

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: P242317

Luminaire Tested: **S122DR-S865D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242317  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-19)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S122DR-S865D940-X4F0-XX-UDD-A-W  
Description: DEFINE 2 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: 3264.1 lumens  
Efficiency: N/A  
Efficacy: 93.8 lumens/watt  
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.23  
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')  
CIE Type: Direct

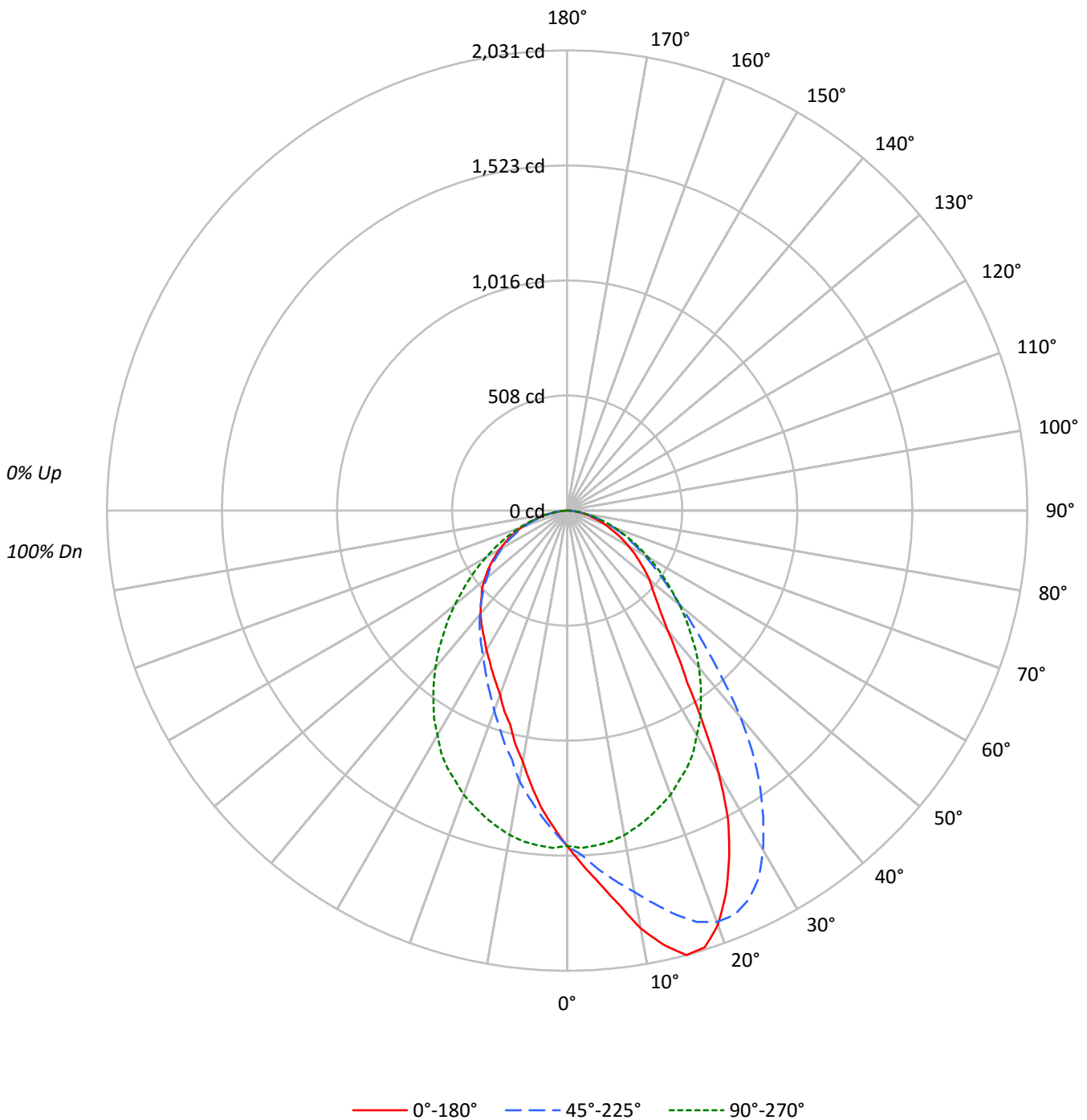
Input Watts (W): 34.8  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86					86			
2	101	94	87	82	98	92	86	81	88	83	79	85	81	78	82	79	76	74					74			
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	74	69	66	64					64			
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	58	55					55			
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49					49			
6	74	61	53	47	72	60	52	46	58	51	46	57	51	46	55	50	45	43					43			
7	69	56	48	42	67	55	47	42	54	46	41	52	46	41	51	45	41	39					39			
8	64	51	43	38	63	51	43	38	49	42	37	48	42	37	47	41	37	35					35			
9	60	47	39	34	59	47	39	34	46	39	34	45	38	34	44	38	34	32					32			
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	41	35	31	29					29			

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

	0°	90°	180°
0°	28183	28183	28183
5°	31597	28367	25138
10°	36207	28134	21755
15°	40055	27619	19219
20°	39444	27065	17519
25°	35567	26328	16444
30°	29391	25151	15658
35°	21421	23920	15100
40°	17110	22468	14790
45°	14950	20785	14368
50°	14052	19158	14088
55°	12955	17504	13709
60°	11871	15749	13128
65°	10817	14175	12557
70°	9818	12636	11718
75°	8706	10921	10377
80°	7481	9050	8358
85°	6709	6709	4961



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	140.9	4.3
10°-20°	410.2	12.6
20°-30°	595.3	18.2
30°-40°	627.6	19.2
40°-50°	555.3	17.0
50°-60°	443.3	13.6
60°-70°	301.1	9.2
70°-80°	154.1	4.7
80°-90°	36.4	1.1
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°	1146.4	35.1
0°-40°	1774.0	54.3
0°-60°	2772.5	84.9
0°-90°	3264.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3264.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1480	1480	1480	1480	1480	
5°	1652	1590	1484	1348	1315	164
15°	2031	1845	1401	1065	975	563
25°	1692	1895	1253	833	782	768
