

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: P242985

Luminaire Tested: **S121DR-H880D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242985  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-57)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S121DR-H880D835-X4F0-XX-UDD-A-W  
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3466.5 lumens  
Efficiency: N/A  
Efficacy: 110.0 lumens/watt  
Spacing Criteria (0/90/45): 1.13 / 1.2 / 1.28  
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')  
CIE Type: Direct

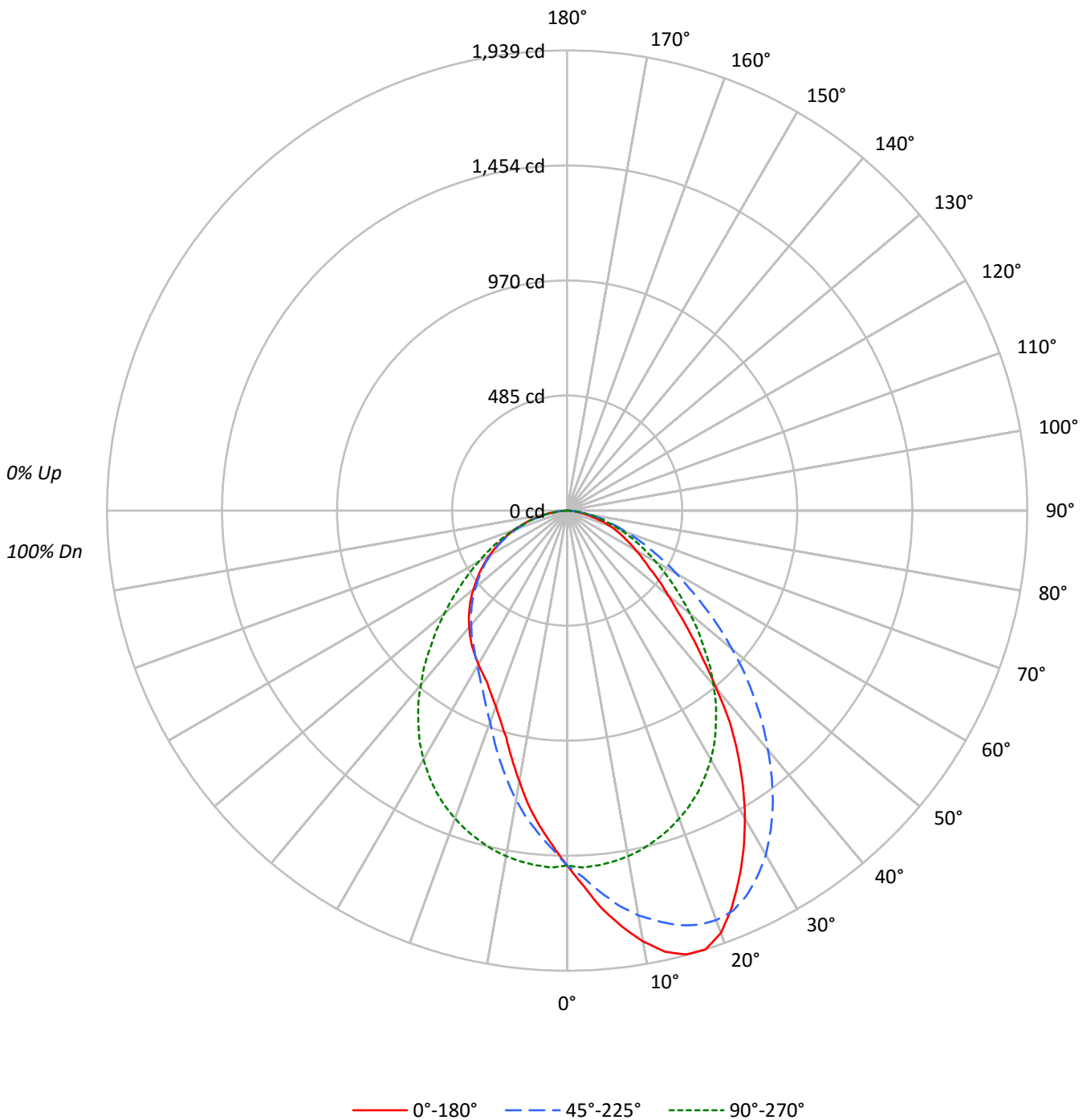
Input Watts (W): 31.5  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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	110	105	102	98	107	103	100	96	99	96	93	95	93	91	92	90	88					86				
2	101	93	87	81	98	91	85	80	88	83	79	84	80	77	81	78	75					73				
3	92	83	75	69	90	81	74	68	78	72	67	75	70	66	73	69	65					63				
4	85	74	66	59	83	72	65	59	70	63	58	68	62	57	66	61	57					54				
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50					48				
6	73	60	52	46	71	59	51	45	57	50	45	56	49	45	54	49	44					42				
7	68	55	46	41	66	54	46	40	53	45	40	51	45	40	50	44	40					38				
8	63	50	42	37	62	50	42	36	48	41	36	47	41	36	46	40	36					34				
9	59	46	38	33	58	46	38	33	45	38	33	44	37	33	43	37	33					31				
10	56	43	35	30	54	42	35	30	41	35	30	41	34	30	40	34	30					28				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	44314	44314	44314
5°	50072	44626	39647
10°	55468	44492	34853
15°	59399	44104	30402
20°	59727	43532	27681
25°	56022	42716	26102
30°	51252	41426	25585
35°	45388	39528	25262
40°	37820	37074	24824
45°	30832	34109	24371
50°	25588	31087	23758
55°	21898	28179	23143
60°	19840	25511	22406
65°	18320	23220	21615
70°	16902	20913	20341
75°	13646	18546	18752
80°	10886	14998	16022
85°	8193	11049	13089



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	142.9	4.1
10°-20°	409.4	11.8
20°-30°	596.0	17.2
30°-40°	664.4	19.2
40°-50°	614.3	17.7
50°-60°	489.4	14.1
60°-70°	335.0	9.7
70°-80°	173.9	5.0
80°-90°	41.2	1.2
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°	1148.2	33.1
0°-40°	1812.7	52.3
0°-60°	2916.4	84.1
0°-90°	3466.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3466.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1496	1496	1496	1496	1496	
5°	1684	1614	1500	1367	1333	165
15°	1936	1809	1438	1092	991	543
25°	1714	1790	1307	840	798	785
