

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: P243345

Luminaire Tested: **S123DR-H1165D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243345
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-59)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DR-H1165D935-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3985.5 lumens
Efficiency: N/A
Efficacy: 105.7 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

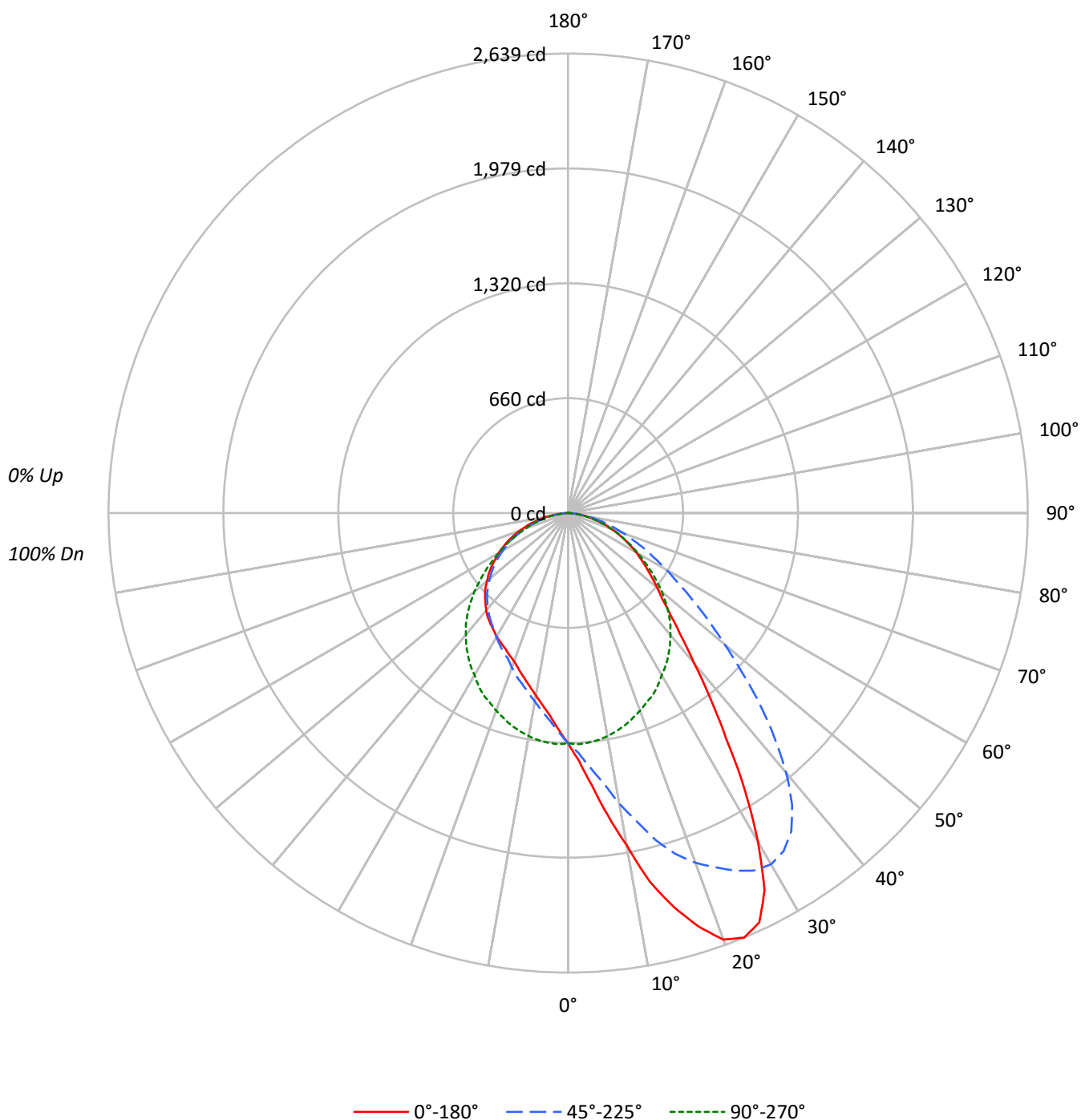
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					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	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	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	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53		53
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46		46
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41		41
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38	36		36
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	33		33
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29		29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	28	38	33	28	27		27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	16029	16029	16029
5°	19097	16105	14234
10°	23848	16008	13087
15°	29391	15835	12279
20°	33632	15582	11684
25°	34709	15411	11467
30°	30493	15043	11476
35°	23403	14819	11487
40°	17801	14458	11575
45°	14324	13991	11562
50°	12606	13245	11463
55°	11619	12272	11388
60°	10950	11229	11156
65°	10176	10265	10942
70°	9314	9207	10473
75°	8280	8027	9755
80°	6931	6638	8537
85°	4882	4798	6397

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.1	3.3
10°-20°	417.7	10.5
20°-30°	689.9	17.3
30°-40°	789.6	19.8
40°-50°	715.5	18.0
50°-60°	578.2	14.5
60°-70°	402.8	10.1
70°-80°	211.2	5.3
80°-90°	50.4	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°	1237.7	31.1
0°-40°	2027.4	50.9
0°-60°	3321.1	83.3
0°-90°	3985.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3985.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1322	1322	1322	1322	1322	
5°	1570	1468	1324	1197	1170	162
15°	2342	1945	1262	1017	978	667
25°	2595	2265	1152	879	857	1160
35°	1582	2232	1002	768	776	1002
45°	836	1560	816	658	674	659
55°	550	876	581	516	539	494
65°	355	478	358	353	382	352
75°	177	218	171	178	208	189
85°	35	45	34	39	46	45
