

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: P333918

Luminaire Tested: **S123DS-S1000D830-4F0-1E-UDD-A**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P333918
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: S123DS-S1000D830-4F0-1E-UDD-A
Description: DEFINE 3 DIRECT LED LUMINAIRE, ASYMMETRIC DIFFUSER
PENDANT/SURFACE/WALL MOUNT, 1000 LUMENS PER FOOT
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3743.8 lumens
Efficiency: N/A
Efficacy: 107.6 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 4' x L: 0.5' x H: 0')
CIE Type: Direct

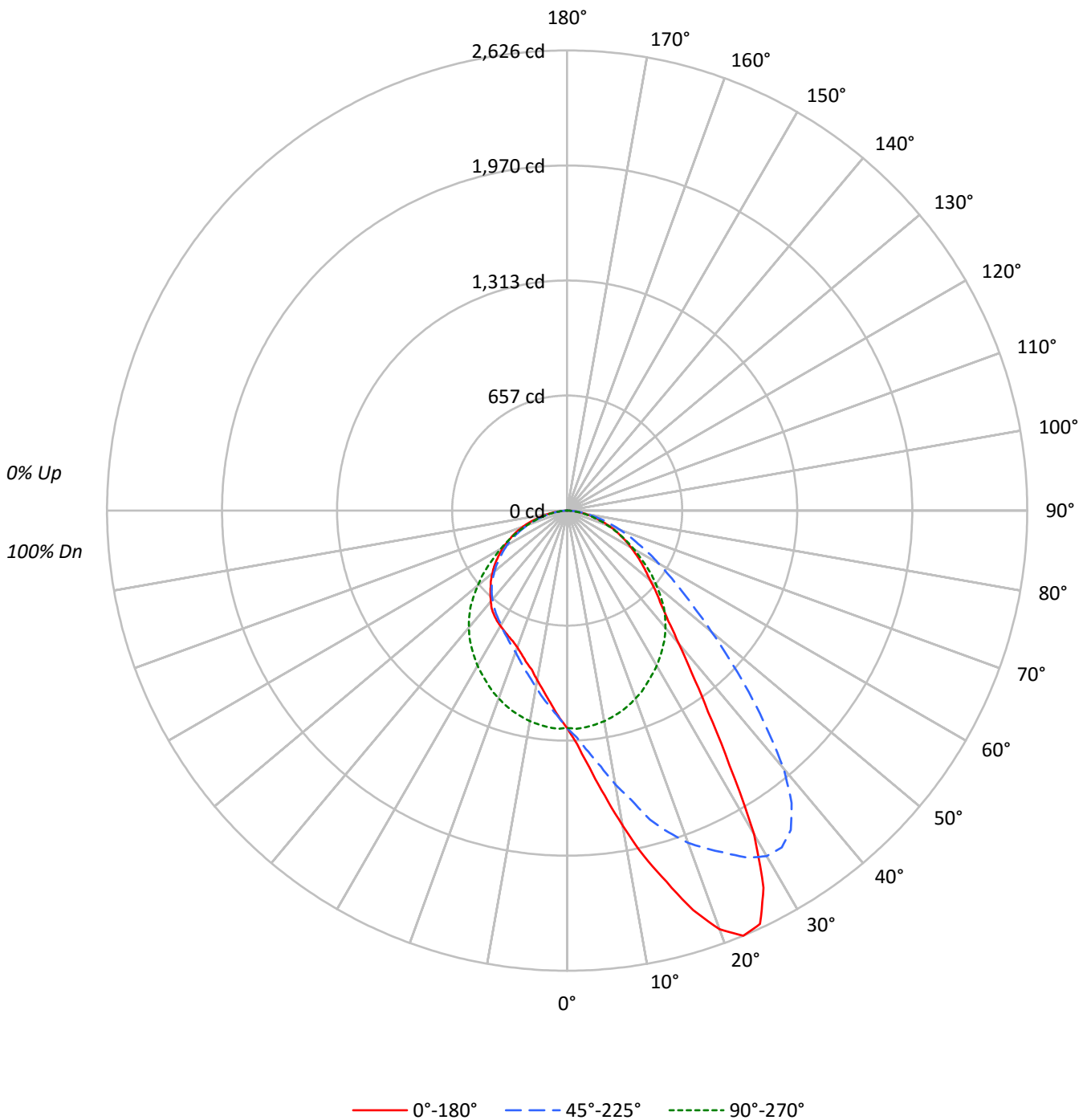
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	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°	6676	6676	6676
5°	7961	6705	5942
10°	9964	6671	5367
15°	12222	6617	4996
20°	14560	6533	4757
25°	15460	6431	4704
30°	13251	6356	4728
35°	9215	6250	4778
40°	6941	6126	4763
45°	5763	5942	4702
50°	5163	5565	4659
55°	4827	5160	4601
60°	4528	4735	4554
65°	4255	4316	4409
70°	3991	3840	4198
75°	3575	3362	3849
80°	3130	2755	3316
85°	2452	2007	2229



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	122.0	3.3
10°-20°	391.8	10.5
20°-30°	659.3	17.6
30°-40°	745.1	19.9
40°-50°	667.4	17.8
50°-60°	538.7	14.4
60°-70°	375.4	10.0
70°-80°	197.0	5.3
80°-90°	47.2	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°	1173.1	31.3
0°-40°	1918.2	51.2
0°-60°	3124.3	83.5
0°-90°	3743.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3743.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1240	1240	1240	1240	1240	
5°	1474	1381	1241	1124	1100	152
15°	2194	1826	1188	936	897	633
25°	2603	2158	1083	805	792	1151
35°	1403	2225	951	711	727	905
45°	757	1466	781	608	618	597
55°	514	796	550	470	490	462
65°	334	446	339	319	346	333
75°	172	212	162	160	185	184
85°	40	46	32	32	36	48
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°	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4
2.5°	1335.3	1334.1	1331.1	1333.5	1328.7	1322.1	1321.5	1315.5	1298.1	1296.9	1292.1
5°	1473.6	1468.8	1468.2	1467.6	1459.1	1447.7	1426.1	1424.3	1395.4	1381.0	1363.6
7.5°	1640.6	1638.8	1634.0	1628.6	1600.4	1586.5	1566.1	1539.7	1506.0	1473.6	1453.1
10°	1823.3	1843.2	1818.5	1801.7	1786.1	1756.6	1722.4	1679.7	1637.0	1587.1	1549.3
