

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: P242302

Luminaire Tested: **S122DR-S865D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242302
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-S865D840-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3696.6 lumens
Efficiency: N/A
Efficacy: 106.2 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

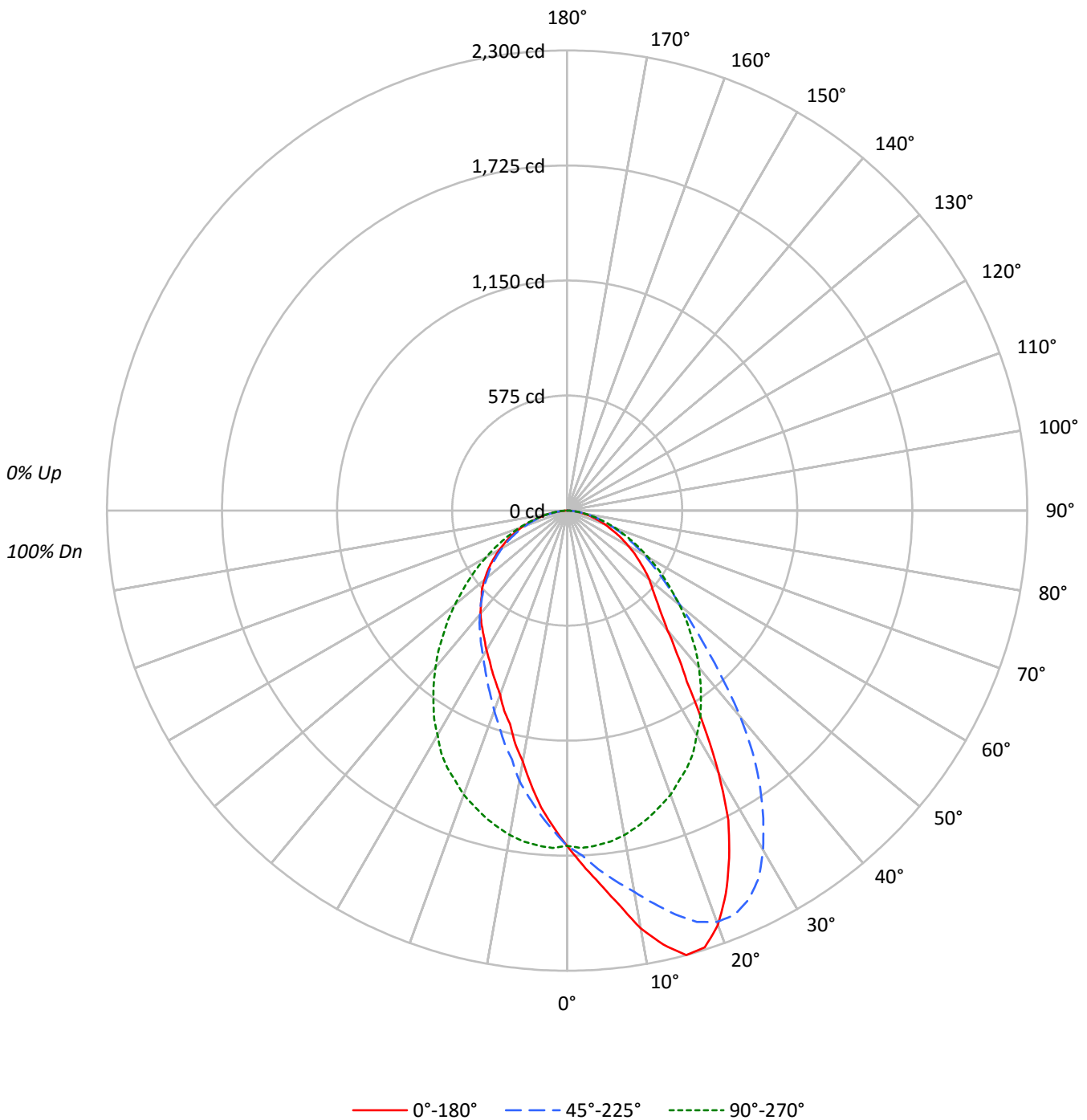
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86
2	101	94	87	82	98	92	86	81	88	83	79	85	81	78	82	79	76	74
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	74	69	66	64
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	58	55
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49
6	74	61	53	47	72	60	52	46	58	51	46	57	51	46	55	50	45	43
7	69	56	48	42	67	55	47	42	54	46	41	52	46	41	51	45	41	39
8	64	51	43	38	63	51	43	38	49	42	37	48	42	37	47	41	37	35
9	60	47	39	34	59	47	39	34	46	39	34	45	38	34	44	38	34	32
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	41	35	31	29

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	31918	31918	31918
5°	35782	32126	28468
10°	41004	31861	24637
15°	45361	31277	21767
20°	44669	30650	19842
25°	40279	29817	18623
30°	33286	28485	17734
35°	24260	27090	17100
40°	19375	25444	16749
45°	16930	23541	16273
50°	15916	21697	15954
55°	14672	19826	15525
60°	13444	17836	14869
65°	12250	16050	14224
70°	11116	14313	13271
75°	9854	12371	11753
80°	8479	10245	9466
85°	7605	7605	5639



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	159.6	4.3
10°-20°	464.5	12.6
20°-30°	674.2	18.2
30°-40°	710.7	19.2
40°-50°	628.8	17.0
50°-60°	502.0	13.6
60°-70°	341.0	9.2
70°-80°	174.5	4.7
80°-90°	41.2	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°	1298.3	35.1
0°-40°	2009.0	54.3
0°-60°	3139.9	84.9
0°-90°	3696.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3696.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1676	1676	1676	1676	1676	
5°	1871	1801	1680	1526	1489	186
15°	2300	2090	1586	1206	1104	637
25°	1916	2146	1419	943	886	869
35°	1043	1681	1165	757	735	675
45°	628	995	874	599	604	493
55°	442	572	597	450	468	396
65°	272	339	356	298	316	270
75°	134	164	168	151	160	143
85°	35	38	35	29	26	40
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°	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7
