

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: P243344

Luminaire Tested: **S123DR-H1000D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243344
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-H1000D935-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: 3411.7 lumens
Efficiency: N/A
Efficacy: 108.3 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

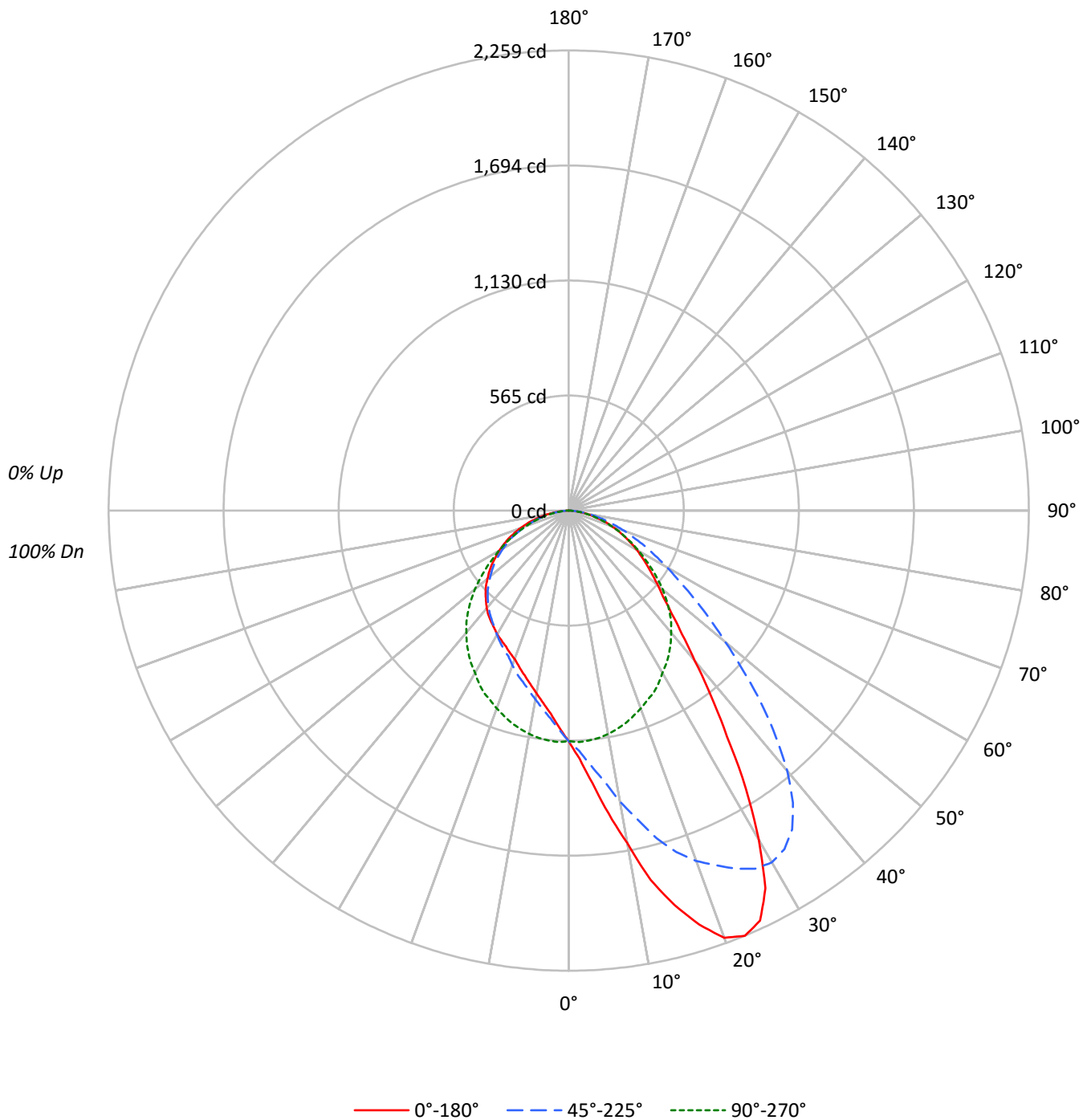
Input Watts (W): 31.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	13721	13721	13721
5°	16347	13787	12185
10°	20414	13704	11203
15°	25159	13555	10511
20°	28790	13339	10002
25°	29712	13192	9817
30°	26102	12877	9823
35°	20034	12686	9833
40°	15239	12377	9907
45°	12262	11977	9898
50°	10790	11339	9813
55°	9945	10505	9749
60°	9375	9612	9549
65°	8710	8785	9364
70°	7974	7882	8963
75°	7090	6870	8350
80°	5933	5682	7308
85°	4186	4103	5480

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	111.4	3.3
10°-20°	357.6	10.5
20°-30°	590.6	17.3
30°-40°	675.9	19.8
40°-50°	612.5	18.0
50°-60°	494.9	14.5
60°-70°	344.8	10.1
70°-80°	180.8	5.3
80°-90°	43.1	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°	1059.5	31.1
0°-40°	1735.5	50.9
0°-60°	2842.9	83.3
0°-90°	3411.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3411.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1132	1132	1132	1132	1132	
5°	1344	1256	1133	1025	1001	138
15°	2005	1665	1080	870	838	571
25°	2222	1939	986	752	734	993
35°	1354	1911	857	658	664	858
45°	715	1335	699	563	577	564
55°	471	750	497	442	461	423
65°	304	410	306	302	326	301
75°	151	187	147	152	178	162
85°	30	38	30	33	39	38
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°	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0
2.5°	1219.1	1221.7	1217.6	1220.1	1213.9	1210.3	1204.6	1202.0	1189.6	1180.8	1177.6
5°	1343.5	1343.5	1344.5	1338.3	1331.1	1318.1	1301.0	1290.1	1277.7	1256.4	1245.5
7.5°	1500.0	1492.3	1487.1	1475.7	1465.8	1444.6	1425.9	1403.6	1374.6	1339.4	1320.7
10°	1658.6	1666.9	1661.8	1649.8	1624.4	1589.7	1562.2	1530.1	1485.0	1450.8	1402.1
12.5°	1856.7	1845.8	1837.5	1819.3	1791.3	1754.5	1712.0	1664.4	1606.3	1549.8	1495.4
15°	2004.9	2006.4	2005.9	1982.1	1954.6	1904.9	1865.5	1786.2	1712.6	1664.9	1574.7
