

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: P243349

Luminaire Tested: **S123DR-H1000D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243349
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-H1000D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3533.4 lumens
Efficiency: N/A
Efficacy: 112.2 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

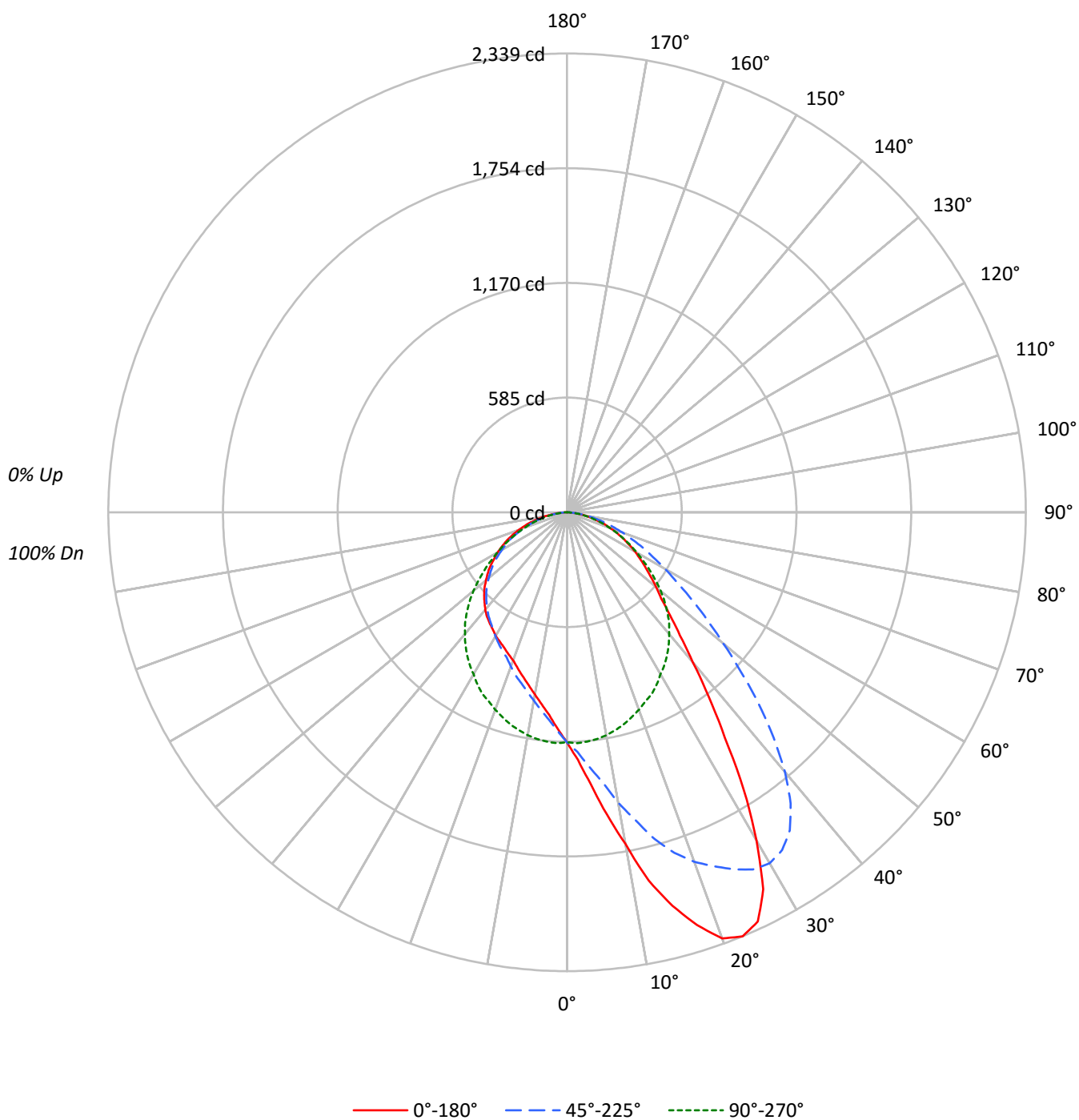
Input Watts (W): 31.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	14211	14211	14211
5°	16930	14279	12619
10°	21143	14193	11602
15°	26056	14038	10886
20°	29816	13814	10359
25°	30772	13663	10166
30°	27034	13336	10173
35°	20749	13139	10183
40°	15782	12818	10261
45°	12699	12404	10251
50°	11175	11742	10164
55°	10300	10879	10097
60°	9709	9956	9891
65°	9023	9101	9700
70°	8258	8162	9285
75°	7343	7114	8650
80°	6143	5884	7567
85°	4325	4256	5674

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	115.3	3.3
10°-20°	370.3	10.5
20°-30°	611.6	17.3
30°-40°	700.0	19.8
40°-50°	634.4	18.0
50°-60°	512.6	14.5
60°-70°	357.1	10.1
70°-80°	187.3	5.3
80°-90°	44.7	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°	1097.3	31.1
0°-40°	1797.4	50.9
0°-60°	2944.3	83.3
0°-90°	3533.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3533.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1172	1172	1172	1172	1172	
5°	1391	1301	1174	1061	1037	143
15°	2076	1724	1119	901	868	591
25°	2301	2008	1022	779	760	1028
35°	1402	1979	888	681	688	888
45°	741	1383	724	583	598	584
55°	487	776	515	457	478	438
65°	315	424	317	313	338	312
75°	157	193	152	158	185	167
85°	31	40	31	34	41	40
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°	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4
2.5°	1262.6	1265.3	1261.0	1263.7	1257.2	1253.5	1247.6	1244.9	1232.0	1222.9	1219.6
5°	1391.4	1391.4	1392.5	1386.1	1378.5	1365.1	1347.4	1336.1	1323.3	1301.2	1290.0
7.5°	1553.5	1545.5	1540.1	1528.3	1518.1	1496.1	1476.8	1453.7	1423.6	1387.1	1367.8
10°	1717.8	1726.4	1721.0	1708.7	1682.4	1646.4	1618.0	1584.7	1538.0	1502.5	1452.1
12.5°	1922.9	1911.6	1903.0	1884.2	1855.2	1817.1	1773.1	1723.7	1663.6	1605.1	1548.7
15°	2076.4	2078.0	2077.5	2052.8	2024.3	1972.8	1932.0	1849.9	1773.6	1724.3	1630.8
