

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: P242474

Luminaire Tested: **S123DR-S1000D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242474
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-20)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DR-S1000D840-X4F0-XX-UDD-A-W
Description: DEFINE 3 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: 4011.2 lumens
Efficiency: N/A
Efficacy: 115.3 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

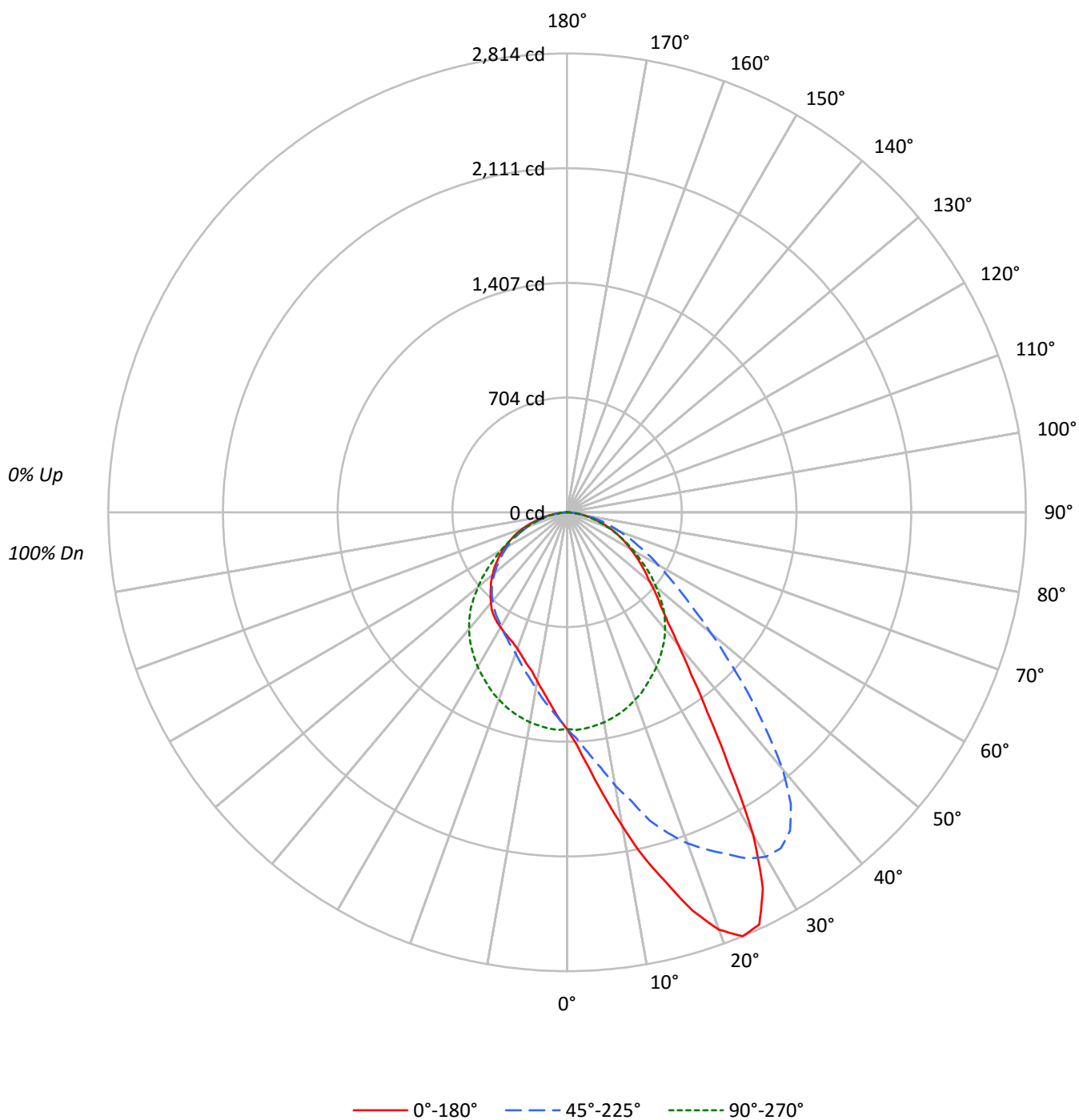
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	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	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85		85
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	74	72		72
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62		62
4	84	73	65	58	82	72	64	58	69	62	57	67	61	56	65	60	56	53		53
5	78	66	57	51	76	64	56	50	62	55	50	60	54	49	59	53	49	47		47
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	43	41		41
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36		36
8	62	49	41	35	61	49	41	35	47	40	35	46	39	35	45	39	35	33		33
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	36	31	29		29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27		27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	16109	16109	16109
5°	19210	16178	14337
10°	24045	16095	12949
15°	29492	15966	12056
20°	35132	15764	11479
25°	37305	15518	11349
30°	31975	15339	11410
35°	22237	15083	11529
40°	16750	14784	11492
45°	13907	14338	11346
50°	12457	13428	11243
55°	11648	12451	11103
60°	10926	11425	10989
65°	10268	10417	10638
70°	9629	9264	10132
75°	8627	8111	9287
80°	7553	6652	7999
85°	5911	4840	5368

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.7	3.3
10°-20°	419.8	10.5
20°-30°	706.4	17.6
30°-40°	798.3	19.9
40°-50°	715.1	17.8
50°-60°	577.2	14.4
60°-70°	402.2	10.0
70°-80°	211.1	5.3
80°-90°	50.6	1.3
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°	1256.9	31.3
0°-40°	2055.2	51.2
0°-60°	3347.4	83.5
0°-90°	4011.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4011.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1329	1329	1329	1329	1329	
5°	1579	1480	1330	1204	1178	162
15°	2350	1956	1272	1003	961	678
25°	2789	2312	1160	862	849	1233
35°	1503	2384	1019	762	779	970
45°	811	1571	836	652	662	640
55°	551	853	589	504	525	495
65°	358	478	363	342	371	357