17.5°	2130.3	2137.1	2129.3	2093.5	2069.2	2039.6	1989.3	1901.2	1834.4	1757.1	1657.6
20°	2231.9	2233.0	2220.5	2194.1	2166.1	2132.9	2066.6	1999.2	1933.9	1830.2	1735.4
22.5°	2258.9	2261.5	2258.9	2247.5	2224.7	2189.4	2139.7	2077.5	1995.0	1884.6	1796.5
25°	2221.6	2220.0	2228.8	2222.1	2221.0	2209.6	2177.0	2126.7	2045.3	1939.1	1827.1
27.5°	2090.9	2080.1	2102.3	2131.4	2135.5	2153.7	2154.2	2130.8	2072.3	1981.6	1859.8
30°	1864.9	1875.3	1886.2	1946.8	1980.5	2027.7	2068.6	2083.7	2061.4	1994.5	1880.5
32.5°	1619.3	1652.4	1683.0	1725.0	1774.2	1854.1	1918.9	1975.9	2000.2	1970.7	1880.5
35°	1353.9	1371.5	1419.7	1473.1	1544.1	1606.3	1734.8	1817.8	1891.9	1911.1	1856.7
37.5°	1146.5	1162.6	1179.2	1220.7	1300.5	1404.2	1510.4	1619.3	1729.1	1807.9	1804.8
40°	963.1	966.7	981.2	1017.0	1083.3	1175.6	1287.0	1418.1	1560.7	1668.0	1713.1
42.5°	822.1	822.1	840.2	881.7	920.0	987.4	1095.2	1210.8	1366.8	1504.7	1601.1
45°	715.3	716.3	730.8	760.4	790.5	843.3	923.1	1032.0	1192.7	1335.2	1469.5
47.5°	628.2	638.1	646.4	661.9	692.0	738.6	796.7	889.5	1004.0	1159.5	1316.0
50°	572.2	574.3	580.5	589.9	613.2	643.8	694.0	764.5	866.1	1004.0	1162.1
52.5°	517.3	517.3	523.5	534.9	548.4	573.3	609.6	668.1	744.3	869.2	1011.3
55°	470.6	472.2	473.2	482.6	494.0	512.6	541.1	579.5	649.5	749.5	873.4
57.5°	425.0	430.7	429.2	436.4	444.7	458.2	478.4	511.6	565.0	641.2	752.6
60°	386.7	385.6	388.2	391.3	397.0	406.4	425.0	449.4	494.0	557.7	648.9
62.5°	343.1	342.1	345.2	348.8	354.0	361.8	375.3	393.9	429.2	476.9	556.2
65°	303.7	302.7	304.3	306.3	312.0	318.3	328.6	344.2	367.5	409.5	470.1
67.5°	264.3	264.3	265.4	267.5	271.1	275.8	284.0	293.4	316.7	344.7	392.4
70°	225.0	225.5	225.5	227.5	230.7	234.3	241.0	249.3	263.8	288.7	327.1
72.5°	190.7	190.7	189.7	190.7	192.8	194.4	198.5	206.3	217.2	235.3	264.3
75°	151.4	153.9	153.4	152.9	154.5	157.1	160.7	166.9	173.6	186.6	208.4
77.5°	116.1	117.7	117.7	118.2	119.7	121.8	122.8	129.1	135.3	143.1	159.1
80°	85.0	86.0	85.0	85.5	86.6	88.6	90.7	91.7	96.4	103.1	110.9
82.5°	57.0	55.5	57.5	57.0	58.1	58.6	59.6	60.1	63.2	67.4	72.6
85°	30.1	32.7	32.1	33.2	32.1	32.7	33.2	35.2	35.8	38.4	41.5
87.5°	11.4	12.4	12.4	12.4	12.4	12.4	13.5	14.0	15.0	15.5	16.6
