

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: P243437

Luminaire Tested: **S123RDR-H1000D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243437
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-69)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123RDR-H1000D840-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3668.9 lumens
Efficiency: N/A
Efficacy: 116.5 lumens/watt
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

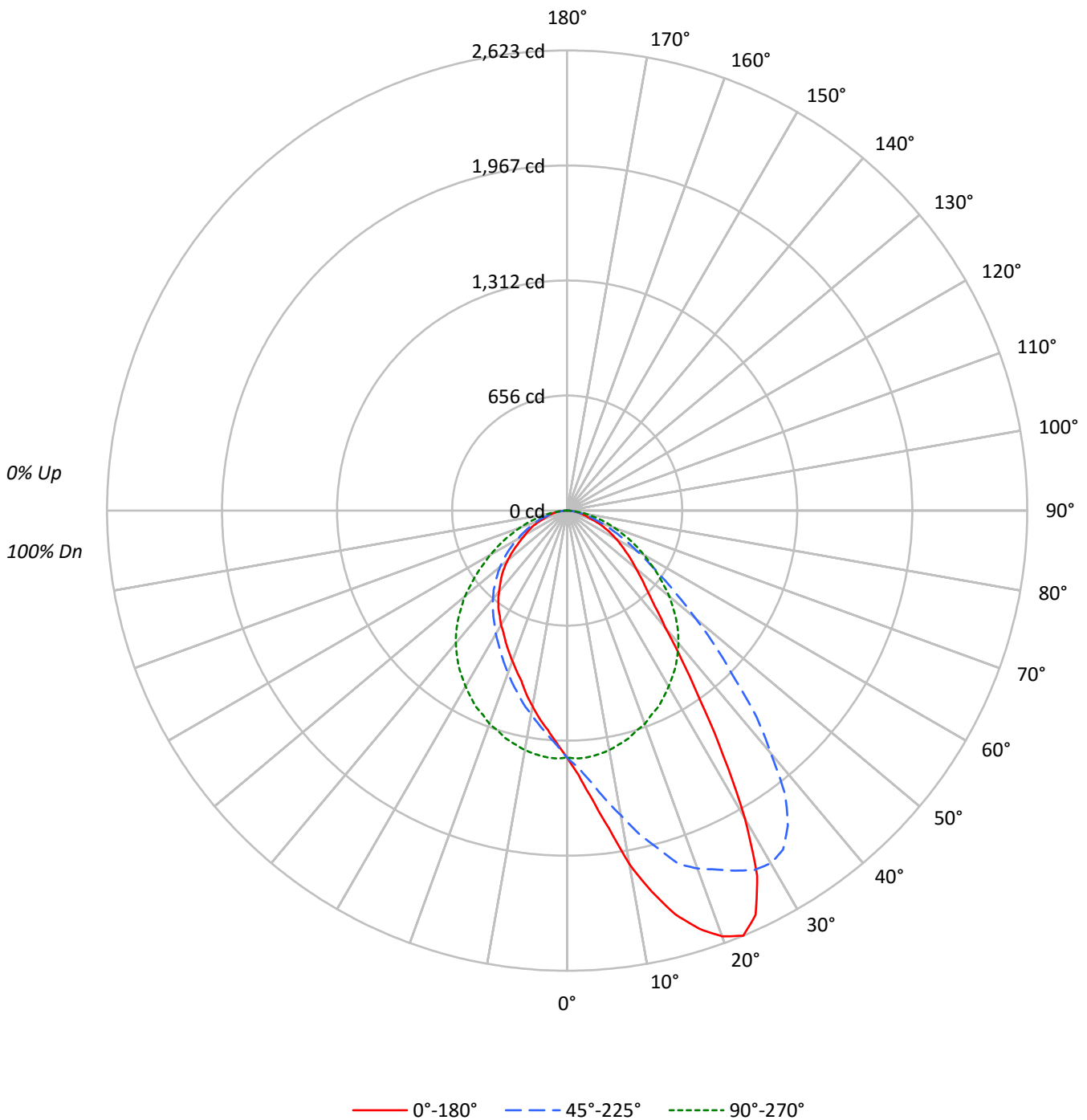
Input Watts (W): 31.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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				10	0
RW	70	50	30	10	70	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
1	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	89	87
2	101	94	88	83	99	92	86	82	89	84	80	85	81	78	82	79	76	74
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66	64
4	86	75	67	61	84	74	66	60	71	65	59	69	63	59	67	62	58	56
5	79	68	59	53	77	66	59	53	64	57	52	62	56	52	61	55	51	49
6	74	61	53	47	72	60	52	47	59	52	46	57	51	46	55	50	46	44
7	69	56	48	42	67	55	47	42	54	47	41	52	46	41	51	45	41	39
8	64	51	43	38	62	51	43	37	49	42	37	48	42	37	47	41	37	35
9	60	47	39	34	59	47	39	34	45	39	34	44	38	34	43	38	33	32
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31	29