17.5°	2206.3	2213.3	2205.2	2168.2	2143.0	2112.4	2060.3	1969.0	1899.8	1819.8	1716.7
20°	2311.5	2312.6	2299.7	2272.3	2243.4	2209.0	2140.3	2070.5	2002.9	1895.5	1797.3
22.5°	2339.4	2342.1	2339.4	2327.6	2304.0	2267.5	2216.0	2151.6	2066.2	1951.9	1860.6
25°	2300.8	2299.2	2308.3	2301.3	2300.3	2288.4	2254.6	2202.6	2118.3	2008.2	1892.3
27.5°	2165.5	2154.2	2177.3	2207.4	2211.7	2230.5	2231.0	2206.9	2146.2	2052.2	1926.1
30°	1931.5	1942.2	1953.5	2016.3	2051.2	2100.0	2142.4	2158.0	2134.9	2065.7	1947.6
32.5°	1677.0	1711.4	1743.0	1786.5	1837.5	1920.2	1987.3	2046.3	2071.6	2041.0	1947.6
35°	1402.2	1420.4	1470.3	1525.6	1599.2	1663.6	1796.7	1882.6	1959.4	1979.2	1922.9
37.5°	1187.4	1204.1	1221.3	1264.2	1346.9	1454.2	1564.3	1677.0	1790.8	1872.4	1869.2
40°	997.4	1001.2	1016.2	1053.2	1121.9	1217.5	1332.9	1468.7	1616.4	1727.5	1774.2
42.5°	851.4	851.4	870.2	913.1	952.8	1022.6	1134.3	1254.0	1415.6	1558.4	1658.2
45°	740.8	741.9	756.9	787.5	818.6	873.4	956.1	1068.8	1235.2	1382.8	1521.9
47.5°	650.6	660.8	669.4	685.5	716.6	765.0	825.1	921.2	1039.8	1200.9	1363.0
50°	592.6	594.8	601.2	610.9	635.1	666.7	718.8	791.8	897.0	1039.8	1203.5
52.5°	535.7	535.7	542.2	554.0	568.0	593.7	631.3	692.0	770.9	900.2	1047.3
55°	487.4	489.0	490.1	499.8	511.6	530.9	560.4	600.2	672.6	776.2	904.5
57.5°	440.2	446.1	444.5	452.0	460.6	474.5	495.5	529.8	585.1	664.0	779.5
60°	400.5	399.4	402.1	405.3	411.2	420.9	440.2	465.4	511.6	577.6	672.1
62.5°	355.4	354.3	357.5	361.3	366.6	374.7	388.7	408.0	444.5	493.9	576.0
65°	314.6	313.5	315.1	317.3	323.2	329.6	340.3	356.4	380.6	424.1	486.9
67.5°	273.8	273.8	274.8	277.0	280.8	285.6	294.2	303.8	328.0	357.0	406.4
70°	233.0	233.5	233.5	235.7	238.9	242.6	249.6	258.2	273.2	299.0	338.7
72.5°	197.5	197.5	196.5	197.5	199.7	201.3	205.6	213.7	224.9	243.7	273.8
75°	156.8	159.4	158.9	158.4	160.0	162.7	166.4	172.9	179.8	193.3	215.8
77.5°	120.2	121.9	121.9	122.4	124.0	126.2	127.2	133.7	140.1	148.2	164.8
80°	88.0	89.1	88.0	88.6	89.6	91.8	93.9	95.0	99.8	106.8	114.9
82.5°	59.0	57.4	59.6	59.0	60.1	60.7	61.7	62.3	65.5	69.8	75.2
85°	31.1	33.8	33.3	34.4	33.3	33.8	34.4	36.5	37.0	39.7	42.9
87.5°	11.8	12.9	12.9	12.9	12.9	12.9	14.0	14.5	15.6	16.1	17.2