75°	184	227	173	172	198	197
85°	42	49	35	34	39	51
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°	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0
2.5°	1430.7	1429.4	1426.2	1428.8	1423.6	1416.6	1415.9	1409.5	1390.8	1389.5	1384.4
5°	1578.8	1573.7	1573.0	1572.4	1563.4	1551.1	1527.9	1526.0	1495.1	1479.7	1461.0
7.5°	1757.8	1755.9	1750.7	1744.9	1714.7	1699.9	1678.0	1649.6	1613.6	1578.8	1556.9
10°	1953.6	1974.8	1948.4	1930.4	1913.6	1882.1	1845.4	1799.7	1753.9	1700.5	1659.9
12.5°	2163.5	2171.2	2171.2	2154.4	2126.1	2074.0	2001.8	1950.3	1909.1	1811.3	1776.5
15°	2350.2	2389.5	2364.4	2306.4	2307.7	2262.0	2177.0	2083.6	2034.0	1956.1	1849.9
17.5°	2561.4	2568.5	2560.7	2506.7	2480.3	2413.9	2337.3	2250.4	2157.0	2062.4	1952.3
20°	2723.6	2719.8	2697.2	2672.1	2616.8	2567.8	2482.2	2382.4	2253.6	2160.9	2037.9
22.5°	2813.8	2806.7	2799.0	2779.0	2735.2	2681.8	2607.1	2495.7	2374.7	2238.2	2091.3
25°	2789.3	2797.7	2799.0	2793.2	2777.1	2745.5	2685.0	2598.1	2475.7	2311.6	2163.5
27.5°	2600.0	2621.3	2648.3	2666.3	2695.3	2714.6	2695.3	2640.6	2540.1	2393.3	2211.1
30°	2284.5	2258.8	2322.5	2403.0	2457.7	2554.3	2608.4	2611.6	2560.7	2439.0	2262.6
32.5°	1846.7	1888.5	1907.8	2011.5	2147.4	2258.8	2379.8	2487.3	2512.4	2441.6	2292.9
35°	1502.8	1538.2	1589.8	1641.3	1770.0	1880.8	2070.1	2234.9	2366.3	2383.7	2289.0
37.5°	1249.1	1269.7	1301.3	1356.0	1444.2	1581.4	1731.4	1945.8	2126.8	2254.2	2241.4
40°	1058.6	1063.7	1100.4	1139.7	1207.9	1316.1	1448.1	1632.3	1860.2	2057.9	2140.3
42.5°	915.6	928.5	938.8	976.1	1027.0	1101.7	1222.1	1366.3	1570.4	1805.5	1986.4
45°	811.3	824.2	833.8	858.9	897.6	952.3	1037.9	1177.0	1336.1	1571.1	1788.1
47.5°	739.2	737.9	746.3	766.2	793.9	837.7	900.8	993.5	1146.1	1342.5	1569.8
50°	660.6	670.9	673.5	688.3	708.9	739.2	789.4	865.4	985.1	1152.6	1357.3
52.5°	605.3	606.5	614.9	624.6	642.0	663.8	705.7	761.1	848.6	985.1	1169.3
55°	551.2	551.2	558.3	566.6	576.9	598.2	627.1	670.9	742.4	853.2	1009.0
57.5°	500.9	503.5	510.0	511.9	520.9	535.7	560.8	595.6	650.3	739.8	868.6
60°	450.7	456.5	455.9	461.0	468.7	479.7	500.3	527.3	575.0	643.2	747.6
62.5°	406.9	405.0	405.0	411.4	419.2	429.5	441.1	463.6	502.2	560.8	645.8
65°	358.0	356.7	361.2	365.1	367.7	375.4	385.7	406.3	433.3	478.4	547.3
67.5°	315.5	311.6	314.9	316.1	320.7	327.1	337.4	350.3	372.2	410.2	465.5
70°	271.7	268.5	267.9	269.1	273.0	277.5	284.6	296.8	316.8	345.8	383.8