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0
2.5°	1179.7	1175.0	1168.3	1161.1	1153.3	1145.5	1141.9	1137.2	1127.9	1118.6	1111.3
5°	1236.7	1223.8	1206.1	1193.2	1174.5	1156.9	1142.9	1133.1	1118.0	1099.9	1088.0
7.5°	1300.5	1277.2	1249.2	1220.7	1192.7	1166.2	1144.5	1125.8	1102.5	1080.2	1062.1
10°	1375.6	1330.5	1291.7	1250.2	1208.7	1171.4	1140.3	1113.4	1083.3	1056.4	1034.1
12.5°	1442.0	1389.6	1335.7	1277.2	1221.2	1173.0	1133.1	1097.8	1061.5	1030.4	1007.6
15°	1515.1	1441.5	1366.8	1300.5	1232.6	1173.5	1121.1	1080.2	1038.7	1003.5	977.0
17.5°	1599.0	1500.6	1406.7	1311.4	1251.2	1175.0	1110.8	1056.9	1014.4	979.1	944.9
20°	1648.8	1550.8	1435.8	1337.8	1238.3	1160.0	1088.5	1034.1	984.3	943.9	915.9
22.5°	1675.8	1572.6	1452.4	1351.8	1235.7	1148.1	1071.9	1007.6	954.2	913.8	882.2
25°	1713.6	1572.6	1461.2	1340.4	1239.8	1134.1	1048.1	986.4	930.4	883.7	850.6
27.5°	1730.7	1586.6	1462.2	1318.6	1215.0	1107.7	1020.6	955.3	893.1	847.5	819.0
30°	1744.7	1589.2	1441.5	1301.5	1185.9	1078.1	993.1	920.0	862.0	818.4	788.4
32.5°	1745.7	1582.5	1413.5	1269.4	1147.1	1043.4	960.5	891.5	830.9	784.7	755.2
35°	1736.4	1565.9	1381.3	1220.1	1102.0	1007.6	924.7	857.3	795.6	751.6	721.5
37.5°	1712.6	1547.2	1351.3	1174.0	1048.6	956.8	886.3	822.1	760.9	716.8	692.0
40°	1661.8	1517.1	1311.9	1124.8	994.7	902.9	841.2	782.2	727.7	682.1	657.2
42.5°	1594.4	1472.1	1264.2	1072.4	934.5	845.9	791.5	743.8	688.3	648.9	623.5
45°	1499.0	1410.9	1216.5	1017.5	874.9	787.9	738.1	698.7	651.0	611.6	589.3
47.5°	1391.2	1337.3	1154.8	955.8	812.2	730.3	683.2	651.5	611.1	577.4	555.1
50°	1269.9	1249.7	1086.9	893.6	753.6	669.7	626.1	601.3	567.1	540.1	520.9
52.5°	1138.2	1150.7	1015.4	830.4	697.2	612.1	570.7	547.9	526.1	503.3	485.2
55°	1004.5	1034.1	928.8	761.4	632.4	558.2	517.8	497.1	481.0	461.8	448.9
57.5°	879.1	925.2	839.2	687.8	572.8	501.7	463.4	445.2	433.3	423.0	411.0
60°	757.3	810.7	746.9	618.9	513.1	448.4	414.1	396.5	390.8	383.0	371.6
62.5°	649.5	703.9	656.2	547.9	453.0	397.6	366.5	351.9	343.7	341.1	334.3
65°	548.4	599.2	562.9	473.8	396.0	346.8	319.3	306.3	301.7	301.1	296.0
67.5°	460.8	510.0	476.9	401.7	335.9	296.0	275.2	264.9	260.2	260.7	257.1