35°	921	1484	1029	669	649	596
45°	555	878	772	529	533	435
55°	390	506	527	398	413	350
65°	240	300	314	263	279	238
75°	118	145	148	133	141	126
85°	31	34	31	26	23	35
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°	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6
2.5°	1564.9	1565.5	1566.6	1557.5	1556.4	1556.4	1548.4	1541.6	1533.6	1522.8	1524.0
5°	1652.5	1658.7	1661.0	1654.2	1643.9	1642.8	1633.1	1617.2	1602.4	1590.5	1582.0
7.5°	1753.7	1756.0	1751.4	1743.4	1736.6	1723.5	1707.6	1692.3	1669.5	1649.1	1634.3
10°	1872.0	1875.4	1865.7	1852.6	1841.8	1825.9	1799.7	1773.0	1740.6	1709.3	1684.3
12.5°	1961.8	1971.5	1958.4	1959.5	1939.1	1915.7	1883.3	1873.1	1824.2	1777.6	1750.3
15°	2031.2	2030.6	2031.7	2020.9	2007.3	2003.9	1970.9	1935.1	1870.8	1845.2	1800.9
17.5°	2020.9	2028.9	2033.5	2030.0	2027.8	2022.6	2008.4	1981.7	1946.5	1903.2	1850.4
20°	1945.9	1957.3	1959.0	1972.0	1979.4	1989.1	1993.1	1986.8	1966.9	1932.2	1887.9
22.5°	1829.9	1831.0	1837.3	1859.5	1877.6	1905.5	1920.3	1948.2	1943.6	1931.1	1895.8
25°	1692.3	1686.6	1706.5	1716.7	1753.7	1792.4	1820.2	1850.9	1878.2	1894.7	1883.9
27.5°	1539.9	1527.9	1558.1	1584.8	1611.0	1648.5	1690.6	1740.6	1778.7	1830.4	1843.0
30°	1336.3	1341.4	1369.9	1398.9	1444.3	1503.5	1552.4	1608.7	1669.5	1729.2	1770.7
32.5°	1116.8	1140.1	1155.5	1203.8	1242.5	1310.1	1387.5	1461.4	1541.0	1611.0	1680.9
35°	921.2	943.9	969.0	1001.4	1057.7	1123.1	1193.0	1288.0	1391.5	1484.1	1560.3
37.5°	797.2	793.3	808.6	832.5	880.8	937.1	1020.1	1116.8	1240.8	1343.7	1446.0
40°	688.1	685.8	696.0	717.6	752.3	791.0	861.5	943.9	1057.1	1190.2	1318.1
42.5°	613.0	615.3	619.8	633.5	654.5	684.6	733.0	800.1	901.3	1024.7	1164.6
45°	555.0	559.0	565.2	572.6	586.3	612.4	642.0	692.0	773.9	878.5	1013.9
47.5°	509.5	510.6	517.5	524.3	532.2	548.2	574.3	606.2	668.7	758.0	879.1
50°	474.2	470.3	474.8	479.9	488.5	498.7	514.6	544.2	582.9	651.7	748.9
52.5°	431.0	432.2	436.1	437.3	444.7	454.9	469.1	487.3	521.4	571.5	647.1
55°	390.1	392.9	395.2	398.6	405.4	412.8	424.2	437.9	465.1	505.5	564.7
57.5°	351.4	352.6	354.3	361.7	365.6	372.5	383.8	396.3	414.5	445.8	492.4
60°	311.6	311.6	316.2	319.0	324.7	331.5	340.0	352.0	367.9	392.4	428.2
62.5°	275.2	274.7	275.8	280.9	284.9	291.1	299.7	309.3	324.1	345.2	373.0
65°	240.0	238.8	242.2	243.4	247.9	254.2	261.0	271.8	283.8	299.7	325.8
67.5°	204.7	206.4	208.7	211.0	213.2	220.6	225.2	233.1	243.4	257.0	275.2
