2	21.6	21.6	20.5	19.9
87.5°	10.8	10.2	9.1	9.1	9.1	8.5	8.5	8.0	8.0	8.0	7.4
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: P242420

CATALOG NUMBER: S122RDR-S865D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1636.4	1636.4	1636.4	1636.4
2.5°	1555.1	1556.3	1554.6	1555.7
5°	1464.2	1457.3	1456.2	1454.5
7.5°	1356.7	1356.1	1352.7	1348.7
10°	1253.8	1250.9	1250.4	1246.4
12.5°	1133.2	1111.1	1108.8	1097.4
15°	985.4	982.0	970.6	963.2
17.5°	902.9	891.6	887.6	885.9
20°	823.9	813.7	812.0	810.8
22.5°	769.3	758.5	753.4	749.4
25°	705.6	701.7	699.4	698.2
27.5°	655.6	645.4	644.2	641.4
30°	614.1	611.3	607.3	603.9
32.5°	565.2	562.9	559.5	558.4
35°	531.6	523.7	520.3	515.2
37.5°	494.7	490.1	484.5	486.7
40°	450.3	447.5	446.4	445.8
42.5°	415.1	406.0	402.6	402.6
45°	379.3	371.9	366.8	367.3
47.5°	340.6	341.2	337.8	338.9
50°	314.4	311.0	308.8	309.3
52.5°	289.4	286.6	284.9	287.7
55°	261.6	258.1	257.6	257.0
57.5°	231.4	229.7	226.9	225.2
60°	198.4	193.9	188.2	187.6
62.5°	168.3	168.3	168.3	168.3
65°	153.0	152.4	153.0	153.5
67.5°	137.0	135.9	134.8	135.3
70°	118.3	117.7	117.1	117.1
72.5°	100.1	100.1	99.5	98.9
75°	83.0	81.9	81.9	81.9
77.5°	66.5	66.0	65.4	64.8
80°	50.0	49.5	48.9	48.9
82.5°	35.3	34.7	34.7	34.1
85°	20.5	21.0	20.5	21.6
87.5°	7.4	6.8	7.4	6.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)