2.5°	1772.2	1772.9	1774.2	1763.9	1762.6	1762.6	1753.6	1745.8	1736.8	1724.6	1725.9
5°	1871.4	1878.5	1881.1	1873.4	1861.8	1860.5	1849.5	1831.5	1814.8	1801.2	1791.6
7.5°	1986.1	1988.6	1983.5	1974.5	1966.7	1951.9	1933.9	1916.5	1890.7	1867.6	1850.8
10°	2120.0	2123.9	2112.9	2098.1	2085.9	2067.8	2038.2	2007.9	1971.2	1935.8	1907.5
12.5°	2221.8	2232.7	2217.9	2219.2	2196.0	2169.6	2132.9	2121.3	2065.9	2013.1	1982.2
15°	2300.3	2299.7	2301.0	2288.7	2273.3	2269.4	2232.1	2191.5	2118.7	2089.7	2039.5
17.5°	2288.7	2297.7	2302.9	2299.0	2296.5	2290.7	2274.6	2244.3	2204.4	2155.4	2095.5
20°	2203.7	2216.6	2218.5	2233.3	2241.7	2252.7	2257.2	2250.1	2227.5	2188.3	2138.0
22.5°	2072.3	2073.6	2080.7	2105.8	2126.4	2158.0	2174.7	2206.3	2201.1	2187.0	2147.0
25°	1916.5	1910.1	1932.6	1944.2	1986.1	2029.8	2061.4	2096.2	2127.1	2145.8	2133.5
27.5°	1743.9	1730.4	1764.5	1794.8	1824.4	1866.9	1914.6	1971.2	2014.4	2073.0	2087.2
30°	1513.4	1519.2	1551.4	1584.2	1635.7	1702.7	1758.1	1821.8	1890.7	1958.4	2005.4
32.5°	1264.8	1291.2	1308.6	1363.3	1407.1	1483.7	1571.3	1655.0	1745.2	1824.4	1903.6
35°	1043.3	1069.0	1097.4	1134.1	1197.8	1271.9	1351.1	1458.6	1575.8	1680.8	1767.1
37.5°	902.9	898.4	915.7	942.8	997.5	1061.3	1155.3	1264.8	1405.2	1521.7	1637.7
40°	779.2	776.6	788.2	812.7	852.0	895.8	975.6	1069.0	1197.2	1347.9	1492.8
42.5°	694.2	696.8	701.9	717.4	741.2	775.4	830.1	906.1	1020.7	1160.5	1318.9
45°	628.5	633.0	640.1	648.5	663.9	693.6	727.1	783.7	876.5	995.0	1148.2
47.5°	577.0	578.3	586.0	593.8	602.8	620.8	650.4	686.5	757.3	858.4	995.6
50°	537.1	532.6	537.7	543.5	553.2	564.8	582.8	616.3	660.1	738.0	848.1
52.5°	488.1	489.4	493.9	495.2	503.6	515.2	531.3	551.9	590.5	647.2	732.9
55°	441.8	445.0	447.6	451.4	459.2	467.5	480.4	495.9	526.8	572.5	639.5
57.5°	398.0	399.3	401.2	409.6	414.1	421.8	434.7	448.9	469.5	504.9	557.7
60°	352.9	352.9	358.1	361.3	367.7	375.4	385.1	398.6	416.7	444.4	484.9
62.5°	311.7	311.0	312.3	318.1	322.6	329.7	339.4	350.3	367.1	390.9	422.5
65°	271.8	270.5	274.3	275.6	280.8	287.9	295.6	307.8	321.3	339.4	369.0
67.5°	231.8	233.8	236.3	238.9	241.5	249.9	255.0	264.0	275.6	291.1	311.7
70°	199.6	199.6	199.6	201.6	205.4	209.3	214.4	221.5	232.5	245.4	263.4
72.5°	163.6	166.1	168.7	166.8	171.9	173.9	180.3	183.5	193.8	200.9	216.4
75°	133.9	133.9	133.9	137.2	139.1	141.0	144.9	148.8	153.9	164.2	172.6
