

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: P243083

Luminaire Tested: **S121RDR-H880D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243083  
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-H880D830-X4F0-XX-UDD-A-W  
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

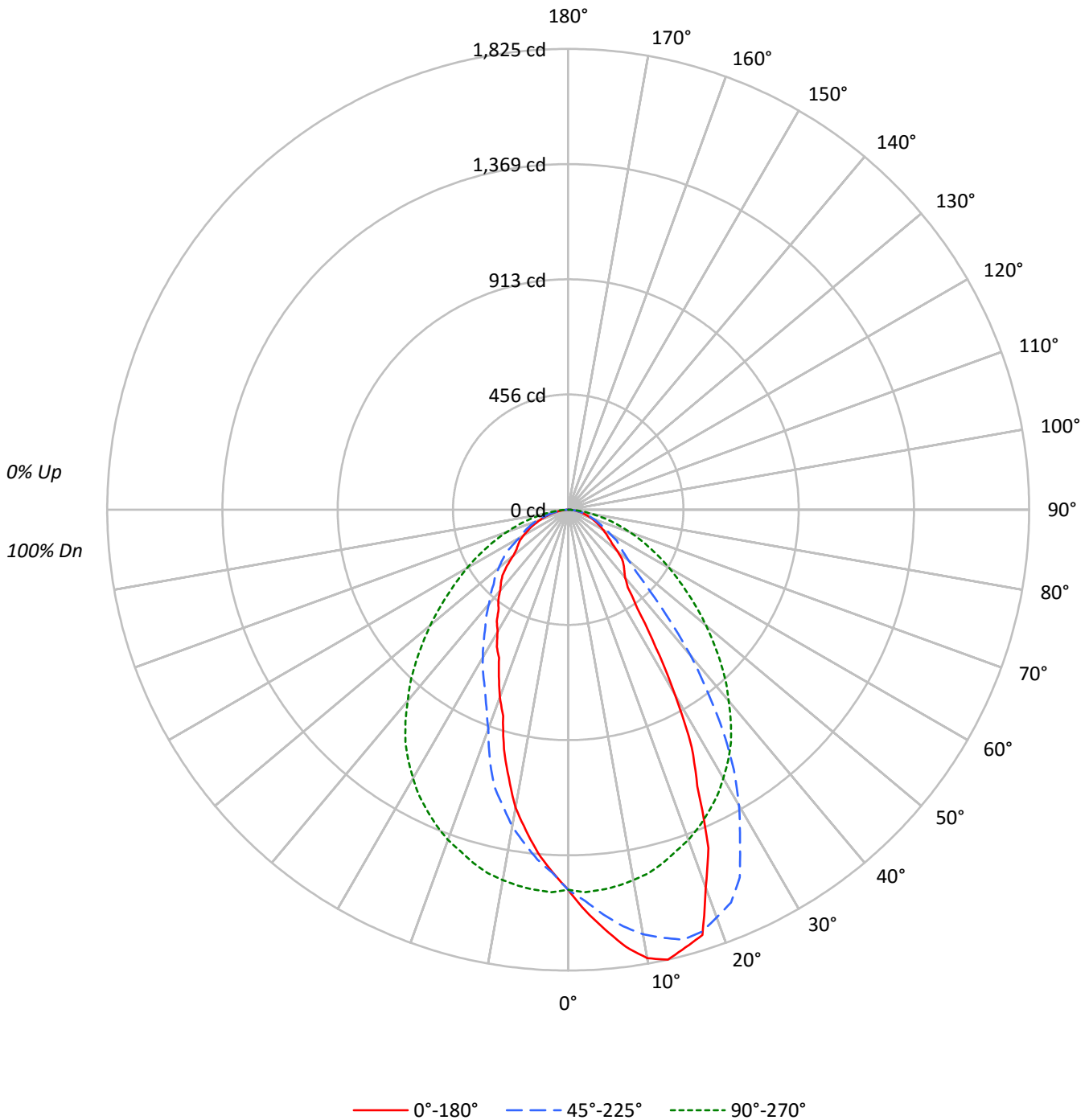
Lumens per Lamp: N/A  
Luminaire Lumens: 2653.2 lumens  
Efficiency: N/A  
Efficacy: 84.2 lumens/watt  
Spacing Criteria (0/90/45): 0.89 / 1.21 / 1.07  
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 31.5  
Input Voltage (V): 120  
Input Current (A<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	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°	44593	44593	44593
5°	49623	44947	40611
10°	54262	44820	36059
15°	55043	44442	30117
20°	50173	43876	24907
25°	39519	43079	21188
30°	28890	42035	19105
35°	17243	40642	17366
40°	13522	38238	16199
45°	13032	35693	15408
50°	11616	32829	13077
55°	10146	29874	12491
60°	9482	27342	12107
65°	8834	24868	11218
70°	8360	22420	10223
75°	7670	19942	9090
80°	6979	16176	7934
85°	6561	12341	5779



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	143.7	5.4
10°-20°	400.8	15.1
20°-30°	532.9	20.1
30°-40°	508.4	19.2
40°-50°	421.9	15.9
50°-60°	313.7	11.8
60°-70°	203.1	7.7
70°-80°	103.4	3.9
80°-90°	25.3	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°	1077.4	40.6
0°-40°	1585.7	59.8
0°-60°	2321.4	87.5
0°-90°	2653.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2653.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1505	1505	1505	1505	1505	
5°	1668	1610	1511	1391	1365	163
15°	1794	1763	1449	1133	982	499
25°	1209	1607	1318	780	648	561
35°	477	1068	1124	573	480	325
45°	311	460	852	418	368	237
55°	196	249	578	301	242	178
65°	126	143	355	182	160	126
75°	67	73	174	90	79	71
85°	19	19	36	19	17	21
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°	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0
2.5°	1591.2	1587.3	1591.8	1590.1	1582.7	1584.4	1575.4	1569.7	1556.1	1551.0	1551.0
5°	1668.4	1674.1	1670.7	1671.8	1664.5	1659.9	1650.3	1639.5	1622.5	1610.0	1605.4
7.5°	1745.6	1747.3	1749.0	1744.5	1736.0	1728.0	1714.4	1698.5	1679.8	1663.9	1651.4