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	17068	17068	17068
5°	20121	17162	15284
10°	25188	17062	13948
15°	29891	16891	12634
20°	33313	16689	11763
25°	34004	16481	11075
30°	28336	16202	10535
35°	19575	15977	10093
40°	13757	15613	9562
45°	11046	15059	9046
50°	9630	14343	8369
55°	8635	13271	7451
60°	7811	12262	6749
65°	6835	11300	6313
70°	5514	10171	5344
75°	4782	8856	5241
80°	4412	7553	5263
85°	3894	6092	4562



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.1	3.8
10°-20°	434.9	11.9
20°-30°	696.8	19.0
30°-40°	756.4	20.6
40°-50°	648.1	17.7
50°-60°	491.2	13.4
60°-70°	313.9	8.6
70°-80°	150.1	4.1
80°-90°	39.4	1.1
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°	1269.7	34.6
0°-40°	2026.1	55.2
0°-60°	3165.5	86.3
0°-90°	3668.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3668.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1408	1408	1408	1408	1408	
5°	1654	1552	1410	1282	1256	170
15°	2382	1991	1346	1081	1007	675
25°	2542	2265	1232	895	828	1128
35°	1323	2193	1080	733	682	850
45°	644	1342	878	580	528	509
55°	409	658	628	415	353	368
65°	238	317	394	251	220	237
75°	102	124	189	119	112	110
85°	28	29	44	35	33	32
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°	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1
2.5°	1509.0	1510.8	1507.8	1507.1	1506.5	1496.8	1493.8	1488.9	1471.9	1467.6	1464.6
5°	1653.7	1648.8	1654.3	1643.9	1632.4	1625.7	1614.8	1590.4	1569.2	1552.1	1541.2
7.5°	1825.1	1826.9	1821.5	1811.7	1788.6	1778.9	1749.1	1719.9	1692.0	1656.7	1630.6
10°	2046.4	2031.8	2034.9	2004.5	1980.1	1951.0	1910.2	1863.4	1814.2	1764.3	1727.2
12.5°	2222.7	2233.1	2225.8	2211.2	2164.4	2135.8	2098.7	2030.6	1952.8	1885.9	1829.4
15°	2382.0	2368.0	2369.9	2334.6	2317.6	2291.4	2230.0	2162.5	2112.1	1991.1	1924.2
17.5°	2498.7	2497.5	2495.7	2465.9	2445.2	2390.5	2327.9	2258.6	2195.4	2111.5	2027.6
20°	2582.6	2591.8	2589.3	2565.0	2528.5	2475.6	2437.9	2351.6	2247.7	2171.0	2068.3
22.5°	2622.8	2623.4	2624.6	2613.0	2588.7	2554.7	2501.2	2431.9	2339.5	2214.2	2099.9
25°	2542.5	2545.6	2561.4	2571.1	2577.8	2562.6	2534.6	2472.0	2392.3	2264.7	2146.1
27.5°	2345.5	2355.3	2372.9	2431.3	2455.0	2487.8	2499.4	2474.4	2415.5	2309.1	2174.1
30°	2024.5	2051.9	2068.9	2135.2	2228.2	2315.7	2357.1	2397.8	2392.3	2321.8	2185.0
32.5°	1657.3	1674.9	1724.2	1795.3	1868.9	1997.2	2140.7	2239.1	2294.5	2290.8	2194.2
35°	1322.9	1348.5	1390.4	1444.5	1546.1	1679.2	1841.5	1996.6	2135.2	2192.9	2158.3
37.5°	1073.7	1076.1	1115.6	1192.2	1255.5	1372.8	1519.3	1710.8	1892.6	2043.4	2076.8
40°	869.4	886.4	907.1	955.1	1029.9	1142.4	1239.6	1428.1	1616.6	1805.7	1940.6
42.5°	740.5	740.5	763.6	794.0	843.9	911.3	1027.5	1198.3	1367.9	1600.2	1752.2
45°	644.4	650.5	660.9	680.3	715.6	767.9	857.8	974.0	1147.2	1342.4	1571.0
47.5°	575.1	574.5	583.6	595.2	622.6	662.1	715.0	809.2	937.5	1147.8	1349.7
50°	510.7	513.1	519.8	529.5	547.8	575.7	609.2	680.3	788.5	955.1	1166.7
52.5°	460.8	460.2	465.7	471.8	485.8	501.6	531.4	584.3	659.0	791.6	967.3
55°	408.6	411.0	417.7	421.3	432.9	443.2	468.1	497.9	558.1	657.8	817.7
57.5°	363.6	366.6	370.3	373.9	381.8	392.1	412.8	431.0	474.8	546.6	674.2
60°	322.2	321.0	325.3	331.3	335.6	344.7	356.3	375.1	405.5	456.6	550.2
62.5°	280.9	281.5	282.1	285.7	293.6	301.6	311.9	325.9	344.1	381.8	448.1
65°	238.3	238.9	240.1	243.8	251.7	256.6	267.5	279.7	294.3	316.8	363.0
67.5°	200.6	203.1	203.1	206.1	209.1	214.0	221.9	231.0	243.2	259.6	289.4
70°	155.6	155.0	158.1	164.2	167.2	175.7	181.2	187.3	198.2	208.5	234.1
72.5°	125.2	125.2	125.2	127.7	128.3	130.1	133.8	146.5	155.0	165.4	179.4
75°	102.1	102.7	102.7	103.4	104.0	105.8	107.0	110.6	113.1	124.0	132.5
77.5°	81.5	82.1	82.1	82.7	83.3	83.9	86.3	86.3	88.2	90.6	94.2
80°	63.2	62.6	62.6	63.2	63.2	65.1	65.1	66.3	66.9	68.1	69.9
82.5°	45.0	44.4	45.0	44.4	45.0	45.6	46.8	46.2	47.4	48.6	49.2
85°	28.0	28.6	28.6	29.8	29.2	28.6	29.2	29.2	29.2	29.2	30.4
87.5°	12.2	13.4	13.4	12.8	13.4	13.4	12.2	13.4	13.4	13.4	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