35°	1255	1511	1093	688	698	779
45°	736	1113	814	568	582	573
55°	424	703	546	437	448	388
65°	261	388	331	300	308	260
75°	119	175	162	153	164	131
85°	24	33	32	34	38	30
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°	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6
2.5°	1582.3	1582.3	1578.1	1579.9	1577.5	1573.3	1566.7	1559.4	1550.4	1546.8	1545.0
5°	1683.5	1685.9	1682.9	1676.8	1675.6	1670.8	1656.4	1647.9	1628.7	1613.6	1608.8
7.5°	1767.8	1772.0	1772.0	1761.1	1756.3	1744.3	1734.0	1720.2	1696.1	1679.3	1665.4
10°	1843.6	1845.4	1838.8	1832.8	1823.2	1813.5	1796.1	1778.6	1752.7	1732.2	1709.4
12.5°	1903.8	1907.5	1902.6	1893.0	1881.6	1868.9	1847.2	1825.0	1799.7	1772.0	1747.3
15°	1936.4	1941.8	1942.4	1934.5	1926.1	1911.1	1895.4	1871.3	1843.6	1809.3	1769.0
17.5°	1938.8	1941.2	1943.0	1937.0	1931.5	1926.1	1910.5	1890.6	1864.1	1830.4	1793.1
20°	1894.2	1899.6	1905.6	1900.2	1902.6	1902.6	1896.0	1885.8	1864.1	1837.0	1800.9
22.5°	1811.1	1823.8	1831.6	1837.0	1842.4	1850.3	1858.1	1853.3	1844.8	1825.0	1792.5
25°	1713.6	1723.8	1738.9	1743.7	1747.9	1770.8	1784.6	1794.3	1794.3	1790.0	1768.4
27.5°	1610.0	1616.6	1629.3	1646.1	1661.8	1675.6	1704.5	1722.6	1737.1	1737.1	1725.6
30°	1498.0	1507.7	1522.7	1534.2	1553.4	1581.7	1605.8	1627.5	1660.6	1675.0	1672.6
32.5°	1380.0	1389.6	1405.3	1414.9	1442.6	1465.5	1502.8	1536.6	1574.5	1596.2	1609.4
35°	1254.8	1255.4	1281.9	1297.5	1321.6	1349.9	1395.7	1433.6	1475.1	1511.3	1539.6
37.5°	1125.9	1125.3	1144.0	1171.7	1191.0	1230.7	1277.7	1319.8	1377.6	1416.1	1460.7
40°	977.8	990.5	1006.1	1031.4	1064.5	1111.5	1156.0	1210.8	1268.6	1316.8	1364.4
42.5°	845.3	855.6	880.9	909.2	944.7	984.4	1038.6	1099.4	1156.0	1218.6	1271.6
45°	735.8	741.2	756.2	779.1	816.4	861.6	918.2	982.6	1049.5	1113.3	1172.3
47.5°	634.6	650.9	658.7	679.8	706.9	749.0	808.0	865.8	942.9	1013.9	1078.4
50°	555.1	558.1	572.0	587.6	619.6	650.9	695.4	755.0	826.7	906.8	972.4
52.5°	490.1	488.9	500.3	514.2	536.5	569.6	608.1	665.9	726.7	806.2	877.9
55°	423.9	429.9	435.3	449.2	469.0	494.3	526.8	575.6	632.8	703.3	778.5
57.5°	378.1	378.7	381.7	393.2	406.4	426.3	457.6	499.1	550.3	611.7	684.6
60°	334.8	335.4	340.8	344.4	353.4	370.3	394.4	428.7	473.9	532.9	596.7
62.5°	297.4	298.0	301.0	304.7	313.1	319.7	340.2	369.7	406.4	458.8	513.6
65°	261.3	261.9	261.9	266.7	272.1	278.2	292.6	311.3	346.8	388.4	437.1
67.5°	226.4	230.0	228.8	232.4	237.2	240.2	250.5	267.3	291.4	326.3	368.5