77.5°	105.6	105.0	105.6	106.3	108.8	111.4	112.7	115.9	121.1	126.2	133.9
80°	77.3	78.6	79.2	80.5	80.5	81.8	82.4	86.9	90.2	93.4	97.9
82.5°	55.4	55.4	55.4	55.4	56.0	56.7	58.6	59.2	59.9	62.5	65.7
85°	34.8	34.1	34.1	35.4	34.8	34.8	36.1	37.4	37.4	38.0	39.9
87.5°	16.7	16.7	17.4	16.7	16.7	17.4	17.4	16.7	17.4	18.0	18.7
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°	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7
2.5°	1730.4	1725.2	1722.0	1710.4	1700.1	1689.8	1686.6	1687.9	1673.7	1660.2	1654.4
5°	1786.4	1773.5	1761.3	1743.9	1723.3	1700.8	1689.2	1680.2	1657.6	1633.1	1619.0
7.5°	1837.3	1820.5	1798.7	1767.7	1739.4	1705.9	1685.3	1667.9	1636.4	1603.5	1583.6
10°	1883.0	1857.9	1827.6	1787.7	1751.0	1707.8	1677.6	1647.3	1608.7	1567.5	1541.7
12.5°	1922.3	1886.2	1856.6	1802.5	1757.4	1700.8	1663.4	1617.7	1576.5	1525.6	1500.5
15°	1989.3	1926.8	1870.1	1812.2	1758.7	1683.4	1643.5	1586.1	1532.7	1472.2	1443.2
17.5°	2038.9	1971.2	1883.7	1813.5	1754.2	1673.7	1616.4	1548.1	1487.6	1420.6	1382.0
20°	2080.1	1999.6	1903.6	1816.0	1741.3	1646.0	1582.3	1512.1	1438.0	1360.1	1317.6
22.5°	2104.5	2018.9	1924.2	1806.4	1715.6	1623.5	1539.1	1460.6	1385.2	1299.6	1254.5
25°	2105.8	2028.6	1928.1	1801.9	1695.0	1590.0	1493.4	1418.7	1327.9	1249.3	1184.3
27.5°	2084.6	2023.4	1926.2	1792.9	1671.1	1550.7	1445.7	1364.0	1268.0	1183.0	1118.0
30°	2037.6	2005.4	1911.3	1777.4	1641.5	1509.5	1391.0	1295.1	1199.7	1113.5	1046.5
32.5°	1964.8	1964.2	1884.3	1755.5	1610.0	1457.3	1333.7	1236.5	1128.3	1043.9	980.8
35°	1865.0	1895.9	1843.7	1720.7	1568.7	1408.4	1275.7	1165.0	1055.5	974.4	914.5
37.5°	1738.1	1809.6	1789.0	1674.4	1515.9	1356.2	1212.0	1096.1	991.1	907.4	848.8
40°	1606.1	1704.0	1718.2	1619.6	1459.3	1293.8	1138.6	1023.3	921.5	846.8	787.6
42.5°	1464.4	1582.9	1628.0	1553.9	1397.4	1228.1	1072.9	952.5	852.0	779.9	729.0
45°	1302.8	1454.1	1524.3	1479.2	1327.3	1154.7	995.0	873.9	782.4	714.2	673.6
47.5°	1156.6	1320.8	1410.3	1389.1	1251.9	1080.6	922.8	805.0	714.2	658.8	620.8
50°	999.5	1169.5	1283.5	1288.6	1169.5	1000.1	841.7	732.2	650.4	599.6	569.9
52.5°	862.9	1023.3	1150.2	1183.0	1077.4	916.4	768.9	660.1	590.5	544.8	519.1
55°	747.7	884.8	1022.6	1072.9	985.9	831.4	692.9	597.0	529.4	497.2	474.0
57.5°	638.2	758.6	889.3	942.2	886.8	750.9	616.9	532.6	475.3	446.3	428.3
60°	555.1	645.3	758.6	824.9	778.6	660.7	547.4	468.2	423.1	398.0	381.2
