

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: P243158

Luminaire Tested: **S122DR-H1005D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243158
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-58)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S122DR-H1005D835-X4F0-XX-UDD-A-W
Description: DEFINE 2 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: 4217.4 lumens
Efficiency: N/A
Efficacy: 111.9 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.24
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

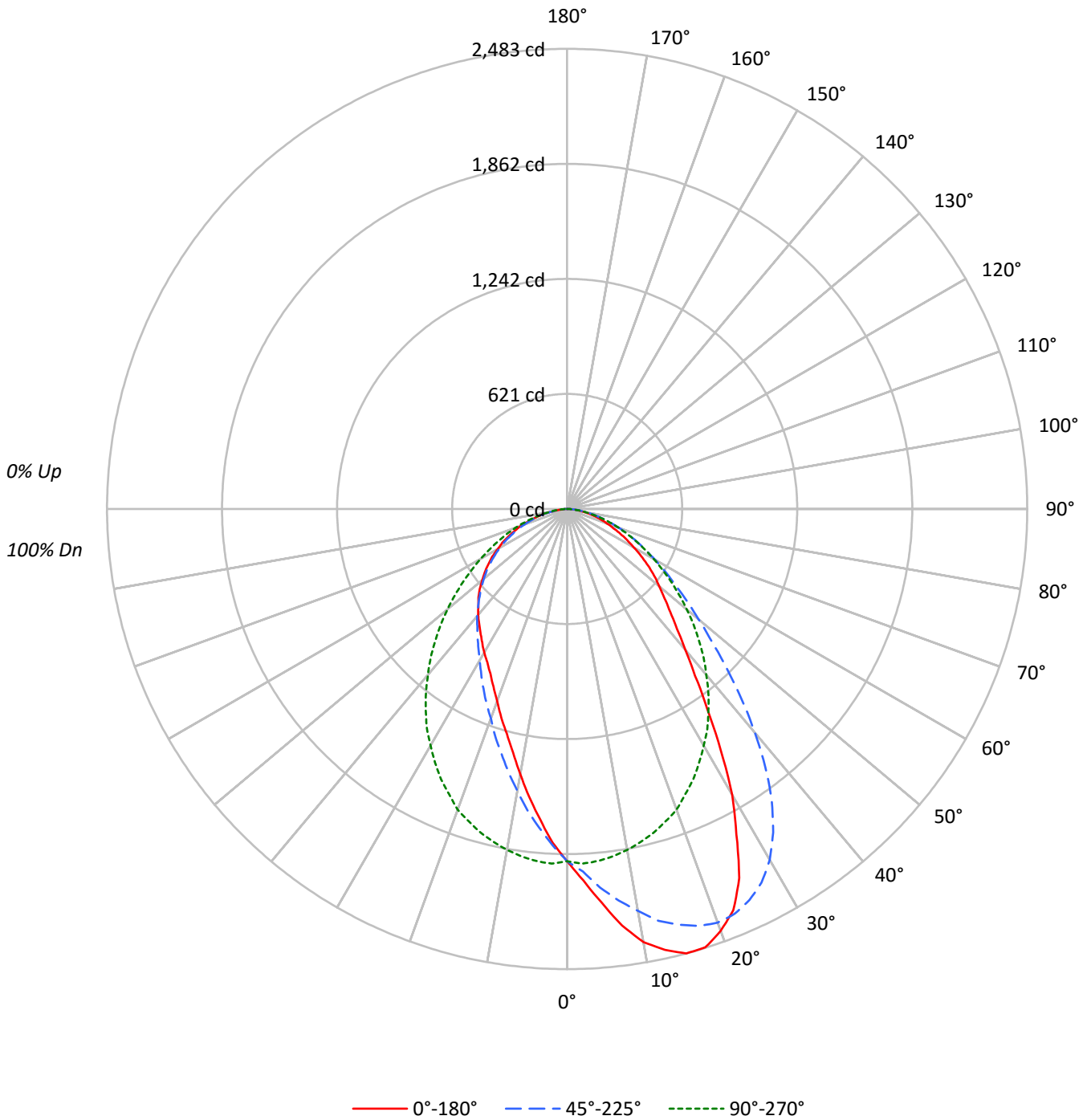
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88					86				
2	101	93	87	82	98	92	86	81	88	83	79	85	81	77	82	79	76					74				
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	73	69	66					63				
4	86	74	66	60	83	73	66	60	71	64	59	68	63	58	66	61	57					55				
5	79	67	59	52	77	66	58	52	64	57	52	62	56	51	60	55	51					49				
6	73	61	52	46	72	60	52	46	58	51	46	57	50	45	55	49	45					43				
7	68	56	47	41	67	55	47	41	53	46	41	52	46	41	51	45	40					39				
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37					35				
9	60	47	39	34	58	46	39	34	45	38	34	44	38	34	43	38	33					32				
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31					29				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	36202	36202	36202
5°	40778	36461	32117
10°	45903	36134	28107
15°	48964	35647	24774
20°	49104	35005	22356
25°	46182	33839	20607
30°	39203	32426	19678
35°	30652	30912	18940
40°	24626	29052	18574
45°	21184	27134	18229
50°	19217	24972	17718
55°	17707	22751	17239
60°	15916	20499	16453
65°	14328	18420	15662
70°	12770	16373	14653
75°	11495	14079	12835
80°	10026	11342	10026
85°	8611	8458	5529



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	181.1	4.3
10°-20°	520.4	12.3
20°-30°	756.9	17.9
30°-40°	811.9	19.3
40°-50°	727.6	17.3
50°-60°	580.1	13.8
60°-70°	392.4	9.3
70°-80°	200.1	4.7
80°-90°	46.9	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°	1458.4	34.6
0°-40°	2270.2	53.8
0°-60°	3578.0	84.8
0°-90°	4217.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4217.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1901	1901	1901	1901	1901	
5°	2133	2051	1907	1727	1680	211
15°	2483	2322	1808	1368	1256	695
25°	2197	2328	1610	1069	980	989
35°	1318	1926	1329	842	814	835
45°	786	1218	1007	668	677	615
55°	533	708	685	504	519	476
65°	318	412	409	331	348	315