70°	195.1	194.5	196.3	198.1	199.9	204.7	211.3	222.8	243.2	267.9	305.3
72.5°	161.4	157.8	160.2	162.6	165.6	169.2	174.6	183.0	198.7	218.6	246.3
75°	119.2	117.4	121.0	121.6	127.0	131.9	137.9	146.3	157.8	174.6	192.7
77.5°	86.7	89.1	90.3	91.5	92.1	97.5	104.2	111.4	118.0	133.7	147.5
80°	63.8	63.8	64.4	65.6	66.8	68.0	72.3	77.1	82.5	92.1	106.0
82.5°	44.6	44.0	44.0	44.6	45.2	46.4	48.2	50.0	54.8	59.6	66.8
85°	24.1	24.7	25.3	24.1	24.7	25.3	26.5	28.3	29.5	33.1	36.1
87.5°	8.4	10.2	9.6	9.6	10.2	10.2	10.2	11.4	11.4	11.4	13.2
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°	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6
2.5°	1543.2	1541.4	1536.6	1526.9	1520.3	1508.3	1505.9	1505.2	1494.4	1478.2	1477.0
5°	1600.4	1586.5	1575.1	1558.2	1541.4	1520.9	1508.9	1500.4	1481.2	1457.1	1446.2
7.5°	1652.8	1632.9	1609.4	1582.9	1558.2	1529.3	1508.3	1491.4	1463.1	1432.4	1413.7
10°	1694.9	1670.2	1640.7	1605.2	1571.5	1533.5	1504.0	1478.8	1441.4	1403.5	1378.2
12.5°	1723.8	1696.1	1662.4	1620.9	1579.9	1536.6	1493.8	1461.9	1414.9	1371.0	1338.5
15°	1756.3	1710.6	1675.6	1628.7	1580.5	1528.7	1483.6	1437.8	1383.6	1334.3	1292.1
17.5°	1764.2	1722.0	1680.5	1628.7	1578.7	1515.5	1463.1	1412.5	1352.3	1291.5	1250.6
20°	1771.4	1723.2	1672.0	1616.0	1563.7	1498.6	1439.6	1380.6	1310.8	1245.1	1194.0
22.5°	1766.0	1719.0	1661.8	1598.6	1542.0	1475.1	1411.3	1346.3	1268.0	1199.4	1141.6
25°	1750.3	1707.0	1647.9	1578.7	1510.7	1442.6	1375.8	1306.6	1221.7	1142.2	1078.4
27.5°	1718.4	1679.9	1623.3	1549.8	1478.2	1402.9	1333.0	1260.8	1169.9	1088.6	1020.6
30°	1675.6	1644.9	1587.7	1514.3	1436.6	1355.9	1284.3	1210.8	1116.3	1027.8	955.5
32.5°	1616.6	1595.0	1545.6	1473.9	1390.2	1304.8	1231.3	1156.6	1055.5	971.2	897.7
35°	1550.4	1540.2	1496.2	1424.6	1337.9	1248.2	1169.3	1092.8	999.5	910.4	839.9
37.5°	1472.7	1480.0	1440.2	1369.2	1279.5	1187.9	1104.9	1030.8	936.3	850.8	781.5
40°	1395.7	1406.5	1376.4	1310.2	1216.8	1122.3	1038.0	958.5	870.6	795.4	726.7
42.5°	1310.2	1331.8	1308.4	1243.9	1153.0	1053.1	965.2	891.1	807.4	738.2	678.0
45°	1219.3	1246.9	1237.3	1171.7	1082.0	983.8	891.1	814.0	746.6	685.2	630.4
47.5°	1127.1	1159.0	1154.8	1100.0	1013.9	913.4	821.9	746.0	684.0	634.6	588.9
50°	1032.6	1065.1	1065.7	1016.9	936.9	841.1	743.0	674.4	625.0	581.6	544.3
52.5°	940.5	973.0	973.6	935.7	855.6	762.3	671.9	609.3	567.2	533.5	502.2
55°	844.1	882.1	885.7	849.0	777.9	688.2	605.1	545.5	508.2	486.5	459.4