70°	176.3	176.3	176.3	178.0	181.4	184.8	189.4	195.6	205.3	216.7	232.6
72.5°	144.4	146.7	149.0	147.3	151.8	153.5	159.2	162.1	171.2	177.4	191.1
75°	118.3	118.3	118.3	121.1	122.8	124.5	127.9	131.4	135.9	145.0	152.4
77.5°	93.3	92.7	93.3	93.8	96.1	98.4	99.5	102.4	106.9	111.5	118.3
80°	68.2	69.4	69.9	71.1	71.1	72.2	72.8	76.8	79.6	82.5	86.4
82.5°	48.9	48.9	48.9	48.9	49.5	50.0	51.7	52.3	52.9	55.2	58.0
85°	30.7	30.1	30.1	31.3	30.7	30.7	31.8	33.0	33.0	33.5	35.3
87.5°	14.8	14.8	15.4	14.8	14.8	15.4	15.4	14.8	15.4	15.9	16.5
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°	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6
2.5°	1527.9	1523.4	1520.5	1510.3	1501.2	1492.1	1489.3	1490.4	1477.9	1466.0	1460.8
5°	1577.4	1566.0	1555.2	1539.9	1521.7	1501.8	1491.5	1483.6	1463.7	1442.1	1429.6
7.5°	1622.3	1607.5	1588.2	1560.9	1535.9	1506.3	1488.1	1472.8	1444.9	1415.9	1398.3
10°	1662.7	1640.5	1613.8	1578.5	1546.1	1508.0	1481.3	1454.6	1420.5	1384.1	1361.3
12.5°	1697.4	1665.5	1639.4	1591.6	1551.8	1501.8	1468.8	1428.4	1392.0	1347.1	1324.9
15°	1756.5	1701.4	1651.3	1600.2	1553.0	1486.4	1451.2	1400.6	1353.4	1299.9	1274.3
17.5°	1800.3	1740.6	1663.3	1601.3	1549.0	1477.9	1427.3	1367.0	1313.6	1254.4	1220.3
20°	1836.7	1765.6	1680.9	1603.6	1537.6	1453.4	1397.1	1335.2	1269.8	1201.0	1163.4
22.5°	1858.3	1782.7	1699.1	1595.0	1514.9	1433.5	1359.0	1289.7	1223.1	1147.5	1107.7
25°	1859.5	1791.2	1702.5	1591.1	1496.7	1404.0	1318.7	1252.7	1172.5	1103.2	1045.7
27.5°	1840.7	1786.7	1700.8	1583.1	1475.6	1369.3	1276.6	1204.4	1119.7	1044.6	987.2
30°	1799.2	1770.7	1687.7	1569.4	1449.5	1332.9	1228.3	1143.5	1059.4	983.2	924.0
32.5°	1734.9	1734.3	1663.8	1550.1	1421.6	1286.8	1177.7	1091.8	996.3	921.8	866.0
35°	1646.8	1674.1	1628.0	1519.4	1385.2	1243.6	1126.5	1028.7	932.0	860.4	807.5
37.5°	1534.8	1597.9	1579.7	1478.5	1338.6	1197.6	1070.2	967.8	875.1	801.2	749.5
40°	1418.2	1504.6	1517.1	1430.1	1288.5	1142.4	1005.4	903.6	813.7	747.8	695.4
42.5°	1293.1	1397.7	1437.5	1372.1	1233.9	1084.4	947.4	841.0	752.3	688.6	643.7
45°	1150.4	1284.0	1346.0	1306.2	1172.0	1019.6	878.5	771.6	690.9	630.6	594.8
47.5°	1021.3	1166.3	1245.3	1226.6	1105.4	954.2	814.9	710.8	630.6	581.7	548.2
50°	882.5	1032.6	1133.3	1137.8	1032.6	883.1	743.2	646.5	574.3	529.4	503.2
52.5°	762.0	903.6	1015.6	1044.6	951.3	809.2	679.0	582.9	521.4	481.1	458.3
55°	660.2	781.3	903.0	947.4	870.6	734.1	611.9	527.1	467.4	439.0	418.5