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°	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4
2.5°	1221.8	1217.0	1210.0	1202.5	1194.4	1186.4	1182.6	1177.8	1168.1	1158.4	1150.9
5°	1280.8	1267.4	1249.2	1235.8	1216.4	1198.2	1183.7	1173.5	1157.9	1139.1	1126.8
7.5°	1346.9	1322.7	1293.7	1264.2	1235.2	1207.8	1185.3	1166.0	1141.8	1118.7	1099.9
10°	1424.7	1378.0	1337.7	1294.8	1251.9	1213.2	1181.0	1153.1	1121.9	1094.0	1070.9
12.5°	1493.4	1439.2	1383.4	1322.7	1264.7	1214.8	1173.5	1137.0	1099.4	1067.2	1043.6
15°	1569.1	1492.9	1415.6	1346.9	1276.5	1215.4	1161.1	1118.7	1075.8	1039.3	1011.9
17.5°	1656.1	1554.1	1456.9	1358.1	1295.9	1217.0	1150.4	1094.6	1050.5	1014.0	978.6
20°	1707.6	1606.2	1487.0	1385.5	1282.5	1201.4	1127.3	1070.9	1019.4	977.5	948.6
22.5°	1735.5	1628.7	1504.2	1400.0	1279.8	1189.0	1110.1	1043.6	988.3	946.4	913.7
25°	1774.7	1628.7	1513.3	1388.2	1284.1	1174.6	1085.4	1021.6	963.6	915.3	880.9
27.5°	1792.4	1643.2	1514.4	1365.7	1258.3	1147.2	1057.0	989.4	924.9	877.7	848.2
30°	1806.9	1645.9	1492.9	1347.9	1228.2	1116.6	1028.5	952.8	892.7	847.6	816.5
32.5°	1808.0	1638.9	1463.9	1314.7	1188.0	1080.6	994.7	923.3	860.5	812.7	782.1
35°	1798.3	1621.7	1430.6	1263.7	1141.3	1043.6	957.7	887.9	824.0	778.4	747.2
37.5°	1773.6	1602.4	1399.5	1215.9	1086.0	991.0	918.0	851.4	788.0	742.4	716.6
40°	1721.0	1571.3	1358.7	1164.9	1030.2	935.1	871.3	810.1	753.7	706.4	680.7
42.5°	1651.2	1524.6	1309.3	1110.7	967.9	876.1	819.7	770.3	712.9	672.1	645.8
45°	1552.5	1461.2	1259.9	1053.8	906.1	816.0	764.4	723.6	674.2	633.4	610.4
47.5°	1440.8	1385.0	1196.0	989.9	841.2	756.4	707.5	674.8	632.9	598.0	574.9
50°	1315.2	1294.3	1125.7	925.5	780.5	693.6	648.5	622.7	587.3	559.4	539.5
52.5°	1178.8	1191.7	1051.6	860.0	722.0	634.0	591.0	567.4	544.9	521.2	502.5
55°	1040.3	1070.9	962.0	788.6	654.9	578.2	536.3	514.8	498.2	478.3	464.9
57.5°	910.4	958.2	869.1	712.4	593.2	519.6	479.9	461.1	448.8	438.0	425.7
60°	784.3	839.6	773.6	641.0	531.4	464.3	428.9	410.7	404.8	396.7	384.9
62.5°	672.6	729.0	679.6	567.4	469.2	411.7	379.5	364.5	355.9	353.2	346.2
65°	568.0	620.6	583.0	490.6	410.1	359.1	330.7	317.3	312.4	311.9	306.5
67.5°	477.2	528.2	493.9	416.0	347.9	306.5	285.0	274.3	269.5	270.0	266.3