12.5°	2019.2	2026.4	2026.4	2010.8	1984.4	1935.7	1868.4	1820.3	1781.9	1690.5	1658.1
15°	2193.5	2230.2	2206.7	2152.6	2153.8	2111.2	2031.9	1944.7	1898.4	1825.7	1726.6
17.5°	2390.6	2397.2	2390.0	2339.5	2314.9	2253.0	2181.5	2100.4	2013.2	1924.9	1822.1
20°	2542.1	2538.5	2517.4	2494.0	2442.3	2396.6	2316.7	2223.6	2103.4	2016.8	1902.0
22.5°	2626.2	2619.6	2612.4	2593.8	2552.9	2503.0	2433.3	2329.3	2216.3	2088.9	1951.9
25°	2603.4	2611.2	2612.4	2607.0	2592.0	2562.5	2506.0	2424.9	2310.7	2157.5	2019.2
27.5°	2426.7	2446.5	2471.8	2488.6	2515.6	2533.7	2515.6	2464.5	2370.8	2233.8	2063.7
30°	2132.2	2108.2	2167.7	2242.8	2293.9	2384.0	2434.5	2437.5	2390.0	2276.4	2111.8
32.5°	1723.6	1762.6	1780.7	1877.4	2004.2	2108.2	2221.2	2321.5	2345.0	2278.8	2140.0
35°	1402.6	1435.7	1483.8	1531.9	1652.0	1755.4	1932.1	2085.9	2208.5	2224.8	2136.4
37.5°	1165.9	1185.1	1214.5	1265.6	1348.0	1476.0	1616.0	1816.1	1985.0	2104.0	2092.0
40°	988.0	992.8	1027.0	1063.7	1127.4	1228.4	1351.6	1523.4	1736.2	1920.7	1997.6
42.5°	854.6	866.6	876.2	911.1	958.5	1028.2	1140.6	1275.2	1465.7	1685.1	1854.0
45°	757.2	769.2	778.2	801.7	837.7	888.8	968.8	1098.6	1247.0	1466.3	1668.9
47.5°	689.9	688.7	696.5	715.1	741.0	781.9	840.7	927.3	1069.7	1253.0	1465.1
50°	616.6	626.2	628.6	642.4	661.7	689.9	736.8	807.7	919.5	1075.7	1266.8
52.5°	564.9	566.1	573.9	582.9	599.2	619.6	658.7	710.3	792.1	919.5	1091.3
55°	514.4	514.4	521.0	528.8	538.5	558.3	585.3	626.2	692.9	796.3	941.7
57.5°	467.5	470.0	476.0	477.8	486.2	500.0	523.4	555.9	607.0	690.5	810.7
60°	420.7	426.1	425.5	430.3	437.5	447.7	466.9	492.2	536.7	600.4	697.7
62.5°	379.8	378.0	378.0	384.0	391.2	400.8	411.7	432.7	468.8	523.4	602.8
65°	334.1	332.9	337.1	340.7	343.1	350.4	360.0	379.2	404.4	446.5	510.8
67.5°	294.5	290.9	293.9	295.1	299.3	305.3	314.9	326.9	347.4	382.8	434.5
70°	253.6	250.6	250.0	251.2	254.8	259.0	265.6	277.0	295.7	322.7	358.2
72.5°	211.5	209.7	209.7	212.7	213.9	216.3	220.6	230.8	244.6	263.2	295.7
75°	171.9	171.9	171.9	172.5	174.3	176.7	180.3	185.7	197.1	211.5	233.8
77.5°	135.8	136.4	135.2	134.6	137.6	138.8	139.4	145.4	152.0	162.9	180.3
80°	101.0	98.0	99.2	101.0	102.2	102.8	104.6	105.8	111.2	116.6	128.0
82.5°	68.5	66.1	66.1	69.1	69.1	69.7	71.5	73.3	74.5	79.3	84.1