72.5°	226.6	224.7	224.7	227.9	229.2	231.8	236.3	247.3	262.1	282.0	316.8
75°	184.2	184.2	184.2	184.8	186.7	189.3	193.2	199.0	211.2	226.6	250.5
77.5°	145.5	146.2	144.9	144.2	147.5	148.7	149.4	155.8	162.9	174.5	193.2
80°	108.2	105.0	106.2	108.2	109.5	110.1	112.0	113.3	119.1	124.9	137.1
82.5°	73.4	70.8	70.8	74.0	74.0	74.7	76.6	78.6	79.8	85.0	90.1
85°	42.5	42.5	43.1	43.1	43.8	43.1	45.1	45.7	45.7	48.9	52.8
87.5°	19.3	18.0	18.7	19.3	18.7	19.3	20.0	20.6	21.2	21.9	22.5
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°	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0
2.5°	1380.5	1375.3	1370.2	1361.2	1353.5	1342.5	1339.3	1335.4	1323.8	1313.5	1305.8
5°	1453.9	1438.4	1415.9	1395.3	1378.6	1356.0	1343.1	1329.6	1310.3	1292.9	1278.8
7.5°	1524.1	1497.0	1465.5	1431.4	1398.5	1367.0	1341.9	1319.3	1294.2	1269.7	1251.1
10°	1611.0	1567.2	1518.3	1465.5	1420.4	1376.6	1339.9	1307.7	1273.0	1242.7	1217.6
12.5°	1710.2	1640.0	1567.9	1500.9	1445.5	1380.5	1334.1	1291.0	1250.4	1212.4	1183.5
15°	1784.2	1701.8	1622.0	1533.7	1452.6	1376.6	1323.8	1272.3	1226.6	1189.3	1153.2
17.5°	1857.6	1767.5	1665.7	1559.5	1464.2	1376.6	1304.5	1249.1	1193.1	1148.1	1113.3
20°	1918.1	1811.9	1692.8	1581.4	1473.2	1372.8	1291.6	1222.1	1160.3	1112.0	1071.4
22.5°	1970.3	1841.5	1717.2	1596.2	1472.6	1362.5	1267.8	1195.7	1127.4	1080.4	1036.7
25°	2003.1	1854.4	1730.8	1591.0	1456.5	1344.4	1241.4	1160.3	1093.3	1037.9	993.5
27.5°	2034.0	1852.5	1712.7	1562.1	1437.2	1325.8	1215.0	1128.1	1057.9	998.0	952.3
30°	2064.9	1855.7	1681.2	1532.5	1406.2	1290.3	1183.5	1095.9	1021.2	960.0	917.5
32.5°	2084.3	1853.8	1652.2	1491.2	1357.3	1258.2	1149.3	1057.9	980.6	920.8	880.2
35°	2089.4	1842.8	1618.1	1431.4	1303.9	1204.1	1113.3	1019.3	938.8	882.8	836.4
37.5°	2078.5	1822.8	1580.7	1377.3	1239.5	1140.3	1061.1	980.6	903.4	840.9	800.4
40°	2043.1	1803.5	1535.7	1319.3	1172.5	1077.9	1012.8	934.3	858.3	799.7	762.4
42.5°	1975.4	1764.3	1486.1	1254.9	1103.0	1008.3	949.7	887.3	816.4	762.4	725.0
45°	1857.0	1703.7	1436.5	1190.5	1034.7	936.9	884.1	836.4	771.4	717.9	685.7
47.5°	1705.7	1622.0	1365.0	1122.9	963.3	868.6	813.2	774.0	723.1	679.9	648.4
50°	1546.6	1516.4	1292.3	1053.4	891.8	799.7	746.9	712.1	678.0	634.9	606.5
52.5°	1363.1	1394.0	1207.3	981.3	819.0	728.9	679.9	654.2	623.9	590.4	566.6
55°	1193.1	1260.7	1106.8	898.9	746.9	660.6	613.6	589.2	571.1	544.7	523.5