70°	393.5	429.5	409.1	347.9	295.2	258.7	242.1	230.3	226.5	226.5	225.5
72.5°	315.6	344.1	328.5	281.8	240.5	212.6	198.1	191.1	187.9	187.3	187.9
75°	246.9	271.6	257.7	221.2	190.0	169.1	156.8	151.9	150.3	149.2	149.8
77.5°	184.7	200.2	191.6	168.0	142.3	127.8	121.9	117.0	115.4	116.0	117.0
80°	130.4	139.0	134.2	119.2	102.0	92.3	88.0	84.3	82.7	84.3	84.3
82.5°	82.7	89.1	84.8	75.2	66.6	60.1	55.8	54.8	54.2	53.1	54.8
85°	45.1	48.3	46.2	42.9	37.0	34.4	31.1	30.6	30.6	30.6	30.6
87.5°	17.7	19.9	17.2	17.2	16.1	13.4	13.4	12.9	12.3	12.9	12.9
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°	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4	1172.4
2.5°	1147.7	1140.7	1136.4	1130.5	1123.6	1114.4	1110.7	1114.4	1112.3	1108.5	1110.1
5°	1116.0	1106.9	1095.1	1085.4	1074.7	1061.3	1057.0	1054.8	1051.6	1050.0	1047.3
7.5°	1084.9	1071.5	1057.0	1043.6	1028.0	1016.2	1010.8	1007.1	1006.0	997.9	994.7
10°	1052.7	1036.1	1021.6	1003.3	989.9	974.3	967.9	963.6	958.8	953.4	949.6
12.5°	1018.9	1002.2	984.0	966.8	953.4	936.2	927.6	922.8	919.0	915.3	911.0
15°	989.4	972.7	947.5	934.6	918.5	901.3	895.9	885.2	886.3	879.8	875.5
17.5°	958.2	933.5	915.8	896.5	884.7	872.3	862.1	850.9	849.2	844.4	842.8
20°	923.3	897.6	885.2	865.3	849.2	836.9	827.8	826.7	823.5	816.5	813.8
22.5°	889.0	868.0	850.9	832.6	818.1	802.0	797.7	799.3	793.4	791.8	785.9
25°	857.8	839.6	818.1	800.9	789.1	778.9	773.0	770.9	768.7	767.1	764.4
27.5°	824.5	805.2	787.0	773.0	761.7	754.8	751.0	746.2	745.6	745.6	744.6
30°	791.3	774.1	761.7	744.0	733.8	729.5	726.3	724.7	726.3	726.3	726.8
32.5°	760.7	744.0	729.5	717.2	707.0	703.8	703.2	703.2	705.4	705.4	707.0
35°	729.0	712.4	698.9	690.3	681.8	681.2	681.8	682.8	685.5	686.1	688.2
37.5°	694.6	681.8	671.6	660.8	658.7	659.7	660.8	661.9	663.0	667.3	667.3
40°	663.0	653.3	643.1	636.1	632.4	635.1	636.7	637.2	640.4	643.1	645.3
42.5°	631.8	622.7	614.7	608.7	607.1	609.3	610.9	612.5	615.7	617.9	621.6
45°	596.9	591.0	584.1	579.2	579.8	583.0	583.0	588.4	590.5	591.6	594.3
47.5°	564.7	558.3	553.5	551.3	550.8	553.5	555.1	559.4	560.4	564.2	566.3
50°	530.4	525.5	521.8	519.1	519.6	520.7	524.5	528.8	529.8	534.1	537.9
52.5°	494.4	490.1	486.9	488.0	489.6	489.6	493.3	496.0	498.7	501.9	505.7