10°	1803.5	1807.5	1805.2	1798.4	1792.1	1780.2	1765.5	1748.4	1728.0	1707.0	1691.7
12.5°	1825.1	1828.5	1833.6	1829.6	1829.0	1823.3	1808.6	1787.6	1762.6	1736.5	1718.9
15°	1794.4	1792.1	1805.8	1802.4	1801.2	1798.9	1802.9	1798.4	1785.3	1762.6	1741.1
17.5°	1766.0	1764.9	1778.5	1781.9	1776.8	1769.4	1764.9	1759.2	1753.0	1753.5	1750.7
20°	1591.2	1625.9	1632.7	1650.8	1689.4	1715.0	1740.5	1739.4	1721.2	1718.4	1717.2
22.5°	1450.5	1463.6	1457.3	1486.8	1507.8	1553.8	1598.6	1655.4	1693.4	1683.7	1677.5
25°	1208.8	1249.6	1268.3	1305.2	1358.6	1417.0	1442.6	1502.7	1561.2	1606.6	1641.2
27.5°	1058.9	1068.0	1079.9	1118.0	1137.8	1191.2	1286.5	1368.2	1422.7	1472.1	1563.4
30°	844.4	848.4	889.8	910.8	969.3	1021.5	1104.3	1170.2	1279.7	1352.9	1423.3
32.5°	644.7	641.3	686.7	711.1	769.0	839.3	931.8	993.1	1100.4	1220.1	1304.1
35°	476.7	476.1	500.5	517.6	581.1	635.0	752.5	832.5	950.0	1067.5	1175.8
37.5°	388.2	387.6	392.7	407.5	434.1	494.9	551.6	670.2	784.8	900.6	1036.2
40°	349.6	352.4	353.5	360.4	369.4	387.6	422.2	505.1	617.4	755.3	891.5
42.5°	329.1	329.1	330.3	332.0	336.5	341.6	362.6	394.4	484.6	594.7	747.4
45°	311.0	311.6	312.7	313.8	312.7	315.5	325.2	338.2	373.4	460.2	607.8
47.5°	289.4	288.9	291.7	293.4	295.7	299.1	299.6	306.4	321.8	367.2	474.4
50°	252.0	252.5	255.4	262.2	269.6	275.8	279.8	284.3	289.4	311.0	367.7
52.5°	217.9	218.5	220.2	225.3	232.1	240.0	252.5	262.7	266.7	273.5	305.3
55°	196.4	196.4	198.6	201.5	203.2	208.8	217.3	228.7	243.5	249.1	262.7
57.5°	178.2	178.2	179.3	179.3	181.6	184.4	190.1	195.8	208.3	226.4	234.9
60°	160.0	160.0	161.2	161.2	164.0	165.1	169.1	172.5	179.3	191.8	208.8
62.5°	143.0	141.9	143.0	143.6	145.3	147.0	149.8	153.8	157.8	165.1	177.6
65°	126.0	125.4	126.6	127.7	128.8	131.1	132.8	135.6	139.0	143.0	149.3
67.5°	111.2	110.7	111.2	112.9	112.4	113.5	116.3	117.5	120.9	124.8	130.0
70°	96.5	95.3	96.5	96.5	97.0	98.7	98.7	101.6	104.4	106.7	111.2
72.5°	80.6	81.2	80.6	81.2	82.3	82.9	84.0	85.7	87.4	89.7	92.5
75°	67.0	67.0	67.5	68.1	69.2	69.2	69.8	70.9	72.1	73.2	76.6
77.5°	53.3	53.9	54.5	55.0	55.0	55.6	56.2	56.7	58.5	59.0	60.7
80°	40.9	41.4	41.4	41.4	42.6	41.4	42.6	43.7	43.7	44.3	45.4
82.5°	29.5	30.1	29.5	30.1	30.6	30.6	30.1	30.6	30.6	31.8	31.8
85°	19.3	18.2	18.2	18.2	18.2	18.2	18.7	19.3	18.7	18.7	19.3