85°	39.7	39.7	40.3	40.3	40.9	40.3	42.1	42.7	42.7	45.7	49.3
87.5°	18.0	16.8	17.4	18.0	17.4	18.0	18.6	19.2	19.8	20.4	21.0
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°	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4
2.5°	1288.5	1283.7	1278.8	1270.4	1263.2	1253.0	1250.0	1246.4	1235.6	1226.0	1218.8
5°	1357.0	1342.6	1321.5	1302.3	1286.7	1265.6	1253.6	1241.0	1223.0	1206.7	1193.5
7.5°	1422.5	1397.2	1367.8	1335.9	1305.3	1275.8	1252.4	1231.4	1207.9	1185.1	1167.7
10°	1503.6	1462.7	1417.1	1367.8	1325.7	1284.9	1250.6	1220.6	1188.1	1159.9	1136.4
12.5°	1596.2	1530.7	1463.3	1400.8	1349.2	1288.5	1245.2	1204.9	1167.1	1131.6	1104.6
15°	1665.3	1588.3	1513.8	1431.5	1355.8	1284.9	1235.6	1187.5	1144.8	1110.0	1076.3
17.5°	1733.8	1649.6	1554.7	1455.5	1366.6	1284.9	1217.5	1165.9	1113.6	1071.5	1039.1
20°	1790.3	1691.1	1579.9	1476.0	1375.0	1281.3	1205.5	1140.6	1082.9	1037.9	1000.0
22.5°	1838.9	1718.8	1602.8	1489.8	1374.4	1271.6	1183.3	1116.0	1052.3	1008.4	967.5
25°	1869.6	1730.8	1615.4	1485.0	1359.4	1254.8	1158.7	1082.9	1020.4	968.8	927.3
27.5°	1898.4	1729.0	1598.6	1457.9	1341.3	1237.4	1134.0	1052.9	987.4	931.5	888.8
30°	1927.3	1732.0	1569.1	1430.3	1312.5	1204.3	1104.6	1022.8	953.1	896.0	856.4
32.5°	1945.3	1730.2	1542.1	1391.8	1266.8	1174.3	1072.7	987.4	915.3	859.4	821.5
35°	1950.1	1720.0	1510.2	1335.9	1216.9	1123.8	1039.1	951.3	876.2	823.9	780.7
37.5°	1939.9	1701.3	1475.4	1285.5	1156.9	1064.3	990.4	915.3	843.2	784.9	747.0
40°	1906.9	1683.3	1433.3	1231.4	1094.4	1006.0	945.3	872.0	801.1	746.4	711.5
42.5°	1843.8	1646.6	1387.0	1171.3	1029.4	941.1	886.4	828.1	762.0	711.5	676.7
45°	1733.2	1590.1	1340.7	1111.2	965.7	874.4	825.1	780.7	720.0	670.1	640.0
47.5°	1591.9	1513.8	1274.0	1048.1	899.0	810.7	759.0	722.4	674.9	634.6	605.2
50°	1443.5	1415.3	1206.1	983.2	832.3	746.4	697.1	664.7	632.8	592.5	566.1
52.5°	1272.2	1301.1	1126.8	915.9	764.4	680.3	634.6	610.6	582.3	551.1	528.8
55°	1113.6	1176.7	1033.1	838.9	697.1	616.6	572.7	549.9	533.1	508.4	488.6
57.5°	959.7	1040.3	935.7	761.4	631.0	560.7	517.4	491.6	480.8	466.9	450.7
60°	825.7	905.0	829.9	683.3	564.3	498.2	460.9	439.9	429.1	420.1	406.9
62.5°	706.1	786.7	726.6	604.0	498.8	438.7	407.5	387.0	379.2	375.6	364.8
65°	598.6	667.7	625.6	521.0	436.9	382.8	353.4	338.9	331.1	329.3	322.1