57.5°	563.5	669.9	785.3	831.9	783.0	663.0	544.8	470.3	419.7	394.1	378.1
60°	490.2	569.8	669.9	728.4	687.5	583.4	483.3	413.4	373.6	351.4	336.6
62.5°	421.9	490.2	570.9	623.2	605.6	508.9	421.9	362.2	329.2	308.8	299.1
65°	359.4	415.1	480.5	530.0	515.2	440.7	367.3	314.5	287.2	270.7	262.1
67.5°	305.9	348.6	395.2	440.7	428.2	373.0	311.0	268.4	247.4	232.6	227.5
70°	255.9	286.6	327.0	361.7	352.0	308.8	262.1	226.9	209.3	197.3	192.2
72.5°	208.1	232.0	260.4	287.2	281.5	247.4	210.4	185.9	173.4	162.6	158.7
75°	164.3	183.7	202.4	221.2	219.5	191.6	168.9	148.4	137.6	129.1	127.4
77.5°	128.5	140.5	154.1	166.0	163.2	145.0	126.2	113.7	105.2	99.5	98.9
80°	92.7	98.9	108.0	116.0	112.0	105.2	91.0	82.5	76.8	71.1	68.8
82.5°	60.8	67.1	71.6	75.1	72.2	66.0	58.6	53.5	50.6	47.2	46.6
85°	35.3	38.7	40.9	42.1	40.9	37.0	33.0	30.7	27.9	26.2	25.6
87.5°	17.1	17.1	17.1	18.2	16.5	16.5	14.2	12.5	11.9	11.4	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):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6	1479.6
2.5°	1455.1	1451.7	1439.8	1433.5	1423.3	1413.6	1407.4	1410.2	1412.5	1411.4	1409.7
5°	1418.2	1407.4	1390.9	1376.7	1366.4	1347.7	1339.7	1335.7	1332.3	1328.3	1324.4
7.5°	1377.2	1361.9	1338.6	1320.4	1302.2	1278.3	1266.4	1259.5	1252.1	1243.6	1235.7
10°	1332.9	1309.0	1284.0	1255.6	1232.8	1211.8	1193.0	1180.5	1169.1	1158.3	1150.4
12.5°	1286.3	1257.8	1225.4	1183.9	1158.3	1125.9	1127.0	1102.6	1083.3	1077.6	1067.9
15°	1236.2	1197.6	1158.3	1112.3	1092.4	1065.1	1048.0	1030.9	1015.6	1004.8	1001.9
17.5°	1181.6	1129.9	1091.8	1057.7	1025.3	997.4	982.6	969.0	955.9	940.0	939.4
20°	1117.4	1074.2	1031.5	1002.5	969.0	940.5	921.2	907.5	896.7	888.2	880.8
22.5°	1056.5	1008.2	970.1	937.7	904.7	883.1	868.9	855.8	847.3	837.6	830.8
25°	990.6	953.6	911.0	875.1	847.8	833.1	820.5	809.2	803.5	797.2	789.3
27.5°	934.3	893.3	851.3	823.4	798.4	785.3	775.6	767.1	762.0	758.0	752.9
30°	874.0	832.5	801.2	773.9	754.0	740.9	735.3	730.7	724.4	722.2	719.9
32.5°	816.0	779.6	754.0	731.3	712.5	705.1	700.0	696.0	691.5	689.2	684.1
35°	762.0	730.7	704.5	691.5	676.1	668.7	664.7	659.1	654.5	652.2	651.7
37.5°	710.2	681.8	664.2	646.5	639.2	635.2	629.5	625.5	623.8	623.2	622.7
40°	660.2	638.0	622.7	609.0	606.2	599.3	594.8	591.4	591.4	592.0	591.4
42.5°	614.7	595.4	582.3	570.9	567.5	564.1	559.5	560.1	561.2	563.5	561.2
45°	568.6	554.4	544.8	539.1	532.8	528.8	528.3	530.0	530.5	531.1	532.8