87.5°	7.9	7.9	7.9	7.9	8.5	7.9	8.5	8.5	8.5	7.9	8.5
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°	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0
2.5°	1553.8	1549.3	1545.3	1538.5	1530.0	1517.5	1515.8	1516.3	1501.0	1486.3	1484.0
5°	1595.8	1588.4	1575.9	1561.2	1547.5	1526.6	1517.5	1511.2	1488.0	1468.1	1460.2
7.5°	1640.6	1623.0	1606.0	1582.7	1560.0	1532.8	1515.8	1502.7	1472.1	1446.0	1432.3
10°	1675.8	1654.2	1629.8	1600.3	1569.1	1535.6	1510.1	1489.7	1452.8	1420.4	1403.4
12.5°	1700.8	1676.4	1647.4	1612.2	1576.5	1532.2	1501.0	1473.8	1428.9	1390.4	1369.9
15°	1713.8	1687.7	1652.0	1613.4	1576.5	1530.0	1488.5	1448.8	1404.5	1356.3	1330.8
17.5°	1725.7	1691.7	1651.4	1607.1	1569.7	1520.9	1469.8	1418.2	1368.2	1322.8	1281.4
20°	1717.2	1688.3	1643.5	1597.5	1555.5	1498.7	1444.8	1391.5	1329.1	1276.3	1234.9
22.5°	1677.5	1672.4	1624.2	1574.8	1526.6	1472.1	1409.6	1356.9	1289.9	1227.5	1177.5
25°	1631.0	1624.7	1598.6	1545.8	1491.4	1434.6	1378.4	1317.7	1240.5	1175.8	1118.5
27.5°	1591.8	1577.6	1558.9	1509.5	1451.1	1394.3	1336.4	1277.4	1195.1	1123.1	1057.8
30°	1512.4	1526.0	1505.0	1470.9	1403.4	1348.4	1292.7	1228.6	1146.9	1064.0	997.1
32.5°	1386.4	1468.7	1447.7	1420.4	1354.0	1293.9	1241.1	1178.1	1087.9	1006.2	936.9
35°	1275.2	1346.1	1393.8	1360.8	1302.4	1232.6	1178.7	1123.6	1029.4	946.0	879.6
37.5°	1167.3	1242.8	1322.3	1292.2	1243.9	1169.0	1112.3	1057.8	970.4	886.4	820.0
40°	1026.0	1136.1	1212.7	1224.6	1175.3	1099.8	1044.8	988.6	911.4	828.0	757.0
42.5°	890.4	1031.7	1093.6	1154.8	1104.3	1033.4	972.1	924.4	850.1	776.9	699.7
45°	748.5	909.1	1000.5	1047.6	1029.4	964.7	897.8	851.8	789.4	721.3	648.1
47.5°	625.4	778.0	908.6	935.2	952.8	889.3	826.8	780.3	726.4	670.2	600.4
50°	496.0	654.3	793.9	842.2	875.6	817.8	752.5	712.2	666.8	616.3	554.4
52.5°	385.9	534.0	680.4	762.7	774.1	744.0	683.8	644.1	607.8	562.4	506.2
55°	306.4	421.1	567.5	663.4	674.2	666.8	612.9	578.3	551.6	513.6	466.5
57.5°	254.2	327.4	459.7	570.3	586.2	593.0	548.8	517.6	493.7	463.6	421.1
60°	219.6	258.2	359.2	467.6	511.3	523.2	484.1	461.4	441.5	414.3	374.5
62.5°	194.1	211.7	274.7	379.1	435.3	445.5	425.6	408.6	392.1	366.0	330.8
65°	161.7	180.5	211.7	292.8	362.1	367.2	371.1	354.7	341.6	320.1	288.9