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°	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4
2.5°	1424.1	1427.2	1422.3	1425.4	1418.1	1413.9	1407.2	1404.2	1389.6	1379.3	1375.7
5°	1569.5	1569.5	1570.7	1563.4	1554.9	1539.8	1519.8	1507.1	1492.6	1467.7	1455.0
7.5°	1752.3	1743.3	1737.2	1723.9	1712.4	1687.5	1665.7	1639.7	1605.8	1564.6	1542.8
10°	1937.6	1947.3	1941.3	1927.3	1897.7	1857.1	1825.0	1787.5	1734.8	1694.8	1637.9
12.5°	2168.9	2156.2	2146.5	2125.3	2092.6	2049.6	2000.0	1944.3	1876.5	1810.5	1746.9
15°	2342.1	2343.9	2343.3	2315.5	2283.4	2225.2	2179.2	2086.6	2000.6	1944.9	1839.5
17.5°	2488.6	2496.5	2487.4	2445.6	2417.2	2382.7	2323.9	2221.0	2142.9	2052.7	1936.4
20°	2607.3	2608.5	2594.0	2563.1	2530.4	2491.7	2414.2	2335.4	2259.1	2138.0	2027.2
22.5°	2638.8	2641.8	2638.8	2625.5	2598.8	2557.7	2499.5	2426.9	2330.6	2201.6	2098.7
25°	2595.2	2593.4	2603.7	2595.8	2594.6	2581.3	2543.1	2484.4	2389.3	2265.2	2134.4
27.5°	2442.6	2429.9	2455.9	2489.8	2494.7	2515.9	2516.5	2489.2	2420.8	2314.8	2172.6
30°	2178.6	2190.7	2203.4	2274.3	2313.6	2368.7	2416.6	2434.1	2408.1	2330.0	2196.8
32.5°	1891.6	1930.4	1966.1	2015.1	2072.6	2165.9	2241.6	2308.2	2336.6	2302.1	2196.8
35°	1581.6	1602.2	1658.5	1720.8	1803.8	1876.5	2026.6	2123.5	2210.1	2232.5	2168.9
37.5°	1339.4	1358.1	1377.5	1426.0	1519.2	1640.3	1764.4	1891.6	2020.0	2112.0	2108.4
40°	1125.0	1129.3	1146.2	1188.0	1265.5	1373.3	1503.5	1656.7	1823.2	1948.5	2001.2
42.5°	960.3	960.3	981.5	1030.0	1074.8	1153.5	1279.4	1414.5	1596.7	1757.8	1870.4
45°	835.6	836.8	853.8	888.3	923.4	985.2	1078.4	1205.6	1393.3	1559.8	1716.6
47.5°	733.9	745.4	755.1	773.2	808.4	862.8	930.7	1039.0	1172.9	1354.5	1537.4
50°	668.5	670.9	678.2	689.1	716.3	752.0	810.8	893.1	1011.8	1172.9	1357.5
52.5°	604.3	604.3	611.6	624.9	640.6	669.7	712.1	780.5	869.5	1015.4	1181.3
55°	549.8	551.6	552.8	563.7	577.0	598.8	632.1	677.0	758.7	875.6	1020.3
57.5°	496.5	503.2	501.4	509.8	519.5	535.3	558.9	597.6	660.0	749.0	879.2
60°	451.7	450.5	453.5	457.2	463.8	474.7	496.5	525.0	577.0	651.5	758.1
62.5°	400.8	399.6	403.3	407.5	413.6	422.6	438.4	460.2	501.4	557.1	649.7
65°	354.8	353.6	355.4	357.9	364.5	371.8	383.9	402.1	429.3	478.3	549.2
67.5°	308.8	308.8	310.0	312.4	316.7	322.1	331.8	342.7	370.0	402.7	458.4
70°	262.8	263.4	263.4	265.8	269.5	273.7	281.6	291.2	308.2	337.3	382.1
72.5°	222.8	222.8	221.6	222.8	225.2	227.1	231.9	241.0	253.7	274.9	308.8