57.5°	1028.3	1114.6	1002.5	815.8	676.1	600.7	554.4	526.7	515.1	500.3	482.9
60°	884.7	969.7	889.2	732.1	604.6	533.8	493.9	471.3	459.7	450.1	435.9
62.5°	756.6	842.8	778.5	647.1	534.4	470.0	436.6	414.7	406.3	402.4	390.8
65°	641.3	715.4	670.3	558.3	468.1	410.2	378.6	363.2	354.8	352.9	345.1
67.5°	541.5	598.8	564.0	479.7	406.3	353.5	325.8	312.3	305.2	304.6	298.1
70°	443.6	496.4	471.3	396.6	335.5	296.2	273.0	261.4	257.6	256.9	253.7
72.5°	367.7	400.5	381.8	322.6	278.8	244.0	228.6	216.3	211.8	213.1	211.2
75°	283.3	311.0	299.4	256.3	218.3	195.1	180.9	173.2	169.3	171.3	168.7
77.5°	216.3	235.7	224.1	191.2	166.8	149.4	138.4	133.3	129.4	129.4	128.1
80°	153.9	164.2	158.4	140.4	121.1	106.9	98.5	95.3	93.4	92.7	92.1
82.5°	98.5	106.9	99.8	88.9	77.3	70.2	66.3	61.8	60.5	61.2	60.5
85°	55.4	58.6	56.0	48.3	43.1	39.3	36.7	34.8	33.5	34.1	32.8
87.5°	23.8	24.5	22.5	20.0	18.7	16.7	16.7	15.5	14.2	14.2	13.5
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0	1329.0
2.5°	1301.3	1296.8	1290.3	1280.7	1273.0	1260.7	1260.7	1262.7	1262.7	1262.0	1260.7
5°	1267.2	1257.5	1245.9	1232.4	1218.2	1204.1	1201.5	1196.3	1192.5	1189.9	1186.7
7.5°	1232.4	1216.3	1200.2	1181.5	1165.4	1151.9	1142.3	1133.9	1128.7	1122.9	1118.4
10°	1197.0	1175.7	1155.8	1135.8	1113.9	1096.5	1085.6	1077.9	1072.1	1066.9	1064.3
12.5°	1155.1	1130.0	1107.5	1088.8	1064.3	1046.3	1036.0	1033.4	1026.4	1014.1	1007.7
15°	1114.6	1092.0	1065.6	1036.7	1025.1	1003.2	990.9	985.1	981.3	972.9	970.3
17.5°	1081.1	1050.8	1020.6	999.3	978.1	960.7	953.6	945.9	940.7	933.0	931.1
20°	1039.2	1012.8	985.8	962.6	940.1	920.8	915.0	909.8	904.7	901.4	898.9
22.5°	996.7	970.3	949.1	927.8	903.4	892.4	886.0	880.2	877.0	875.0	872.5
25°	957.5	934.3	909.2	889.9	870.5	862.2	858.3	855.1	852.5	849.3	848.6
27.5°	922.7	896.9	875.7	857.0	842.8	835.8	831.3	829.3	829.3	830.6	831.3
30°	882.8	859.6	842.8	827.4	814.5	808.1	807.4	807.4	810.0	810.7	811.9
32.5°	846.1	828.0	811.3	796.5	787.5	783.6	786.8	786.8	788.8	790.7	793.3
35°	810.7	793.9	781.0	768.2	759.8	761.7	763.0	764.3	767.5	771.4	774.0
37.5°	777.2	761.7	748.2	737.9	732.7	736.6	739.8	742.4	746.3	749.5	752.1
40°	740.5	729.5	716.6	707.6	708.9	710.9	713.4	716.6	719.9	721.8	724.4
42.5°	706.3	694.8	685.7	678.7	680.6	683.2	684.5	685.7	689.6	693.5	694.8
45°	671.6	662.6	653.5	649.0	650.3	651.6	652.9	654.8	658.1	660.6	661.3
47.5°	632.3	625.9	620.1	614.9	617.5	616.8	618.8	622.6	623.9	625.2	629.1