47.5°	525.4	516.3	507.2	500.4	497.6	497.0	495.9	498.7	501.5	502.1	505.0
50°	487.9	477.1	469.7	465.7	463.4	462.3	463.4	466.9	469.1	472.0	473.7
52.5°	445.8	439.0	434.4	431.6	431.0	432.2	432.2	436.1	440.1	440.7	441.3
55°	407.7	402.0	400.9	395.8	398.0	397.5	400.3	402.6	406.0	409.4	410.0
57.5°	369.0	363.9	360.5	361.1	361.7	363.9	366.2	370.2	374.2	378.1	378.1
60°	330.4	328.1	326.4	326.4	327.5	330.9	333.8	337.8	340.0	342.3	344.0
62.5°	295.1	292.8	291.1	292.3	295.7	297.4	300.8	302.5	304.8	307.1	307.6
65°	257.6	256.5	258.2	259.3	259.9	262.7	266.7	268.4	270.7	271.8	275.8
67.5°	223.5	223.5	222.9	224.6	228.0	228.6	232.6	237.1	237.1	239.4	242.2
70°	188.8	189.9	191.1	192.2	195.0	196.2	199.0	200.7	203.0	204.7	206.4
72.5°	156.9	156.9	158.1	157.5	159.8	162.6	164.9	166.6	168.9	171.2	172.9
75°	125.7	125.7	126.8	127.4	130.2	133.1	132.5	133.6	135.9	138.2	139.3
77.5°	97.2	96.1	97.2	97.8	98.9	101.2	101.8	103.5	106.3	105.8	106.9
80°	69.9	68.2	69.9	70.5	70.5	73.4	73.4	74.5	76.2	74.5	76.2
82.5°	44.9	44.4	45.5	45.5	46.6	46.1	47.2	47.2	48.9	48.3	48.9
85°	25.0	24.5	25.0	24.5	25.0	25.6	25.6	25.0	25.0	26.2	24.5
87.5°	9.7	9.1	8.5	8.5	8.0	7.4	6.8	6.8	6.8	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: P242317

CATALOG NUMBER: S122DR-S865D940-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1479.6	1479.6	1479.6	1479.6
2.5°	1404.0	1402.8	1402.8	1397.7
5°	1316.4	1314.7	1311.9	1314.7
7.5°	1233.4	1226.0	1224.8	1219.2
10°	1140.7	1136.1	1135.6	1124.8
12.5°	1070.2	1057.7	1060.5	1055.4
15°	986.6	986.6	984.3	974.6
17.5°	926.9	926.3	921.2	924.6
20°	874.6	871.2	864.3	864.3
22.5°	825.1	825.7	818.3	821.1
25°	788.7	784.2	780.7	782.4
27.5°	751.2	749.5	748.9	743.8
30°	719.3	713.6	714.8	711.9
32.5°	682.9	681.8	680.1	677.8
35°	650.5	651.1	648.2	649.4
37.5°	621.5	623.8	622.1	622.1
40°	593.1	593.1	593.1	594.8
42.5°	565.8	564.7	563.5	563.0
45°	534.0	535.7	536.2	533.4
47.5°	506.1	506.7	506.1	509.5
50°	476.5	475.4	476.5	475.4
52.5°	445.2	445.8	444.7	444.7
55°	412.3	413.4	412.8	412.8
57.5°	378.7	379.3	380.4	377.6
60°	343.5	346.3	345.7	344.6
62.5°	311.0	311.6	311.6	311.6
65°	277.5	278.6	276.9	278.6
67.5°	241.1	241.7	242.8	243.4
70°	207.6	207.0	208.7	210.4
72.5°	172.3	174.0	172.9	174.0
75°	138.2	139.9	139.3	141.0
77.5°	105.8	106.3	106.3	106.9
80°	76.2	75.1	73.9	76.2
82.5°	47.2	48.3	47.2	46.6
85°	24.5	23.9	22.7	22.7
87.5°	5.7	5.1	5.1	4.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)