75°	156	195	191	165	174	167
85°	39	45	39	30	25	46
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°	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6
2.5°	2006.1	2012.4	2006.8	2004.7	2000.5	1999.1	1987.8	1978.7	1973.0	1957.6	1959.0
5°	2132.7	2146.8	2139.0	2138.3	2122.9	2113.0	2103.2	2089.1	2068.0	2051.1	2037.8
7.5°	2266.4	2259.3	2257.2	2249.5	2238.2	2224.2	2202.4	2182.0	2155.2	2130.6	2112.3
10°	2373.3	2371.2	2374.7	2355.0	2348.0	2326.2	2307.2	2275.5	2241.0	2202.4	2178.4
12.5°	2436.6	2442.9	2447.8	2440.1	2423.2	2416.9	2385.2	2340.9	2329.0	2276.2	2247.4
15°	2483.0	2485.8	2486.5	2478.1	2469.6	2453.5	2434.5	2406.3	2367.7	2321.9	2300.1
17.5°	2480.2	2479.5	2483.7	2478.8	2473.9	2468.9	2454.2	2432.4	2402.1	2359.2	2322.6
20°	2422.5	2435.2	2445.0	2447.1	2446.4	2449.2	2442.2	2428.1	2406.3	2375.4	2333.9
22.5°	2343.7	2338.8	2359.9	2358.5	2367.7	2388.8	2397.9	2392.3	2383.8	2364.1	2331.1
25°	2197.4	2202.4	2217.1	2232.6	2268.5	2281.1	2308.6	2329.7	2332.5	2327.6	2307.2
27.5°	1978.0	2013.1	2020.9	2041.3	2091.2	2132.7	2188.3	2221.3	2268.5	2272.7	2263.6
30°	1782.4	1781.0	1793.0	1829.6	1875.3	1937.9	2009.6	2094.7	2148.9	2186.2	2199.5
32.5°	1541.9	1547.5	1578.4	1623.5	1669.9	1732.5	1815.5	1919.6	1992.0	2069.4	2113.0
35°	1318.2	1335.8	1365.3	1396.3	1446.9	1532.7	1624.9	1711.4	1822.5	1925.9	1996.3
37.5°	1133.9	1157.8	1180.3	1209.9	1259.1	1325.2	1408.2	1522.9	1633.3	1757.8	1861.2
40°	990.4	999.5	1015.0	1043.8	1076.9	1143.0	1226.7	1312.5	1432.1	1574.9	1710.7
42.5°	877.8	875.7	892.6	910.9	941.2	990.4	1063.5	1149.4	1268.2	1394.8	1532.0
45°	786.4	787.1	794.1	813.1	837.0	865.2	921.5	1002.3	1092.4	1218.3	1363.9
47.5°	711.8	714.0	724.5	737.9	751.9	778.0	815.2	868.0	952.4	1057.9	1194.4
50°	648.5	652.1	659.1	668.9	679.5	697.8	725.9	767.4	834.2	923.6	1047.4
52.5°	592.3	593.7	595.8	604.9	613.4	630.2	651.4	683.7	736.5	811.0	907.4
55°	533.2	531.8	536.7	544.4	552.2	564.1	585.9	612.0	649.2	708.3	787.8
57.5°	472.7	474.8	478.3	482.5	496.6	509.3	525.4	549.4	578.9	625.3	691.4
60°	417.8	417.8	422.0	427.7	436.8	445.3	460.7	482.5	508.6	544.4	600.0
62.5°	364.4	367.2	371.4	374.2	382.7	393.2	405.2	422.0	446.0	474.8	516.3
65°	317.9	316.5	320.8	326.4	332.7	339.7	353.1	367.2	385.5	411.5	446.0
67.5°	270.1	274.3	275.7	278.5	283.5	292.6	298.9	313.7	328.5	351.7	380.5
70°	229.3	232.1	234.2	237.8	242.0	246.2	252.5	264.5	279.3	295.4	315.8
72.5°	192.7	194.8	192.7	196.2	198.4	202.6	211.0	216.6	227.9	242.0	260.3