55°	459.0	453.1	453.6	452.0	453.6	457.4	459.0	463.3	465.4	467.0	472.4
57.5°	420.3	419.3	417.6	416.0	419.3	420.9	423.5	426.2	430.0	432.1	435.9
60°	380.6	379.0	379.0	381.1	382.2	385.4	389.7	391.3	392.4	396.7	401.5
62.5°	344.1	342.5	342.0	345.2	345.2	348.4	350.0	352.7	357.0	358.6	365.0
65°	304.9	303.8	303.8	306.5	307.1	313.0	313.0	313.0	315.6	321.6	324.8
67.5°	264.1	264.7	266.3	267.9	270.0	271.6	272.2	275.4	279.7	283.4	289.9
70°	223.3	226.0	229.2	228.7	230.3	233.0	233.5	236.7	240.5	245.3	252.8
72.5°	186.8	188.4	191.6	191.6	193.8	195.4	198.1	200.2	205.1	209.4	212.6
75°	150.3	150.8	153.5	155.1	156.8	157.8	160.5	164.3	166.9	170.7	175.5
77.5°	118.1	117.0	119.2	119.7	120.8	122.9	125.1	128.8	131.0	135.3	136.9
80°	83.7	85.9	86.4	87.0	88.0	90.7	92.3	93.9	96.1	99.8	101.5
82.5°	55.3	56.4	58.0	58.5	59.6	60.1	60.7	63.3	65.0	66.0	71.4
85°	32.2	33.8	32.7	32.7	33.8	34.4	36.5	36.5	38.7	37.6	40.3
87.5°	14.0	13.4	13.4	14.0	13.4	12.9	14.5	14.5	14.0	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

TEST NUMBER: P243349

CATALOG NUMBER: S123DR-H1000D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1172.4	1172.4	1172.4	1172.4
2.5°	1107.5	1107.5	1103.2	1104.8
5°	1042.0	1044.1	1038.7	1037.1
7.5°	993.6	991.5	987.7	987.7
10°	946.4	944.3	942.6	942.6
12.5°	905.6	903.5	900.2	902.9
15°	869.1	869.6	867.5	867.5
17.5°	841.2	836.4	834.7	834.2
20°	807.9	809.0	806.8	803.1
22.5°	787.0	784.3	782.1	781.6
25°	765.5	762.8	762.3	760.1
27.5°	744.0	744.6	743.0	743.0
30°	726.3	727.9	726.3	726.8
32.5°	708.6	708.6	708.6	706.4
35°	689.3	689.8	689.3	688.2
37.5°	669.4	669.4	669.9	671.0
40°	647.4	647.4	648.5	648.5
42.5°	621.1	623.8	625.4	622.7
45°	597.5	598.0	598.5	598.0
47.5°	571.2	569.6	570.1	571.2
50°	538.4	542.2	542.2	539.0
52.5°	506.8	507.8	510.0	510.0
55°	475.6	476.2	476.7	477.8
57.5°	440.2	440.7	440.7	440.2
60°	404.8	408.0	407.4	408.0
62.5°	366.6	371.5	373.1	372.6
65°	330.7	331.8	334.4	338.2
67.5°	292.6	295.2	299.5	298.5
70°	255.0	258.7	259.8	262.0
72.5°	217.4	222.2	223.3	224.4
75°	180.9	183.1	185.2	184.7
77.5°	141.2	144.4	148.2	146.0
80°	105.8	106.3	109.5	108.4
82.5°	69.8	74.1	74.1	71.9
85°	40.8	40.8	40.8	40.8
87.5°	14.0	13.4	14.5	14.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)