

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: P242223

Luminaire Tested: **S121RDR-S880D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242223
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-S880D830-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: 2896.6 lumens
Efficiency: N/A
Efficacy: 83.2 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

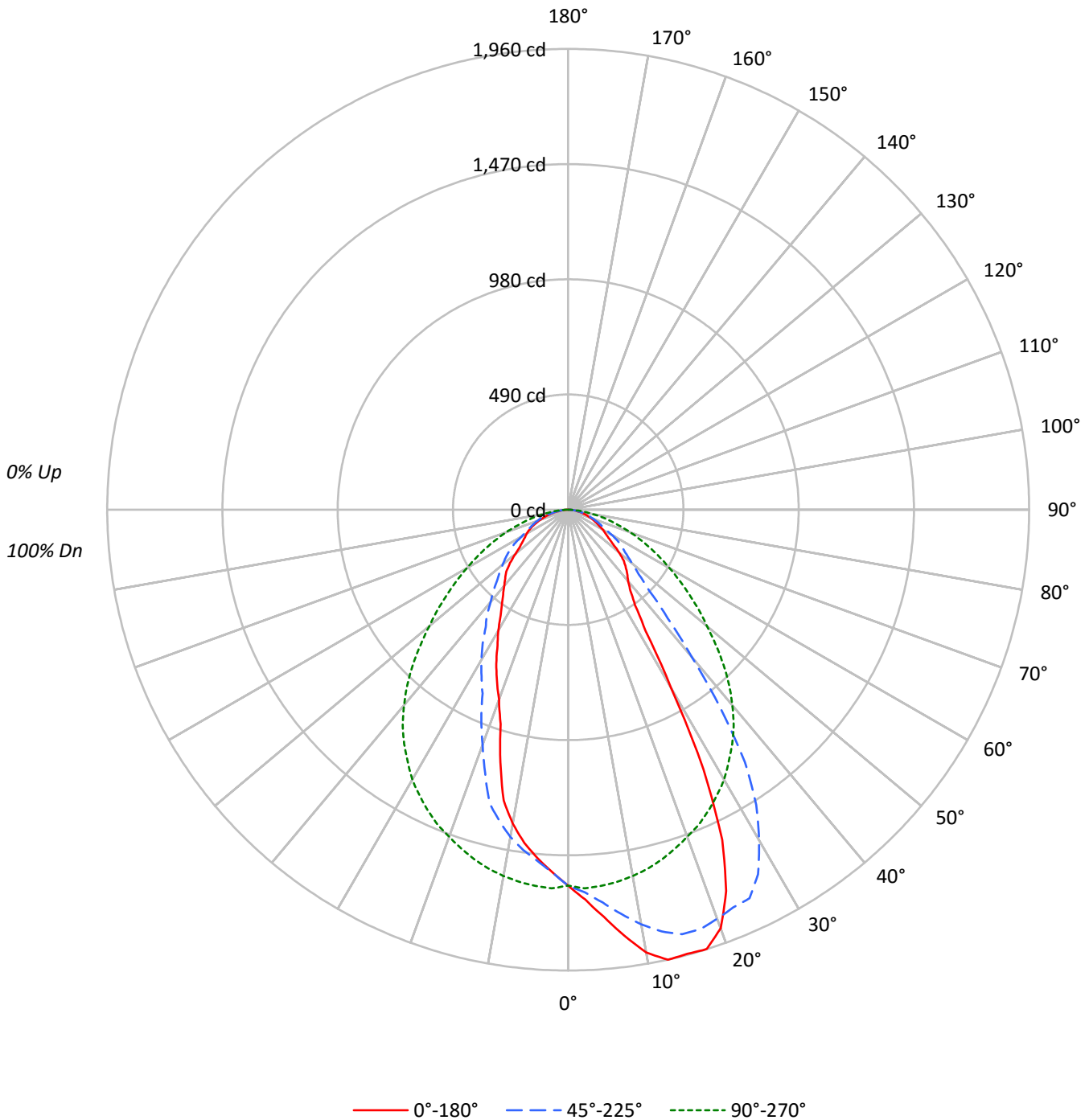
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P242223

CATALOG NUMBER: S121RDR-S880D830-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot





TEST NUMBER: P242223

CATALOG NUMBER: S121RDR-S880D830-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	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°	47369	47369	47369
5°	51699	47782	44260
10°	57538	47594	40795
15°	59991	47233	34144
20°	59733	46676	27101
25°	50654	46156	23656
30°	29817	45364	20316
35°	17912	43981	17738
40°	15344	41982	16365
45°	14507	39137	15563
50°	12967	35544	13465
55°	10807	32446	12171
60°	10044	29559	12107
65°	9269	26929	11715
70°	8750	24265	11037
75°	8254	21465	10040
80°	7388	17950	8822
85°	6935	14108	6935



TEST NUMBER: P242223

CATALOG NUMBER: S121RDR-S880D830-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	153.3	5.3
10°-20°	436.6	15.1
20°-30°	596.4	20.6
30°-40°	555.6	19.2
40°-50°	459.3	15.9
50°-60°	338.7	11.7
60°-70°	216.6	7.5
70°-80°	111.4	3.8
80°-90°	28.6	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°	1186.3	41.0
0°-40°	1741.9	60.1
0°-60°	2540.0	87.7
0°-90°	2896.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2896.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1599	1599	1599	1599	1599	
5°	1738	1677	1606	1500	1488	171
15°	1956	1869	1540	1292	1113	551
25°	1549	1824	1412	862	724	673
35°	495	1310	1216	611	490	336
45°	346	489	934	428	371	265
55°	209	280	628	306	236	193
65°	132	153	384	178	167	132
75°	72	79	188	99	88	75
85°	20	21	42	23	20	23
90°	0	0	0	0	0	



TEST NUMBER: P242223

CATALOG NUMBER: S121RDR-S880D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7
2.5°	1660.0	1658.8	1660.6	1659.4	1658.2	1655.2	1652.8	1645.6	1634.8	1628.8	1634.8
5°	1738.2	1743.0	1741.2	1738.8	1733.3	1728.5	1717.7	1711.1	1691.9	1676.8	1681.1
7.5°	1827.1	1833.1	1825.3	1819.9	1816.9	1803.1	1791.0	1772.4	1751.4	1734.5	1724.9
10°	1912.4	1914.3	1911.8	1907.0	1896.8	1881.8	1864.4	1843.3	1816.9	1791.0	1773.6
12.5°	1960.5	1963.5	1967.1	1958.7	1950.9	1938.9	1920.9	1899.8	1867.4	1837.3	1817.5
15°	1955.7	1958.1	1964.7	1961.7	1958.1	1952.7	1942.5	1925.1	1902.2	1869.2	1840.9
17.5°	1959.3	1961.1	1964.1	1953.3	1947.3	1940.7	1927.5	1915.5	1896.2	1870.4	1849.3
20°	1894.4	1923.9	1920.3	1934.7	1940.7	1940.1	1927.5	1904.6	1878.2	1851.7	1842.1
22.5°	1755.0	1778.4	1781.4	1803.7	1831.3	1853.5	1881.2	1891.4	1871.0	1831.3	1818.1
25°	1549.4	1566.3	1583.1	1614.9	1644.4	1706.3	1762.8	1805.5	1828.9	1823.5	1797.7
27.5°	1245.3	1227.3	1294.0	1330.7	1413.0	1503.2	1582.5	1660.6	1697.9	1747.8	1773.0
30°	871.5	869.7	920.2	983.9	1107.1	1190.0	1338.5	1464.1	1562.1	1623.4	1691.9
32.5°	611.8	620.9	658.1	697.2	765.1	900.3	1013.9	1187.0	1354.1	1488.1	1572.3
35°	495.2	496.4	504.9	528.3	569.8	644.9	733.2	901.5	1128.1	1310.2	1435.8
37.5°	433.9	437.5	439.9	453.2	468.2	500.0	555.9	672.5	860.1	1063.2	1281.4
40°	396.7	399.7	402.1	406.3	415.3	430.3	467.0	522.9	631.1	818.0	1060.8
42.5°	371.4	370.2	375.6	377.4	382.2	390.7	406.9	436.9	499.4	626.3	835.4
45°	346.2	348.0	348.0	350.4	354.6	359.4	366.0	384.7	416.5	488.6	652.7
47.5°	319.7	319.1	322.7	324.6	328.8	333.0	337.8	347.4	366.0	408.1	503.1
50°	281.3	282.5	289.1	295.1	301.1	306.5	312.5	318.5	330.6	353.4	411.7
52.5°	240.4	240.4	247.6	251.8	260.2	273.5	283.7	292.7	300.5	311.9	346.8
55°	209.2	209.8	212.2	215.8	221.8	228.4	241.6	257.2	270.5	280.1	299.3
57.5°	187.5	188.1	188.7	191.7	194.7	197.1	204.9	217.0	234.4	251.8	263.2
60°	169.5	168.9	168.9	170.7	173.1	176.1	180.3	185.1	194.7	213.4	233.8
62.5°	149.1	150.3	150.3	152.1	153.9	156.9	158.7	163.5	168.9	177.3	198.3
65°	132.2	133.4	132.2	134.0	135.2	137.0	140.0	142.4	147.3	152.7	161.1
67.5°	115.4	116.0	117.2	117.8	119.0	119.6	122.0	125.0	128.0	131.6	138.2
70°	101.0	101.0	101.0	102.2	103.4	103.4	105.2	106.4	109.4	113.0	116.6
72.5°	85.3	85.9	85.9	85.3	87.7	88.4	89.0	90.2	92.6	95.6	98.6
75°	72.1	70.9	70.9	71.5	73.3	73.3	73.9	74.5	76.3	78.7	80.5
77.5°	56.5	56.5	57.1	57.7	58.3	58.3	59.5	59.5	61.9	63.1	64.3
80°	43.3	44.5	45.1	44.5	44.5	45.1	45.1	46.3	46.9	47.5	48.7
82.5°	32.5	33.1	31.9	31.9	32.5	32.5	33.1	33.1	33.7	34.3	34.3
85°	20.4	20.4	21.0	20.4	21.0	20.4	20.4	21.6	21.0	21.0	21.6
87.5°	9.6	10.2	9.6	10.2	9.6	10.2	10.2	10.2	10.2	10.2	9.6
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: P242223