57.5°	746.6	787.5	794.8	765.3	696.6	612.9	543.1	485.9	455.8	440.7	420.3
60°	655.7	696.0	707.5	673.7	617.2	545.5	478.7	430.5	406.4	394.4	379.9
62.5°	572.0	612.3	618.4	589.5	533.5	473.3	422.7	378.7	358.9	349.8	338.4
65°	490.1	526.2	534.1	508.2	457.6	407.6	363.1	331.2	313.7	305.9	298.6
67.5°	414.8	448.6	454.0	430.5	388.4	345.6	313.1	285.4	273.4	263.1	260.1
70°	343.8	374.5	379.3	355.8	322.7	287.8	260.7	241.4	230.0	224.0	219.8
72.5°	278.2	302.3	306.5	292.0	266.1	235.4	214.3	198.1	190.9	185.4	183.6
75°	217.4	240.8	241.4	228.8	207.7	186.7	170.4	162.0	153.5	148.1	146.9
77.5°	166.8	180.0	181.8	175.2	154.7	141.5	128.8	122.8	119.8	114.4	114.4
80°	119.2	127.0	130.1	120.4	110.8	99.3	92.7	87.9	85.5	81.9	81.9
82.5°	74.1	80.7	84.3	77.1	72.3	66.2	61.4	58.4	56.6	54.8	54.2
85°	40.3	45.2	45.2	42.7	38.5	35.5	33.7	32.5	31.9	31.3	30.7
87.5°	14.5	18.1	16.3	16.9	15.1	14.5	13.8	13.8	14.5	13.2	13.2
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):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6	1495.6
2.5°	1469.1	1466.1	1457.1	1448.7	1442.0	1427.6	1424.6	1425.8	1425.8	1426.4	1419.8
5°	1433.6	1421.0	1406.5	1393.3	1383.0	1366.8	1357.7	1355.3	1353.5	1349.9	1343.3
7.5°	1393.3	1378.8	1358.3	1346.3	1324.6	1306.6	1293.9	1285.5	1280.1	1272.2	1261.4
10°	1352.3	1331.2	1308.4	1284.3	1262.6	1238.5	1218.6	1209.0	1197.6	1189.7	1177.7
12.5°	1311.4	1281.9	1250.6	1222.9	1193.4	1165.1	1144.6	1131.3	1110.9	1099.4	1086.8
15°	1257.8	1221.7	1195.2	1147.0	1132.5	1091.6	1066.9	1056.7	1036.8	1033.2	1013.3
17.5°	1207.2	1165.7	1126.5	1086.2	1047.7	1019.4	998.3	985.0	969.4	959.7	946.5
20°	1144.0	1100.6	1053.7	1011.5	979.0	948.9	935.7	918.8	909.8	900.1	890.5
22.5°	1083.8	1030.8	983.8	949.5	916.4	891.7	877.3	865.8	858.0	848.4	841.7
25°	1019.4	970.0	926.6	891.1	859.2	839.9	827.9	821.3	816.4	809.2	805.0
27.5°	957.9	908.0	865.2	838.1	812.2	795.4	789.4	783.3	777.3	774.9	774.3
30°	892.3	846.6	811.6	788.1	764.7	755.6	752.6	746.6	747.8	748.4	746.6
32.5°	836.9	792.4	765.9	746.0	727.9	721.3	720.7	718.3	718.9	721.9	720.7
35°	779.7	746.6	720.1	703.9	692.4	687.6	688.2	688.8	692.4	693.0	695.4
37.5°	730.9	699.0	681.6	665.9	660.5	660.5	661.1	661.7	664.7	668.3	669.5
40°	682.8	656.9	641.8	631.6	628.6	628.6	631.0	634.0	635.8	639.4	640.0
42.5°	639.4	617.8	606.3	596.1	597.3	600.3	600.9	602.7	607.5	608.1	609.3
45°	596.7	580.4	569.0	566.0	566.0	568.4	571.4	572.6	576.2	576.8	578.0
47.5°	560.0	543.1	534.7	531.7	533.5	536.5	540.7	542.5	545.5	544.9	547.9