70°	379.9	414.7	395.0	335.9	285.1	249.8	233.8	222.4	218.7	218.7	217.7
72.5°	304.8	332.2	317.2	272.1	232.2	205.3	191.3	184.5	181.4	180.9	181.4
75°	238.4	262.3	248.8	213.6	183.5	163.3	151.4	146.7	145.1	144.1	144.6
77.5°	178.3	193.3	185.0	162.2	137.4	123.4	117.7	113.0	111.4	112.0	113.0
80°	126.0	134.2	129.6	115.1	98.5	89.2	85.0	81.4	79.8	81.4	81.4
82.5°	79.8	86.0	81.9	72.6	64.3	58.1	53.9	52.9	52.4	51.3	52.9
85°	43.5	46.6	44.6	41.5	35.8	33.2	30.1	29.5	29.5	29.5	29.5
87.5°	17.1	19.2	16.6	16.6	15.5	13.0	13.0	12.4	11.9	12.4	12.4
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°	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0	1132.0
2.5°	1108.2	1101.4	1097.3	1091.6	1084.9	1076.0	1072.4	1076.0	1074.0	1070.3	1071.9
5°	1077.6	1068.8	1057.4	1048.1	1037.7	1024.7	1020.6	1018.5	1015.4	1013.8	1011.3
7.5°	1047.5	1034.6	1020.6	1007.6	992.6	981.2	976.0	972.4	971.3	963.6	960.5
10°	1016.4	1000.4	986.4	968.8	955.8	940.8	934.5	930.4	925.7	920.6	916.9
12.5°	983.8	967.7	950.1	933.5	920.6	904.0	895.7	891.0	887.4	883.7	879.6
15°	955.3	939.2	914.8	902.4	886.9	870.3	865.1	854.7	855.8	849.5	845.4
17.5°	925.2	901.4	884.3	865.6	854.2	842.3	832.4	821.5	820.0	815.3	813.8
20°	891.5	866.6	854.7	835.5	820.0	808.1	799.3	798.2	795.1	788.4	785.8
22.5°	858.4	838.1	821.5	803.9	789.9	774.4	770.2	771.8	766.1	764.5	758.8
25°	828.3	810.7	789.9	773.3	761.9	752.1	746.4	744.3	742.2	740.7	738.1
27.5°	796.2	777.5	759.9	746.4	735.5	728.8	725.1	720.5	720.0	720.0	718.9
30°	764.0	747.4	735.5	718.4	708.6	704.4	701.3	699.7	701.3	701.3	701.8
32.5°	734.5	718.4	704.4	692.5	682.6	679.5	679.0	679.0	681.1	681.1	682.6
35°	703.9	687.8	674.9	666.6	658.3	657.8	658.3	659.3	661.9	662.4	664.5
37.5°	670.7	658.3	648.4	638.1	636.0	637.0	638.1	639.1	640.1	644.3	644.3
40°	640.1	630.8	621.0	614.2	610.6	613.2	614.7	615.3	618.4	621.0	623.0
42.5°	610.1	601.3	593.5	587.8	586.2	588.3	589.9	591.4	594.5	596.6	600.2
45°	576.4	570.7	563.9	559.3	559.8	562.9	562.9	568.1	570.2	571.2	573.8
47.5°	545.3	539.1	534.4	532.3	531.8	534.4	536.0	540.1	541.1	544.8	546.8
50°	512.1	507.4	503.8	501.2	501.7	502.8	506.4	510.6	511.6	515.7	519.4
52.5°	477.4	473.2	470.1	471.2	472.7	472.7	476.3	478.9	481.5	484.6	488.3