CATALOG NUMBER: S121RDR-S880D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7
2.5°	1633.0	1632.4	1629.4	1622.8	1617.9	1608.9	1608.9	1611.9	1596.3	1585.5	1584.9
5°	1670.8	1664.8	1654.6	1642.0	1630.6	1614.9	1608.9	1606.5	1585.5	1569.3	1563.9
7.5°	1711.1	1696.1	1678.7	1658.2	1639.0	1616.7	1605.3	1596.3	1569.3	1549.4	1537.4
10°	1753.2	1729.1	1702.1	1672.6	1646.2	1616.1	1597.5	1581.9	1550.6	1523.0	1509.2
12.5°	1790.4	1756.8	1722.5	1684.1	1648.0	1610.1	1584.3	1563.9	1527.2	1494.1	1477.3
15°	1807.9	1771.8	1743.6	1690.7	1642.0	1603.5	1570.5	1539.8	1500.7	1464.1	1438.2
17.5°	1822.9	1783.2	1746.0	1696.1	1639.6	1589.7	1550.0	1511.0	1468.9	1430.4	1398.6
20°	1818.7	1785.0	1739.4	1686.5	1633.0	1575.3	1530.2	1480.3	1428.0	1389.0	1355.3
22.5°	1794.6	1767.0	1719.5	1669.0	1617.3	1555.4	1504.4	1450.3	1386.0	1343.3	1305.4
25°	1764.0	1737.6	1690.7	1638.4	1587.3	1527.2	1467.1	1411.8	1342.7	1291.6	1242.9
27.5°	1740.0	1700.3	1653.4	1595.1	1545.8	1488.7	1425.6	1369.7	1295.2	1238.7	1182.2
30°	1712.3	1667.2	1609.5	1547.6	1495.3	1443.1	1381.7	1325.9	1243.5	1179.2	1108.9
32.5°	1633.0	1633.6	1565.1	1495.9	1440.0	1384.2	1329.5	1270.0	1188.2	1112.5	1040.4
35°	1529.6	1569.9	1519.4	1440.0	1370.9	1319.2	1274.2	1215.9	1125.1	1047.0	965.2
37.5°	1391.4	1462.3	1468.3	1386.0	1309.6	1248.9	1204.4	1155.8	1064.4	980.3	899.1
40°	1253.1	1346.9	1384.2	1327.1	1244.1	1174.4	1129.9	1085.4	999.5	908.7	833.6
42.5°	1083.6	1235.7	1282.0	1265.1	1176.2	1101.1	1054.2	1013.9	930.4	841.4	766.9
45°	892.5	1098.1	1165.4	1182.8	1107.7	1027.1	973.1	934.0	860.7	782.5	705.0
47.5°	717.0	943.0	1054.2	1072.2	1032.6	954.4	892.5	851.6	793.3	726.0	649.1
50°	546.9	778.3	937.6	965.2	955.6	876.3	819.2	771.1	726.6	666.5	594.4
52.5°	435.1	622.1	811.4	863.1	866.1	803.6	743.5	699.6	656.3	608.8	543.3
55°	347.4	480.8	672.5	760.3	768.7	725.4	670.1	628.1	595.6	551.1	495.8
57.5°	292.7	372.0	538.5	656.9	660.5	648.5	595.6	560.8	533.7	495.2	446.6
60°	250.0	295.1	415.3	553.5	571.6	571.6	529.5	498.8	473.0	444.2	397.9
62.5°	216.4	241.0	314.9	439.9	486.2	493.4	467.0	439.9	420.7	391.9	349.2
65°	182.1	200.7	244.0	340.2	403.9	417.1	403.9	384.1	369.0	339.0	305.3
67.5°	149.7	167.7	194.7	257.8	327.6	343.8	341.4	331.2	315.5	293.3	257.8
70°	123.8	134.6	154.5	191.1	257.2	281.9	289.1	280.1	266.3	242.2	216.4
72.5°	102.2	110.6	120.2	146.6	192.3	224.8	236.8	232.0	221.8	198.9	177.3
75°	83.5	89.0	95.6	108.2	138.2	174.9	188.7	187.5	177.3	158.1	140.6
77.5°	67.3	69.1	73.9	81.7	96.8	129.8	140.6	144.2	136.4	120.2	106.4
80°	50.5	52.9	55.3	59.5	66.7	85.9	99.8	105.2	98.6	89.0	75.1
82.5°	35.5	36.1	38.5	40.9	44.5	52.3	66.7	72.7	66.7	56.5	52.3
85°	22.2	21.6	22.2	22.8	26.4	28.2	37.3	41.5	40.3	34.3	29.5
87.5°	10.2	10.2	9.6	10.2	9.6	11.4	13.2	19.2	14.4	12.6	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