62.5°	477.8	555.1	646.6	705.8	685.8	576.4	477.8	410.2	372.9	349.7	338.7
65°	407.0	470.1	544.2	600.2	583.5	499.1	416.0	356.1	325.2	306.5	296.9
67.5°	346.5	394.8	447.6	499.1	484.9	422.5	352.3	304.0	280.1	263.4	257.6
70°	289.8	324.6	370.3	409.6	398.6	349.7	296.9	257.0	237.0	223.5	217.7
72.5°	235.7	262.7	294.9	325.2	318.8	280.1	238.3	210.6	196.4	184.2	179.7
75°	186.1	208.0	229.3	250.5	248.6	217.0	191.3	168.1	155.8	146.2	144.3
77.5°	145.5	159.1	174.5	188.0	184.8	164.2	143.0	128.8	119.1	112.7	112.1
80°	105.0	112.1	122.4	131.4	126.9	119.1	103.0	93.4	86.9	80.5	77.9
82.5°	68.9	76.0	81.1	85.0	81.8	74.7	66.3	60.5	57.3	53.5	52.8
85°	39.9	43.8	46.4	47.7	46.4	41.9	37.4	34.8	31.6	29.6	29.0
87.5°	19.3	19.3	19.3	20.6	18.7	18.7	16.1	14.2	13.5	12.9	11.6
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°	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7	1675.7
2.5°	1648.0	1644.1	1630.6	1623.5	1611.9	1600.9	1593.9	1597.1	1599.7	1598.4	1596.4
5°	1606.1	1593.9	1575.2	1559.1	1547.5	1526.2	1517.2	1512.7	1508.9	1504.4	1499.8
7.5°	1559.7	1542.3	1515.9	1495.3	1474.7	1447.7	1434.2	1426.4	1418.1	1408.4	1399.4
10°	1509.5	1482.5	1454.1	1421.9	1396.2	1372.3	1351.1	1336.9	1324.0	1311.8	1302.8
12.5°	1456.7	1424.5	1387.8	1340.8	1311.8	1275.1	1276.4	1248.7	1226.8	1220.4	1209.4
15°	1400.0	1356.2	1311.8	1259.6	1237.1	1206.2	1186.9	1167.5	1150.2	1137.9	1134.7
17.5°	1338.2	1279.6	1236.5	1197.8	1161.1	1129.6	1112.8	1097.4	1082.5	1064.5	1063.9
20°	1265.4	1216.5	1168.2	1135.3	1097.4	1065.2	1043.3	1027.8	1015.6	1005.9	997.5
22.5°	1196.5	1141.8	1098.6	1061.9	1024.6	1000.1	984.0	969.2	959.5	948.6	940.9
25°	1121.8	1080.0	1031.7	991.1	960.2	943.4	929.3	916.4	910.0	902.9	893.9
27.5°	1058.1	1011.7	964.0	932.5	904.2	889.3	878.4	868.7	862.9	858.4	852.6
30°	989.8	942.8	907.4	876.5	853.9	839.1	832.7	827.5	820.4	817.9	815.3
32.5°	924.1	882.9	853.9	828.2	806.9	798.5	792.7	788.2	783.1	780.5	774.7
35°	862.9	827.5	797.9	783.1	765.7	757.3	752.8	746.4	741.2	738.7	738.0
37.5°	804.3	772.1	752.2	732.2	723.8	719.3	712.9	708.4	706.5	705.8	705.2
40°	747.7	722.6	705.2	689.7	686.5	678.8	673.6	669.7	669.7	670.4	669.7
42.5°	696.1	674.3	659.4	646.6	642.7	638.8	633.7	634.3	635.6	638.2	635.6
45°	644.0	627.9	616.9	610.5	603.4	598.9	598.3	600.2	600.8	601.5	603.4
47.5°	595.0	584.7	574.4	566.7	563.5	562.8	561.6	564.8	568.0	568.6	571.9