50°	595.0	589.2	582.1	580.8	580.8	580.8	581.4	586.6	586.6	589.2	591.7
52.5°	553.7	550.5	546.7	544.1	542.8	542.8	546.0	547.9	549.2	553.1	555.7
55°	513.2	509.3	505.5	503.5	502.2	503.5	508.7	510.0	513.2	515.1	517.0
57.5°	470.7	468.1	464.9	463.6	463.6	464.2	468.1	471.3	472.0	478.4	481.0
60°	428.8	424.3	421.7	421.7	420.5	426.3	425.0	431.4	432.7	436.6	441.1
62.5°	385.7	379.2	378.6	378.6	381.2	381.8	384.4	386.3	390.2	395.3	398.6
65°	338.7	335.5	340.0	339.3	338.0	341.9	341.9	345.1	349.0	353.5	360.6
67.5°	294.9	292.3	293.6	293.0	294.9	297.5	299.4	302.0	306.5	311.6	316.1
70°	250.5	252.4	249.2	251.8	253.7	254.3	255.6	259.5	264.6	267.9	273.0
72.5°	207.3	206.7	208.0	208.6	210.6	211.8	213.1	217.6	223.4	226.0	229.9
75°	166.1	165.5	167.4	167.4	170.6	171.9	173.2	175.1	180.3	184.2	187.4
77.5°	128.8	129.4	128.8	131.4	130.1	130.7	134.6	136.5	137.1	145.5	146.8
80°	91.4	92.7	93.4	94.0	94.7	93.4	97.9	99.8	99.8	104.3	107.5
82.5°	59.2	59.9	61.8	62.5	62.5	64.4	63.7	65.0	67.0	68.3	72.8
85°	32.8	34.8	35.4	34.8	35.4	34.1	36.1	36.7	37.3	37.3	37.3
87.5°	12.9	13.5	12.9	13.5	12.9	13.5	13.5	12.2	12.2	14.2	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

TEST NUMBER: P242474

CATALOG NUMBER: S123DR-S1000D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1329.0	1329.0	1329.0	1329.0
2.5°	1256.2	1255.6	1260.1	1256.9
5°	1182.8	1184.8	1178.3	1178.3
7.5°	1116.5	1113.9	1114.6	1110.1
10°	1056.6	1052.8	1051.5	1052.1
12.5°	1007.0	1007.0	996.7	996.7
15°	970.3	958.1	956.8	960.7
17.5°	929.8	922.7	923.3	922.0
20°	898.9	895.0	894.4	889.9
22.5°	870.5	869.9	870.5	865.4
25°	848.0	851.2	848.6	848.6
27.5°	832.5	832.5	830.6	830.6
30°	814.5	813.9	815.2	815.2
32.5°	796.5	797.8	797.8	798.4
35°	777.8	778.5	780.4	779.1
37.5°	753.3	756.6	755.9	757.2
40°	725.0	726.9	726.3	726.3
42.5°	696.0	697.3	695.4	694.1
45°	663.8	662.6	664.5	661.9
47.5°	628.4	629.1	629.7	632.3
50°	593.0	596.9	596.9	596.2
52.5°	558.3	559.5	562.8	562.8
55°	522.2	523.5	524.8	525.4
57.5°	485.5	484.8	487.4	488.1
60°	446.2	446.2	451.4	453.3
62.5°	404.4	406.9	412.1	408.2
65°	363.8	368.9	368.3	370.9
67.5°	321.3	324.5	329.7	329.7
70°	278.2	281.4	284.0	285.9
72.5°	236.3	237.6	244.7	240.8
75°	191.9	196.4	200.2	198.3
77.5°	149.4	155.2	156.5	154.5
80°	112.0	111.4	115.3	114.6
82.5°	74.7	74.0	75.3	76.0
85°	39.9	41.9	39.3	38.6
87.5°	11.6	11.6	10.9	10.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)