TEST NUMBER: P242223

CATALOG NUMBER: S121RDR-S880D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7	1598.7
2.5°	1580.1	1578.3	1572.3	1563.9	1556.6	1544.6	1544.6	1547.6	1547.0	1548.2	1547.0
5°	1554.8	1546.4	1537.4	1526.0	1515.2	1499.5	1497.7	1498.9	1498.3	1497.7	1494.1
7.5°	1522.4	1512.8	1501.3	1486.9	1474.9	1459.9	1455.7	1454.5	1449.7	1447.9	1443.1
10°	1491.1	1479.7	1464.7	1447.3	1431.0	1413.6	1402.8	1396.8	1389.0	1380.5	1373.3
12.5°	1456.3	1441.2	1422.0	1401.0	1373.9	1354.7	1338.5	1328.3	1317.4	1303.0	1292.8
15°	1419.0	1388.4	1365.5	1331.3	1298.2	1291.6	1267.0	1234.5	1232.1	1161.8	1137.1
17.5°	1369.1	1343.9	1301.2	1256.7	1211.7	1175.0	1175.6	1087.8	1060.8	1060.2	1016.9
20°	1317.4	1282.6	1233.3	1188.2	1140.7	1065.0	1004.9	976.1	932.2	915.4	890.7
22.5°	1256.7	1211.1	1153.4	1092.1	1025.9	964.6	905.7	878.1	855.9	837.2	827.0
25°	1184.6	1138.3	1069.2	992.9	919.0	861.9	829.4	816.8	778.9	765.7	753.1
27.5°	1111.9	1061.4	971.2	897.9	837.2	798.2	764.5	743.5	725.4	691.8	676.7
30°	1042.8	961.6	887.1	819.8	774.1	737.5	712.8	670.1	644.9	629.3	622.7
32.5°	967.6	881.1	813.8	755.5	708.6	676.7	640.1	611.2	599.8	579.4	549.9
35°	890.7	812.0	741.7	694.8	654.5	611.2	588.4	560.8	531.9	516.3	513.9
37.5°	816.2	741.7	691.2	641.9	593.2	568.0	534.3	504.9	494.6	480.2	464.6
40°	748.9	685.2	638.3	581.8	552.3	513.3	487.4	472.4	447.8	442.4	437.5
42.5°	693.6	638.9	586.0	535.5	501.3	470.0	447.2	429.7	421.9	408.7	404.5
45°	637.7	587.2	533.1	493.4	454.4	427.9	412.3	397.3	388.3	384.7	377.4
47.5°	587.2	537.9	488.0	439.3	412.9	395.5	378.0	370.2	364.8	357.0	352.8
50°	539.1	484.4	437.5	406.9	378.6	363.0	351.6	344.4	336.0	327.6	315.5
52.5°	490.4	443.6	398.5	366.0	345.0	334.8	324.0	316.1	299.3	283.1	272.9
55°	441.1	393.1	356.4	331.8	316.7	305.9	293.3	270.5	254.8	245.8	241.0
57.5°	396.7	353.4	320.9	300.5	289.7	271.7	249.4	235.0	227.2	223.6	221.2
60°	349.2	311.9	284.9	269.3	252.4	228.4	216.4	209.2	206.8	205.5	203.7