67.5°	135.6	150.4	170.8	224.7	290.6	305.3	315.5	308.1	295.7	274.1	247.4
70°	115.2	123.7	138.5	168.5	221.9	253.7	264.5	258.8	252.5	229.3	206.6
72.5°	95.9	102.7	111.2	129.4	167.4	201.5	217.3	214.5	207.7	190.1	171.4
75°	79.4	82.3	89.1	99.3	121.4	153.2	171.9	174.2	166.3	149.8	135.1
77.5°	62.4	65.3	69.2	75.5	89.7	111.2	126.6	132.2	127.1	115.2	100.4
80°	47.7	49.4	52.2	55.0	60.7	75.5	91.4	94.8	91.9	82.3	73.2
82.5°	31.8	32.9	35.2	37.5	40.3	47.1	60.7	63.0	62.4	53.9	47.7
85°	19.3	19.3	19.9	21.6	22.7	25.5	32.9	36.3	34.6	28.9	26.1
87.5°	7.9	8.5	7.9	7.9	7.9	8.5	10.8	14.8	11.3	8.5	7.9
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°	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0	1505.0
2.5°	1477.7	1475.5	1467.0	1459.0	1449.9	1439.2	1439.7	1441.4	1437.5	1436.3	1440.3
5°	1448.8	1440.9	1427.8	1414.8	1404.5	1390.9	1383.0	1386.9	1384.1	1379.0	1375.6
7.5°	1418.2	1406.8	1388.1	1371.6	1358.0	1332.5	1326.8	1320.0	1314.3	1303.0	1300.7
10°	1381.8	1365.4	1341.5	1318.3	1293.3	1273.4	1254.7	1246.8	1231.5	1221.2	1218.4
12.5°	1344.4	1317.1	1290.5	1256.4	1228.1	1199.1	1182.7	1171.3	1156.0	1131.0	1119.1
15°	1305.8	1264.4	1228.6	1191.2	1171.9	1132.7	1101.5	1066.3	1047.6	1005.6	981.2
17.5°	1254.2	1206.5	1158.2	1127.6	1087.3	1032.8	980.6	962.5	934.1	906.9	879.6
20°	1184.4	1140.7	1094.7	1048.7	987.4	924.4	904.6	873.4	842.2	825.7	811.5
22.5°	1120.2	1073.1	1018.6	957.9	894.9	845.6	819.5	796.8	777.5	762.7	746.3
25°	1059.5	1010.7	933.0	871.1	816.1	779.7	766.7	737.2	716.7	706.0	691.8
27.5°	992.5	925.6	863.2	799.0	750.2	729.8	699.7	676.4	654.9	633.9	628.8
30°	929.0	854.6	792.8	740.6	704.8	676.4	645.8	618.6	604.4	596.4	583.4
32.5°	866.0	790.5	732.6	691.8	653.2	623.1	594.2	580.0	558.4	540.8	529.5
35°	798.5	732.6	686.7	639.0	602.1	572.6	557.8	525.5	513.6	508.5	496.6
37.5°	738.9	680.4	633.9	597.6	557.3	533.4	504.5	497.1	481.2	467.6	463.6
40°	689.5	634.5	590.8	543.7	518.7	487.5	473.3	453.4	447.8	442.6	433.6
42.5°	635.6	588.5	538.5	506.8	469.9	455.7	433.6	427.9	414.3	409.2	405.8
45°	589.6	545.9	498.3	459.7	438.7	417.7	409.2	395.0	388.7	382.5	376.2
47.5°	544.8	499.4	461.4	425.1	401.8	392.1	376.8	366.6	359.8	353.5	347.3
50°	503.4	457.4	414.8	388.7	372.3	358.7	349.0	340.5	330.8	317.2	303.0