75°	176.8	179.8	179.2	178.6	180.4	183.5	187.7	195.0	202.8	218.0	243.4
77.5°	135.6	137.4	137.4	138.1	139.9	142.3	143.5	150.8	158.0	167.1	185.9
80°	99.3	100.5	99.3	99.9	101.1	103.5	106.0	107.2	112.6	120.5	129.6
82.5°	66.6	64.8	67.2	66.6	67.8	68.4	69.6	70.2	73.9	78.7	84.8
85°	35.1	38.1	37.5	38.8	37.5	38.1	38.8	41.2	41.8	44.8	48.4
87.5°	13.3	14.5	14.5	14.5	14.5	14.5	15.7	16.3	17.6	18.2	19.4
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4
2.5°	1378.1	1372.7	1364.8	1356.3	1347.3	1338.2	1333.9	1328.5	1317.6	1306.7	1298.2
5°	1444.7	1429.6	1409.0	1393.9	1372.1	1351.5	1335.1	1323.6	1306.1	1284.9	1271.0
7.5°	1519.2	1492.0	1459.3	1426.0	1393.3	1362.4	1337.0	1315.2	1287.9	1261.9	1240.7
10°	1607.0	1554.3	1508.9	1460.5	1412.0	1368.4	1332.1	1300.6	1265.5	1234.0	1208.0
12.5°	1684.5	1623.4	1560.4	1492.0	1426.6	1370.3	1323.6	1282.5	1240.1	1203.7	1177.1
15°	1769.9	1683.9	1596.7	1519.2	1439.9	1370.9	1309.7	1261.9	1213.4	1172.3	1141.4
17.5°	1868.0	1752.9	1643.3	1531.9	1461.7	1372.7	1297.6	1234.6	1185.0	1143.8	1103.8
20°	1926.1	1811.7	1677.3	1562.8	1446.6	1355.1	1271.6	1208.0	1149.9	1102.6	1069.9
22.5°	1957.6	1837.1	1696.6	1579.2	1443.5	1341.2	1252.2	1177.1	1114.7	1067.5	1030.6
25°	2001.8	1837.1	1706.9	1565.8	1448.4	1324.8	1224.3	1152.3	1086.9	1032.4	993.6
27.5°	2021.8	1853.5	1708.1	1540.4	1419.3	1294.0	1192.2	1115.9	1043.3	990.0	956.7
30°	2038.1	1856.5	1683.9	1520.4	1385.4	1259.5	1160.1	1074.8	1007.0	956.1	921.0
32.5°	2039.3	1848.6	1651.2	1482.9	1340.0	1218.9	1122.0	1041.5	970.6	916.7	882.2
35°	2028.4	1829.2	1613.7	1425.4	1287.3	1177.1	1080.2	1001.5	929.5	878.0	842.9
37.5°	2000.6	1807.4	1578.6	1371.5	1224.9	1117.8	1035.4	960.3	888.9	837.4	808.4
40°	1941.3	1772.3	1532.5	1313.9	1162.0	1054.8	982.7	913.7	850.1	796.8	767.8
42.5°	1862.5	1719.6	1476.8	1252.8	1091.7	988.2	924.6	868.9	804.1	758.1	728.4
45°	1751.1	1648.2	1421.1	1188.6	1022.1	920.4	862.2	816.2	760.5	714.5	688.5
47.5°	1625.2	1562.2	1349.1	1116.6	948.8	853.2	798.1	761.1	713.9	674.5	648.5
50°	1483.5	1459.9	1269.7	1043.9	880.4	782.3	731.5	702.4	662.4	630.9	608.5
52.5°	1329.7	1344.2	1186.2	970.0	814.4	715.1	666.7	640.0	614.6	587.9	566.8
55°	1173.5	1208.0	1085.1	889.5	738.7	652.1	604.9	580.7	561.9	539.5	524.4
57.5°	1026.9	1080.8	980.3	803.5	669.1	586.1	541.3	520.1	506.2	494.1	480.2
60°	884.6	947.0	872.5	723.0	599.5	523.8	483.8	463.2	456.6	447.5	434.1