75°	156.2	157.6	156.9	160.4	161.1	165.3	169.5	174.4	187.1	194.8	207.5
77.5°	122.4	123.8	124.5	125.9	127.3	129.4	131.5	136.5	143.5	150.5	160.4
80°	91.4	91.4	93.6	94.3	95.0	96.4	99.9	101.3	106.2	108.3	116.1
82.5°	63.3	64.0	64.7	64.7	65.4	66.8	67.5	70.3	71.7	75.3	78.8
85°	39.4	40.1	40.1	40.1	42.2	41.5	41.5	42.9	45.0	45.0	46.4
87.5°	19.7	20.4	20.4	20.4	21.1	21.1	21.1	21.1	21.1	22.5	21.8
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°	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6
2.5°	1958.3	1957.6	1954.8	1942.1	1932.2	1919.6	1917.5	1915.4	1897.8	1878.8	1873.2
5°	2027.2	2014.5	1997.0	1975.9	1954.8	1931.5	1918.2	1906.9	1880.2	1850.7	1833.8
7.5°	2094.7	2070.1	2042.7	2009.6	1974.5	1937.2	1913.3	1890.7	1854.2	1815.5	1792.3
10°	2152.4	2119.4	2081.4	2037.8	1989.2	1938.6	1903.4	1868.2	1821.8	1774.7	1743.7
12.5°	2200.2	2158.0	2108.1	2049.0	2004.7	1935.1	1885.8	1839.4	1788.0	1726.9	1693.1
15°	2236.8	2195.3	2127.8	2068.0	2009.6	1916.8	1857.0	1807.7	1738.8	1679.0	1625.6
17.5°	2281.1	2222.0	2155.2	2069.4	2004.7	1898.5	1831.0	1766.9	1692.4	1622.0	1563.0
20°	2300.8	2238.9	2167.2	2071.5	1989.2	1878.8	1788.8	1726.9	1636.8	1555.9	1489.1
22.5°	2303.6	2244.6	2166.5	2065.2	1962.5	1849.9	1746.5	1665.7	1575.6	1489.8	1414.5
25°	2291.7	2235.4	2154.5	2053.9	1933.0	1819.0	1703.6	1610.1	1506.0	1417.4	1340.7
27.5°	2259.3	2213.6	2136.9	2029.3	1902.7	1771.2	1645.3	1543.3	1440.6	1340.0	1266.8
30°	2207.3	2177.0	2110.9	1997.0	1864.0	1719.1	1593.2	1474.3	1363.2	1268.9	1190.2
32.5°	2140.5	2125.7	2070.8	1958.3	1824.6	1662.1	1530.6	1408.2	1287.2	1197.9	1117.0
35°	2055.3	2063.1	2016.7	1914.7	1774.7	1604.5	1457.5	1329.4	1211.3	1116.3	1041.7
37.5°	1944.9	1982.9	1953.3	1857.7	1710.7	1546.1	1380.8	1252.1	1128.3	1036.8	971.4
40°	1821.1	1887.9	1873.9	1793.7	1641.7	1477.8	1306.9	1168.4	1047.4	960.8	898.2
42.5°	1675.5	1772.6	1788.0	1715.6	1573.5	1392.7	1223.9	1090.3	973.5	888.4	828.6
45°	1512.3	1632.6	1684.6	1627.7	1494.0	1310.4	1138.8	1007.3	891.9	819.5	769.5
47.5°	1348.4	1493.3	1563.7	1536.2	1401.2	1222.5	1054.4	925.7	816.7	753.3	706.2
50°	1186.6	1342.1	1444.8	1426.5	1309.7	1138.8	969.3	842.7	742.8	684.4	644.3
52.5°	1044.6	1191.6	1303.4	1312.5	1207.7	1043.1	879.3	761.8	676.7	623.9	590.2
55°	904.6	1041.0	1163.4	1185.9	1100.8	942.6	796.3	685.1	607.7	564.1	536.7
57.5°	779.4	903.2	1024.9	1064.2	995.3	852.5	706.9	609.1	542.3	508.6	484.6