67.5°	505.4	558.9	526.4	447.7	379.2	329.9	304.1	291.5	284.9	284.3	278.2
70°	414.1	463.3	439.9	370.2	313.1	276.4	254.8	244.0	240.4	239.8	236.8
72.5°	343.1	373.8	356.4	301.1	260.2	227.8	213.3	201.9	197.7	198.9	197.1
75°	264.4	290.3	279.4	239.2	203.7	182.1	168.9	161.7	158.1	159.9	157.5
77.5°	201.9	220.0	209.1	178.5	155.6	139.4	129.2	124.4	120.8	120.8	119.6
80°	143.6	153.2	147.8	131.0	113.0	99.8	91.9	88.9	87.1	86.5	85.9
82.5°	91.9	99.8	93.1	82.9	72.1	65.5	61.9	57.7	56.5	57.1	56.5
85°	51.7	54.7	52.3	45.1	40.3	36.7	34.3	32.5	31.3	31.9	30.6
87.5°	22.2	22.8	21.0	18.6	17.4	15.6	15.6	14.4	13.2	13.2	12.6
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°	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4	1240.4
2.5°	1214.5	1210.3	1204.3	1195.3	1188.1	1176.7	1176.7	1178.5	1178.5	1177.9	1176.7
5°	1182.7	1173.7	1162.9	1150.2	1137.0	1123.8	1121.4	1116.6	1113.0	1110.6	1107.6
7.5°	1150.2	1135.2	1120.2	1102.8	1087.7	1075.1	1066.1	1058.3	1053.5	1048.1	1043.9
10°	1117.2	1097.4	1078.7	1060.1	1039.7	1023.4	1013.2	1006.0	1000.6	995.8	993.4
12.5°	1078.1	1054.7	1033.7	1016.2	993.4	976.6	966.9	964.5	957.9	946.5	940.5
15°	1040.3	1019.2	994.6	967.5	956.7	936.3	924.9	919.5	915.9	908.1	905.7
17.5°	1009.0	980.8	952.5	932.7	912.9	896.6	890.0	882.8	878.0	870.8	869.0
20°	970.0	945.3	920.1	898.4	877.4	859.4	854.0	849.2	844.4	841.3	838.9
22.5°	930.3	905.7	885.8	866.0	843.2	832.9	826.9	821.5	818.5	816.7	814.3
25°	893.6	872.0	848.6	830.5	812.5	804.7	801.1	798.1	795.7	792.7	792.1
27.5°	861.2	837.1	817.3	799.9	786.7	780.0	775.8	774.0	774.0	775.2	775.8
30°	823.9	802.3	786.7	772.2	760.2	754.2	753.6	753.6	756.0	756.6	757.8
32.5°	789.7	772.8	757.2	743.4	735.0	731.4	734.4	734.4	736.2	738.0	740.4
35°	756.6	741.0	729.0	716.9	709.1	710.9	712.1	713.3	716.3	720.0	722.4
37.5°	725.4	710.9	698.3	688.7	683.9	687.5	690.5	692.9	696.5	699.5	701.9
40°	691.1	680.9	668.9	660.5	661.7	663.5	665.9	668.9	671.9	673.7	676.1
42.5°	659.3	648.4	640.0	633.4	635.2	637.6	638.8	640.0	643.6	647.2	648.4
45°	626.8	618.4	610.0	605.8	607.0	608.2	609.4	611.2	614.2	616.6	617.2
47.5°	590.1	584.1	578.7	573.9	576.3	575.7	577.5	581.1	582.3	583.5	587.1
50°	555.3	549.9	543.3	542.1	542.1	542.1	542.7	547.5	547.5	549.9	552.3
52.5°	516.8	513.8	510.2	507.8	506.6	506.6	509.6	511.4	512.6	516.2	518.6