52.5°	458.5	417.1	382.5	357.0	342.2	329.1	320.6	305.9	287.2	272.4	265.6
55°	413.7	374.5	344.5	324.0	313.8	301.3	282.0	260.5	248.6	246.3	244.6
57.5°	375.7	338.8	311.0	295.1	283.2	261.0	240.6	232.7	229.3	228.1	227.0
60°	333.1	300.2	280.3	263.3	243.5	222.5	216.2	215.1	211.7	210.0	208.8
62.5°	294.0	265.6	247.4	227.0	206.0	202.0	197.5	194.6	192.9	189.0	187.3
65°	255.9	233.2	213.4	191.8	184.4	181.6	177.6	173.7	169.1	166.3	164.0
67.5°	219.6	197.5	176.5	168.5	164.6	160.0	154.9	149.3	147.0	143.0	142.4
70°	183.9	163.4	152.1	147.0	139.6	135.6	130.0	127.7	123.7	122.0	120.3
72.5°	149.8	135.1	130.5	123.1	118.0	111.8	109.0	106.7	104.4	101.6	101.6
75°	116.9	112.9	104.4	98.7	93.6	90.2	89.1	85.1	84.6	82.9	81.7
77.5°	93.1	85.1	82.3	76.0	72.6	70.9	69.8	67.5	65.3	64.7	64.1
80°	65.8	61.9	58.5	55.6	52.8	51.6	50.5	49.9	48.8	47.7	47.1
82.5°	43.1	40.9	38.6	36.9	36.3	34.6	33.5	32.9	31.8	31.8	31.8
85°	23.3	22.7	21.6	20.4	19.3	19.3	18.7	18.2	18.2	16.5	16.5
87.5°	7.4	7.4	6.8	6.8	5.7	6.2	5.7	5.7	5.1	5.7	5.7
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: P243083

CATALOG NUMBER: S121RDR-H880D830-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1505.0	1505.0	1505.0	1505.0
2.5°	1435.8	1435.8	1433.5	1435.8
5°	1373.3	1368.2	1366.5	1365.4
7.5°	1293.9	1289.3	1284.8	1280.3
10°	1212.7	1205.9	1201.9	1198.5
12.5°	1107.2	1098.7	1082.8	1087.3
15°	977.2	977.8	940.9	981.8
17.5°	871.1	873.9	859.2	856.9
20°	803.6	802.4	796.8	789.9
22.5°	734.3	729.2	727.0	716.2
25°	669.6	660.6	663.4	648.1
27.5°	622.5	615.2	612.9	611.8
30°	575.4	560.1	555.0	558.4
32.5°	527.8	526.6	524.9	525.5
35°	487.5	485.2	480.1	480.1
37.5°	459.7	460.2	457.4	455.1
40°	425.6	422.8	422.2	418.8
42.5°	401.2	395.5	393.3	393.8
45°	372.8	369.4	366.6	367.7
47.5°	339.4	336.0	329.7	328.0
50°	294.0	289.4	286.6	283.7
52.5°	259.9	259.3	258.2	257.6
55°	243.5	241.8	241.8	241.8
57.5°	226.4	225.3	224.7	225.9
60°	207.7	206.6	204.3	204.3
62.5°	184.4	183.3	182.7	180.5
65°	161.2	160.6	159.5	160.0
67.5°	139.6	139.0	139.0	137.3
70°	118.6	118.6	116.9	118.0
72.5°	99.3	98.7	98.7	98.7
75°	80.6	80.0	79.4	79.4
77.5°	63.6	63.6	62.4	62.4
80°	46.0	46.0	45.4	46.5
82.5°	30.6	31.8	30.6	30.6
85°	16.5	17.0	17.0	17.0
87.5°	5.1	4.5	4.5	4.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)