50°	519.0	505.2	498.5	497.3	498.5	504.0	505.8	510.0	513.0	514.8	516.0
52.5°	479.9	469.0	466.0	465.4	467.8	471.4	473.9	478.1	481.7	481.7	481.1
55°	442.5	432.9	429.3	432.3	435.3	437.1	441.9	444.3	448.0	448.6	448.0
57.5°	404.6	396.2	395.0	396.2	402.2	405.8	408.8	408.8	410.6	411.2	413.0
60°	365.5	360.1	358.9	361.9	368.5	370.9	372.7	373.3	375.7	374.5	378.1
62.5°	328.7	323.3	325.7	328.7	331.2	334.8	336.0	339.0	338.4	339.6	341.4
65°	290.8	287.8	288.4	292.0	295.0	299.8	299.8	299.8	302.9	302.9	304.1
67.5°	254.1	252.3	254.7	257.7	258.3	261.3	260.7	264.3	266.7	267.9	269.1
70°	218.6	217.4	217.4	220.4	223.4	224.6	225.8	228.2	228.8	230.6	233.6
72.5°	184.8	181.2	181.8	186.0	186.0	188.5	191.5	191.5	195.1	195.7	198.7
75°	148.1	146.9	148.1	150.5	153.5	152.9	156.5	155.9	157.1	161.4	162.0
77.5°	115.6	113.8	116.8	118.0	118.6	119.2	120.4	123.4	125.8	127.6	128.2
80°	83.1	82.5	85.5	86.7	86.1	87.3	89.1	92.1	92.1	93.3	95.1
82.5°	56.0	54.8	56.6	58.4	59.6	60.2	60.2	61.4	62.0	63.2	63.2
85°	31.9	31.9	33.1	33.7	34.9	34.3	35.5	34.9	36.1	37.3	36.7
87.5°	13.8	13.8	13.8	13.8	14.5	14.5	15.1	15.1	14.5	15.1	13.8
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: P242985

CATALOG NUMBER: S121DR-H880D835-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1495.6	1495.6	1495.6	1495.6
2.5°	1417.3	1418.5	1415.5	1412.5
5°	1342.7	1338.5	1334.3	1333.0
7.5°	1259.0	1259.0	1248.8	1251.2
10°	1169.3	1165.7	1157.8	1158.4
12.5°	1082.0	1079.0	1074.7	1072.9
15°	1003.1	1004.9	1007.9	991.1
17.5°	941.1	936.3	933.9	930.8
20°	885.7	883.3	878.5	877.9
22.5°	842.9	837.5	836.3	836.9
25°	802.0	802.0	802.0	798.4
27.5°	773.1	773.1	771.3	771.9
30°	747.8	749.0	747.2	747.8
32.5°	723.7	724.3	723.1	722.5
35°	696.6	698.4	697.8	698.4
37.5°	670.7	671.9	670.7	670.7
40°	641.2	644.2	643.6	641.8
42.5°	611.7	611.7	613.5	612.9
45°	581.0	579.8	579.8	581.6
47.5°	548.5	550.9	549.7	550.3
50°	518.4	517.8	516.0	515.4
52.5°	482.9	484.1	483.5	480.5
55°	448.6	448.6	448.0	448.0
57.5°	411.8	413.6	413.0	413.0
60°	376.9	378.1	378.7	378.1
62.5°	341.4	342.0	341.4	342.0
65°	307.1	307.1	306.5	308.3
67.5°	269.7	270.3	269.7	270.9
70°	234.2	235.4	236.0	234.8
72.5°	200.5	199.3	199.9	198.7
75°	163.2	163.8	163.2	163.8
77.5°	128.2	128.8	128.2	128.8
80°	94.5	94.5	95.1	93.9
82.5°	63.8	63.8	65.6	63.8
85°	37.3	37.3	36.1	38.5
87.5°	14.5	14.5	14.5	14.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)