55°	479.0	475.4	471.8	470.0	468.8	470.0	474.8	476.0	479.0	480.8	482.6
57.5°	439.3	436.9	433.9	432.7	432.7	433.3	436.9	439.9	440.5	446.5	448.9
60°	400.2	396.0	393.6	393.6	392.4	397.8	396.6	402.6	403.8	407.5	411.7
62.5°	360.0	354.0	353.4	353.4	355.8	356.4	358.8	360.6	364.2	369.0	372.0
65°	316.1	313.1	317.3	316.7	315.5	319.1	319.1	322.1	325.7	329.9	336.5
67.5°	275.2	272.8	274.0	273.4	275.2	277.6	279.4	281.9	286.1	290.9	295.1
70°	233.8	235.6	232.6	235.0	236.8	237.4	238.6	242.2	247.0	250.0	254.8
72.5°	193.5	192.9	194.1	194.7	196.5	197.7	198.9	203.1	208.5	210.9	214.5
75°	155.0	154.4	156.3	156.3	159.3	160.5	161.7	163.5	168.3	171.9	174.9
77.5°	120.2	120.8	120.2	122.6	121.4	122.0	125.6	127.4	128.0	135.8	137.0
80°	85.3	86.5	87.1	87.7	88.3	87.1	91.3	93.1	93.1	97.4	100.4
82.5°	55.3	55.9	57.7	58.3	58.3	60.1	59.5	60.7	62.5	63.7	67.9
85°	30.6	32.5	33.1	32.5	33.1	31.9	33.7	34.3	34.9	34.9	34.9
87.5°	12.0	12.6	12.0	12.6	12.0	12.6	12.6	11.4	11.4	13.2	10.8
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: P333918

CATALOG NUMBER: S123DS-S1000D830-4F0-1E-UDD-A

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1240.4	1240.4	1240.4	1240.4
2.5°	1172.5	1171.9	1176.1	1173.1
5°	1104.0	1105.8	1099.8	1099.8
7.5°	1042.1	1039.7	1040.3	1036.1
10°	986.2	982.6	981.4	982.0
12.5°	939.9	939.9	930.3	930.3
15°	905.7	894.2	893.0	896.6
17.5°	867.8	861.2	861.8	860.6
20°	838.9	835.3	834.7	830.5
22.5°	812.5	811.9	812.5	807.7
25°	791.5	794.5	792.1	792.1
27.5°	777.0	777.0	775.2	775.2
30°	760.2	759.6	760.8	760.8
32.5°	743.4	744.6	744.6	745.2
35°	726.0	726.6	728.4	727.2
37.5°	703.1	706.1	705.5	706.7
40°	676.7	678.5	677.9	677.9
42.5°	649.6	650.8	649.0	647.8
45°	619.6	618.4	620.2	617.8
47.5°	586.5	587.1	587.7	590.1
50°	553.5	557.1	557.1	556.5
52.5°	521.0	522.2	525.2	525.2
55°	487.4	488.6	489.8	490.4
57.5°	453.1	452.5	454.9	455.5
60°	416.5	416.5	421.3	423.1
62.5°	377.4	379.8	384.6	381.0
65°	339.5	344.4	343.8	346.2
67.5°	299.9	302.9	307.7	307.7
70°	259.6	262.6	265.0	266.8
72.5°	220.6	221.8	228.4	224.8
75°	179.1	183.3	186.9	185.1
77.5°	139.4	144.8	146.0	144.2
80°	104.6	104.0	107.6	107.0
82.5°	69.7	69.1	70.3	70.9
85°	37.3	39.1	36.7	36.1
87.5°	10.8	10.8	10.2	9.6
90°	0.0	0.0	0.0	0.0

(END OF REPORT)