62.5°	758.7	822.3	766.6	640.0	529.2	464.4	428.1	411.1	401.5	398.4	390.6
65°	640.6	700.0	657.6	553.4	462.6	405.1	373.0	357.9	352.4	351.8	345.7
67.5°	538.3	595.8	557.1	469.3	392.4	345.7	321.5	309.4	304.0	304.6	300.3
70°	443.8	484.4	461.4	392.4	333.0	291.9	273.1	259.8	255.5	255.5	254.3
72.5°	356.0	388.1	370.6	317.9	271.3	239.8	223.4	215.6	211.9	211.3	211.9
75°	278.5	306.4	290.6	249.5	214.3	190.7	176.8	171.4	169.5	168.3	168.9
77.5°	208.3	225.9	216.2	189.5	160.5	144.1	137.4	132.0	130.2	130.8	132.0
80°	147.1	156.8	151.4	134.4	115.0	104.1	99.3	95.1	93.2	95.1	95.1
82.5°	93.2	100.5	95.7	84.8	75.1	67.8	63.0	61.8	61.2	59.9	61.8
85°	50.9	54.5	52.1	48.4	41.8	38.8	35.1	34.5	34.5	34.5	34.5
87.5°	20.0	22.4	19.4	19.4	18.2	15.1	15.1	14.5	13.9	14.5	14.5
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°	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4	1322.4
2.5°	1294.6	1286.7	1281.9	1275.2	1267.3	1257.0	1252.8	1257.0	1254.6	1250.4	1252.2
5°	1258.8	1248.6	1235.2	1224.3	1212.2	1197.1	1192.2	1189.8	1186.2	1184.4	1181.3
7.5°	1223.7	1208.6	1192.2	1177.1	1159.5	1146.2	1140.2	1135.9	1134.7	1125.6	1122.0
10°	1187.4	1168.6	1152.3	1131.7	1116.6	1099.0	1091.7	1086.9	1081.4	1075.4	1071.1
12.5°	1149.2	1130.5	1109.9	1090.5	1075.4	1056.0	1046.3	1040.9	1036.6	1032.4	1027.5
15°	1115.9	1097.2	1068.7	1054.2	1036.0	1016.6	1010.6	998.5	999.7	992.4	987.6
17.5°	1080.8	1053.0	1033.0	1011.2	997.9	983.9	972.4	959.7	957.9	952.5	950.6
20°	1041.5	1012.4	998.5	976.1	957.9	944.0	933.7	932.5	928.8	921.0	917.9
22.5°	1002.7	979.1	959.7	939.1	922.8	904.6	899.8	901.6	894.9	893.1	886.5
25°	967.6	947.0	922.8	903.4	890.1	878.6	871.9	869.5	867.1	865.3	862.2
27.5°	930.1	908.3	887.7	871.9	859.2	851.3	847.1	841.7	841.0	841.0	839.8
30°	892.5	873.1	859.2	839.2	827.7	822.9	819.2	817.4	819.2	819.2	819.9
32.5°	858.0	839.2	822.9	809.0	797.5	793.8	793.2	793.2	795.6	795.6	797.5
35°	822.3	803.5	788.4	778.7	769.0	768.4	769.0	770.2	773.2	773.8	776.3
37.5°	783.5	769.0	757.5	745.4	743.0	744.2	745.4	746.6	747.8	752.6	752.6
40°	747.8	736.9	725.4	717.5	713.3	716.3	718.1	718.7	722.4	725.4	727.8
42.5°	712.7	702.4	693.3	686.6	684.8	687.2	689.1	690.9	694.5	696.9	701.2
45°	673.3	666.7	658.8	653.3	653.9	657.6	657.6	663.6	666.1	667.3	670.3
47.5°	637.0	629.7	624.3	621.9	621.2	624.3	626.1	630.9	632.1	636.4	638.8