60°	673.2	785.0	889.8	929.9	882.8	752.6	625.3	538.1	482.5	452.3	433.3
62.5°	580.3	666.8	759.7	804.0	772.3	659.1	548.0	470.6	425.6	399.5	384.8
65°	496.6	563.4	636.6	687.9	652.8	568.3	475.5	408.7	370.7	346.8	336.2
67.5°	419.2	474.8	533.2	574.0	556.4	479.7	401.6	349.6	317.9	299.6	289.8
70°	348.9	390.4	437.5	469.2	456.5	397.4	335.5	294.0	267.3	254.6	246.2
72.5°	286.3	313.0	348.9	374.9	361.5	320.0	275.7	242.7	223.0	208.2	201.9
75°	227.2	250.4	275.7	293.3	282.8	251.8	216.6	191.3	178.0	168.8	164.6
77.5°	172.3	190.6	208.2	216.6	211.7	189.2	165.3	145.6	134.3	128.7	123.8
80°	123.8	134.3	146.3	154.0	151.2	135.8	118.9	103.4	98.5	91.4	90.0
82.5°	83.0	91.4	94.3	97.8	95.7	88.6	76.7	67.5	63.3	59.8	59.1
85°	49.2	51.3	54.9	54.9	52.8	47.8	41.5	38.7	34.5	33.8	31.7
87.5°	21.8	21.8	21.8	21.8	21.8	20.4	17.6	16.2	14.8	14.1	13.4
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°	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6	1900.6
2.5°	1868.2	1861.2	1851.4	1840.1	1830.3	1814.8	1809.9	1809.9	1813.4	1809.2	1805.6
5°	1819.7	1805.6	1791.6	1769.8	1751.5	1726.9	1719.8	1712.8	1712.1	1705.0	1695.9
7.5°	1767.7	1746.5	1717.7	1686.8	1667.1	1640.3	1625.6	1621.3	1608.0	1595.3	1580.5
10°	1707.2	1674.8	1640.3	1610.8	1579.8	1545.4	1527.8	1515.8	1502.5	1487.0	1476.4
12.5°	1634.0	1597.4	1565.8	1531.3	1505.3	1456.7	1451.1	1435.6	1408.9	1385.7	1377.3
15°	1589.0	1525.0	1489.1	1457.5	1418.1	1368.1	1349.8	1332.9	1307.6	1292.9	1280.9
17.5°	1509.5	1451.8	1406.8	1364.6	1326.6	1287.9	1260.5	1246.4	1226.0	1213.4	1201.4
20°	1437.1	1374.4	1327.3	1278.1	1238.7	1203.5	1180.3	1162.7	1152.2	1139.5	1127.6
22.5°	1363.9	1298.5	1253.5	1203.5	1157.1	1136.0	1108.6	1093.8	1079.7	1069.9	1057.2
25°	1278.8	1226.7	1170.5	1131.8	1091.0	1069.2	1043.1	1029.1	1017.8	1006.6	1000.2
27.5°	1202.8	1150.1	1098.0	1059.3	1024.9	1003.8	987.6	974.2	960.1	951.7	946.8
30°	1124.0	1075.5	1029.8	992.5	965.8	942.6	932.7	920.1	909.5	906.0	898.2
32.5°	1053.7	999.5	963.0	929.2	906.7	890.5	883.5	870.1	868.0	864.5	860.3
35°	983.4	936.9	901.8	872.9	853.9	842.0	832.8	829.3	825.8	822.3	818.8
37.5°	913.7	877.1	844.1	820.9	805.4	796.3	794.1	787.1	786.4	781.5	781.5
40°	851.1	813.8	790.6	772.3	759.7	755.5	749.8	748.4	746.3	744.9	747.7
42.5°	788.5	763.2	743.5	724.5	714.7	711.1	709.7	707.6	706.2	710.4	711.8
45°	730.1	708.3	691.4	678.1	672.5	668.2	668.2	670.3	669.6	671.7	671.7
47.5°	676.0	656.3	642.2	637.3	630.2	628.8	629.5	628.8	632.4	635.2	638.0