62.5°	308.3	275.3	254.2	236.8	212.8	200.1	193.5	189.9	189.9	188.1	186.9
65°	265.1	239.2	221.2	195.9	183.3	177.9	175.5	173.7	171.9	171.3	168.9
67.5°	229.6	206.8	183.3	170.1	162.3	159.3	156.9	156.3	153.9	152.1	150.3
70°	193.5	171.3	152.1	146.0	141.8	140.6	138.2	135.8	134.0	131.6	130.4
72.5°	157.5	136.4	129.8	126.8	122.6	120.8	117.8	116.0	113.0	111.8	110.6
75°	120.2	111.8	108.2	105.8	102.8	98.6	97.4	95.6	94.4	92.6	90.8
77.5°	95.6	90.8	86.5	83.5	81.1	78.1	75.7	75.1	73.9	72.1	71.5
80°	71.5	67.9	66.1	63.1	60.1	58.3	57.1	56.5	54.7	54.1	53.5
82.5°	49.3	46.3	45.1	41.5	40.3	40.3	39.7	38.5	37.3	36.7	36.1
85°	27.6	26.4	24.6	25.2	23.4	23.4	22.8	22.2	21.6	21.0	20.4
87.5°	10.8	10.2	9.6	9.0	9.0	7.2	7.2	7.2	7.8	7.2	6.6
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: P242223

CATALOG NUMBER: S121RDR-S880D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1598.7	1598.7	1598.7	1598.7
2.5°	1548.8	1550.0	1545.8	1543.4
5°	1494.1	1492.3	1489.9	1488.1
7.5°	1438.2	1436.4	1436.4	1429.2
10°	1370.3	1365.5	1361.9	1355.9
12.5°	1283.8	1276.6	1274.2	1267.0
15°	1120.3	1105.3	1095.1	1113.1
17.5°	1006.7	967.6	970.6	955.6
20°	890.1	874.5	882.3	859.5
22.5°	814.4	804.8	795.8	790.9
25°	744.1	732.6	718.8	723.6
27.5°	655.7	655.7	646.7	650.3
30°	610.6	605.8	590.8	593.8
32.5°	540.3	534.3	532.5	533.7
35°	506.7	497.0	494.0	490.4
37.5°	459.8	456.2	456.8	454.4
40°	428.5	425.5	421.9	423.1
42.5°	401.5	399.7	396.1	396.7
45°	375.0	373.2	371.4	371.4
47.5°	345.6	342.0	339.0	335.4
50°	307.1	299.9	294.5	292.1
52.5°	265.7	262.0	258.4	258.4
55°	239.2	237.4	236.2	235.6
57.5°	220.6	219.4	219.4	217.6
60°	203.7	203.7	203.1	204.3
62.5°	187.5	185.7	186.3	186.3
65°	168.9	168.3	167.7	167.1
67.5°	149.1	148.5	149.1	147.9
70°	129.2	129.2	128.6	127.4
72.5°	108.8	110.0	108.8	108.2
75°	89.6	89.0	89.6	87.7
77.5°	71.5	69.1	70.3	70.9
80°	52.9	52.9	52.3	51.7
82.5°	35.5	36.1	34.9	34.9
85°	20.4	20.4	19.2	20.4
87.5°	6.0	6.0	6.0	7.2
90°	0.0	0.0	0.0	0.0

(END OF REPORT)