55°	443.2	437.5	438.0	436.4	438.0	441.6	443.2	447.3	449.4	450.9	456.1
57.5°	405.9	404.8	403.3	401.7	404.8	406.4	409.0	411.6	415.2	417.3	420.9
60°	367.5	365.9	365.9	368.0	369.0	372.2	376.3	377.9	378.9	383.0	387.7
62.5°	332.2	330.7	330.2	333.3	333.3	336.4	337.9	340.5	344.7	346.2	352.5
65°	294.4	293.4	293.4	296.0	296.5	302.2	302.2	302.2	304.8	310.5	313.6
67.5°	255.0	255.5	257.1	258.6	260.7	262.3	262.8	265.9	270.0	273.7	279.9
70°	215.6	218.2	221.3	220.8	222.4	225.0	225.5	228.6	232.2	236.9	244.1
72.5°	180.4	181.9	185.0	185.0	187.1	188.7	191.3	193.3	198.0	202.1	205.3
75°	145.1	145.7	148.2	149.8	151.4	152.4	155.0	158.6	161.2	164.8	169.5
77.5°	114.0	113.0	115.1	115.6	116.6	118.7	120.8	124.4	126.5	130.6	132.2
80°	80.9	82.9	83.5	84.0	85.0	87.6	89.2	90.7	92.8	96.4	98.0
82.5°	53.4	54.4	56.0	56.5	57.5	58.1	58.6	61.2	62.7	63.8	68.9
85°	31.1	32.7	31.6	31.6	32.7	33.2	35.2	35.2	37.3	36.3	38.9
87.5°	13.5	13.0	13.0	13.5	13.0	12.4	14.0	14.0	13.5	14.0	14.0
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: P243344

CATALOG NUMBER: S123DR-H1000D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1132.0	1132.0	1132.0	1132.0
2.5°	1069.3	1069.3	1065.2	1066.7
5°	1006.1	1008.1	1003.0	1001.4
7.5°	959.4	957.4	953.7	953.7
10°	913.8	911.7	910.2	910.2
12.5°	874.4	872.3	869.2	871.8
15°	839.2	839.7	837.6	837.6
17.5°	812.2	807.6	806.0	805.5
20°	780.1	781.1	779.0	775.4
22.5°	759.9	757.3	755.2	754.7
25°	739.1	736.5	736.0	734.0
27.5°	718.4	718.9	717.4	717.4
30°	701.3	702.9	701.3	701.8
32.5°	684.2	684.2	684.2	682.1
35°	665.5	666.1	665.5	664.5
37.5°	646.4	646.4	646.9	647.9
40°	625.1	625.1	626.1	626.1
42.5°	599.7	602.3	603.9	601.3
45°	576.9	577.4	577.9	577.4
47.5°	551.5	549.9	550.5	551.5
50°	519.9	523.5	523.5	520.4
52.5°	489.3	490.3	492.4	492.4
55°	459.2	459.8	460.3	461.3
57.5°	425.0	425.5	425.5	425.0
60°	390.8	393.9	393.4	393.9
62.5°	354.0	358.7	360.2	359.7
65°	319.3	320.3	322.9	326.5
67.5°	282.5	285.1	289.2	288.2
70°	246.2	249.8	250.9	252.9
72.5°	209.9	214.6	215.6	216.7
75°	174.7	176.7	178.8	178.3
77.5°	136.3	139.4	143.1	141.0
80°	102.1	102.6	105.7	104.7
82.5°	67.4	71.5	71.5	69.5
85°	39.4	39.4	39.4	39.4
87.5°	13.5	13.0	14.0	13.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)