50°	598.2	592.8	588.6	585.5	586.1	587.3	591.6	596.4	597.6	602.5	606.7
52.5°	557.7	552.8	549.2	550.4	552.2	552.2	556.5	559.5	562.5	566.1	570.4
55°	517.7	511.0	511.7	509.8	511.7	515.9	517.7	522.6	525.0	526.8	532.8
57.5°	474.1	472.9	471.1	469.3	472.9	474.7	477.7	480.8	485.0	487.4	491.7
60°	429.3	427.5	427.5	429.9	431.1	434.8	439.6	441.4	442.6	447.5	452.9
62.5°	388.1	386.3	385.7	389.3	389.3	393.0	394.8	397.8	402.7	404.5	411.7
65°	343.9	342.7	342.7	345.7	346.3	353.0	353.0	353.0	356.0	362.7	366.3
67.5°	297.9	298.5	300.3	302.1	304.6	306.4	307.0	310.6	315.5	319.7	327.0
70°	251.9	254.9	258.6	257.9	259.8	262.8	263.4	267.0	271.3	276.7	285.2
72.5°	210.7	212.5	216.2	216.2	218.6	220.4	223.4	225.9	231.3	236.1	239.8
75°	169.5	170.1	173.2	175.0	176.8	178.0	181.0	185.3	188.3	192.6	198.0
77.5°	133.2	132.0	134.4	135.0	136.2	138.7	141.1	145.3	147.7	152.6	154.4
80°	94.5	96.9	97.5	98.1	99.3	102.3	104.1	106.0	108.4	112.6	114.4
82.5°	62.4	63.6	65.4	66.0	67.2	67.8	68.4	71.4	73.3	74.5	80.5
85°	36.3	38.1	36.9	36.9	38.1	38.8	41.2	41.2	43.6	42.4	45.4
87.5°	15.7	15.1	15.1	15.7	15.1	14.5	16.3	16.3	15.7	16.3	16.3
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: P243345

CATALOG NUMBER: S123DR-H1165D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1322.4	1322.4	1322.4	1322.4
2.5°	1249.2	1249.2	1244.3	1246.1
5°	1175.3	1177.7	1171.7	1169.8
7.5°	1120.8	1118.4	1114.1	1114.1
10°	1067.5	1065.1	1063.3	1063.3
12.5°	1021.5	1019.1	1015.4	1018.5
15°	980.3	980.9	978.5	978.5
17.5°	948.8	943.4	941.6	941.0
20°	911.3	912.5	910.1	905.8
22.5°	887.7	884.6	882.2	881.6
25°	863.5	860.4	859.8	857.4
27.5°	839.2	839.8	838.0	838.0
30°	819.2	821.1	819.2	819.9
32.5°	799.3	799.3	799.3	796.8
35°	777.5	778.1	777.5	776.3
37.5°	755.1	755.1	755.7	756.9
40°	730.2	730.2	731.5	731.5
42.5°	700.6	703.6	705.4	702.4
45°	673.9	674.5	675.1	674.5
47.5°	644.3	642.4	643.0	644.3
50°	607.3	611.6	611.6	607.9
52.5°	571.6	572.8	575.2	575.2
55°	536.5	537.1	537.7	538.9
57.5°	496.5	497.1	497.1	496.5
60°	456.6	460.2	459.6	460.2
62.5°	413.6	419.0	420.8	420.2
65°	373.0	374.2	377.2	381.5
67.5°	330.0	333.0	337.9	336.7
70°	287.6	291.9	293.1	295.5
72.5°	245.2	250.7	251.9	253.1
75°	204.1	206.5	208.9	208.3
77.5°	159.2	162.9	167.1	164.7
80°	119.3	119.9	123.5	122.3
82.5°	78.7	83.6	83.6	81.1
85°	46.0	46.0	46.0	46.0
87.5°	15.7	15.1	16.3	15.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)