50°	552.5	540.3	531.9	527.4	524.8	523.6	524.8	528.7	531.3	534.5	536.4
52.5°	504.9	497.2	492.0	488.8	488.1	489.4	489.4	493.9	498.4	499.1	499.7
55°	461.7	455.3	454.0	448.2	450.8	450.1	453.4	455.9	459.8	463.7	464.3
57.5°	417.9	412.2	408.3	408.9	409.6	412.2	414.7	419.2	423.7	428.3	428.3
60°	374.2	371.6	369.6	369.6	370.9	374.8	378.0	382.5	385.1	387.7	389.6
62.5°	334.2	331.7	329.7	331.0	334.9	336.8	340.7	342.6	345.2	347.8	348.4
65°	291.7	290.4	292.4	293.7	294.3	297.5	302.0	304.0	306.5	307.8	312.3
67.5°	253.1	253.1	252.4	254.4	258.2	258.9	263.4	268.5	268.5	271.1	274.3
70°	213.8	215.1	216.4	217.7	220.9	222.2	225.4	227.3	229.9	231.8	233.8
72.5°	177.7	177.7	179.0	178.4	181.0	184.2	186.8	188.7	191.3	193.8	195.8
75°	142.3	142.3	143.6	144.3	147.5	150.7	150.0	151.3	153.9	156.5	157.8
77.5°	110.1	108.8	110.1	110.8	112.1	114.6	115.3	117.2	120.4	119.8	121.1
80°	79.2	77.3	79.2	79.9	79.9	83.1	83.1	84.4	86.3	84.4	86.3
82.5°	50.9	50.2	51.5	51.5	52.8	52.2	53.5	53.5	55.4	54.7	55.4
85°	28.3	27.7	28.3	27.7	28.3	29.0	29.0	28.3	28.3	29.6	27.7
87.5°	10.9	10.3	9.7	9.7	9.0	8.4	7.7	7.7	7.7	6.4	6.4
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: P242302

CATALOG NUMBER: S122DR-S865D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1675.7	1675.7	1675.7	1675.7
2.5°	1590.0	1588.7	1588.7	1582.9
5°	1490.8	1488.9	1485.7	1488.9
7.5°	1396.8	1388.4	1387.1	1380.7
10°	1291.8	1286.7	1286.0	1273.8
12.5°	1212.0	1197.8	1201.0	1195.2
15°	1117.3	1117.3	1114.7	1103.8
17.5°	1049.7	1049.1	1043.3	1047.1
20°	990.4	986.6	978.9	978.9
22.5°	934.4	935.1	926.7	929.9
25°	893.2	888.1	884.2	886.1
27.5°	850.7	848.8	848.1	842.3
30°	814.6	808.2	809.5	806.3
32.5°	773.4	772.1	770.2	767.6
35°	736.7	737.4	734.1	735.4
37.5°	703.9	706.5	704.5	704.5
40°	671.7	671.7	671.7	673.6
42.5°	640.8	639.5	638.2	637.5
45°	604.7	606.6	607.3	604.1
47.5°	573.1	573.8	573.1	577.0
50°	539.7	538.4	539.7	538.4
52.5°	504.2	504.9	503.6	503.6
55°	466.9	468.2	467.5	467.5
57.5°	428.9	429.5	430.8	427.6
60°	389.0	392.2	391.5	390.3
62.5°	352.3	352.9	352.9	352.9
65°	314.3	315.6	313.6	315.6
67.5°	273.0	273.7	275.0	275.6
70°	235.1	234.4	236.3	238.3
72.5°	195.1	197.1	195.8	197.1
75°	156.5	158.4	157.8	159.7
77.5°	119.8	120.4	120.4	121.1
80°	86.3	85.0	83.7	86.3
82.5°	53.5	54.7	53.5	52.8
85°	27.7	27.0	25.8	25.8
87.5°	6.4	5.8	5.8	5.2
90°	0.0	0.0	0.0	0.0

(END OF REPORT)