50°	624.6	607.0	595.8	590.9	589.5	587.3	590.2	591.6	593.7	596.5	597.9
52.5°	567.6	559.2	552.2	547.2	546.5	547.2	546.5	551.5	553.6	557.8	557.1
55°	519.1	512.8	507.9	502.2	501.5	503.6	505.0	509.3	512.1	515.6	514.9
57.5°	473.4	468.5	462.8	461.4	460.7	461.4	467.8	467.1	471.3	474.1	475.5
60°	423.4	419.9	415.0	415.0	417.1	418.5	420.6	424.2	428.4	427.7	432.6
62.5°	377.7	373.5	372.1	374.2	373.5	377.0	379.1	379.1	384.8	386.9	388.3
65°	332.0	330.6	328.5	328.5	330.6	331.3	334.8	336.9	339.0	343.3	346.8
67.5°	289.1	285.6	285.6	284.2	287.0	289.1	291.2	294.0	295.4	300.4	302.5
70°	244.1	242.7	242.0	243.4	243.4	245.5	249.0	252.5	255.3	256.0	260.3
72.5°	200.5	200.5	200.5	202.6	204.0	206.1	206.8	209.6	213.8	214.5	216.6
75°	161.1	161.8	161.1	161.8	162.5	164.6	166.0	168.8	171.6	172.3	173.7
77.5°	124.5	123.1	121.7	123.8	125.2	129.4	128.7	130.1	132.9	131.5	132.9
80°	87.2	89.3	86.5	90.7	90.7	90.0	91.4	93.6	92.8	94.3	92.8
82.5°	59.1	57.0	57.0	59.1	59.8	57.7	59.1	59.8	60.5	59.1	58.4
85°	32.4	31.7	33.1	30.9	31.7	30.2	30.2	28.8	30.2	28.8	27.4
87.5°	12.0	11.3	12.0	9.8	9.1	8.4	7.7	7.7	6.3	6.3	6.3
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: P243158

CATALOG NUMBER: S122DR-H1005D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1900.6	1900.6	1900.6	1900.6
2.5°	1810.6	1802.8	1799.3	1802.1
5°	1686.1	1688.2	1675.5	1679.7
7.5°	1578.4	1569.3	1572.1	1567.2
10°	1464.5	1459.6	1451.8	1453.2
12.5°	1387.8	1354.8	1352.6	1346.3
15°	1280.2	1261.9	1257.7	1256.3
17.5°	1194.4	1178.9	1184.5	1180.3
20°	1117.0	1117.7	1108.6	1102.9
22.5°	1048.8	1047.4	1043.8	1038.2
25°	991.1	991.1	982.7	980.5
27.5°	938.3	939.7	932.7	932.7
30°	898.9	894.0	893.3	894.7
32.5°	859.6	853.9	854.6	853.9
35°	817.4	818.8	816.7	814.5
37.5°	781.5	781.5	781.5	779.4
40°	746.3	747.7	745.6	747.0
42.5°	711.1	711.8	711.8	709.0
45°	676.0	675.3	673.9	676.7
47.5°	639.4	639.4	638.7	640.1
50°	599.3	600.7	598.6	597.9
52.5°	558.5	559.2	558.5	559.9
55°	517.0	517.0	517.7	519.1
57.5°	474.1	479.0	475.5	478.3
60°	431.9	432.6	433.3	431.9
62.5°	391.8	391.1	391.8	393.9
65°	348.2	349.6	348.9	347.5
67.5°	305.3	303.9	306.0	303.9
70°	259.6	262.4	260.3	263.1
72.5°	218.1	217.4	218.8	215.2
75°	174.4	174.4	175.1	174.4
77.5°	133.6	132.2	131.5	129.4
80°	92.1	92.1	89.3	91.4
82.5°	56.3	57.0	57.7	53.5
85°	26.7	26.7	26.0	25.3
87.5°	5.6	5.6	6.3	7.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)