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1
2.5°	1462.8	1460.3	1451.2	1442.7	1429.9	1424.5	1417.2	1414.1	1404.4	1391.0	1384.9
5°	1530.9	1512.6	1495.0	1473.7	1456.1	1435.4	1423.9	1410.5	1389.8	1371.0	1357.6
7.5°	1603.2	1576.5	1543.6	1508.4	1476.8	1447.0	1421.4	1400.1	1373.4	1347.3	1326.6
10°	1682.9	1637.3	1584.4	1539.4	1493.8	1450.6	1418.4	1386.2	1351.5	1318.7	1293.8
12.5°	1768.6	1704.1	1640.3	1572.8	1504.7	1454.9	1406.8	1365.5	1326.6	1291.9	1262.1
15°	1857.3	1769.2	1687.7	1611.7	1516.9	1450.0	1397.1	1346.0	1297.4	1254.8	1225.7
17.5°	1920.6	1819.6	1716.9	1609.3	1527.8	1445.1	1379.5	1315.0	1270.0	1226.3	1186.8
20°	1978.9	1864.6	1742.4	1642.1	1528.4	1427.5	1355.8	1293.8	1231.1	1184.3	1150.9
22.5°	2003.9	1900.5	1777.1	1637.9	1524.2	1420.8	1328.4	1258.5	1202.6	1151.5	1107.7
25°	2008.7	1893.2	1766.8	1632.4	1507.8	1395.9	1302.3	1232.3	1159.4	1106.5	1072.5
27.5°	2030.0	1871.9	1747.9	1614.2	1487.7	1371.0	1272.5	1194.7	1126.6	1070.0	1026.2
30°	2035.5	1862.8	1707.8	1580.1	1450.0	1335.7	1236.0	1157.6	1083.4	1025.6	986.1
32.5°	2037.9	1850.7	1665.8	1526.0	1402.0	1294.4	1203.2	1118.1	1047.5	986.7	946.0
35°	2029.4	1833.6	1615.4	1464.6	1345.4	1239.6	1155.1	1079.7	1001.3	944.2	901.0
37.5°	1996.0	1806.9	1586.8	1392.9	1279.2	1179.5	1107.7	1033.5	961.2	899.2	854.8
40°	1932.7	1768.0	1533.3	1332.7	1203.8	1114.4	1047.5	986.7	913.8	854.2	810.4
42.5°	1831.8	1715.1	1484.0	1264.6	1129.0	1044.5	988.6	936.3	870.6	814.1	766.0
45°	1682.2	1640.9	1418.4	1195.3	1047.5	967.9	919.2	878.5	818.9	767.3	722.9
47.5°	1520.5	1529.6	1352.1	1124.7	973.4	897.4	854.8	818.9	773.9	718.6	677.9
50°	1333.9	1383.7	1259.1	1053.6	899.2	824.4	782.5	760.6	718.6	672.4	634.1
52.5°	1163.0	1242.1	1164.9	975.8	826.2	752.7	713.8	691.9	663.9	625.6	586.7
55°	986.1	1086.4	1030.5	891.9	752.1	677.9	645.1	628.0	604.9	575.1	539.9
57.5°	839.6	946.6	911.3	803.7	679.7	612.8	583.6	564.2	550.2	522.9	494.3
60°	696.1	795.2	781.2	702.2	608.0	544.1	521.6	505.8	494.3	474.2	446.2
62.5°	561.8	657.8	666.3	604.3	538.1	480.3	459.6	448.7	439.6	423.8	398.2
65°	445.6	530.1	547.8	500.4	464.5	420.7	400.6	394.0	387.3	369.0	349.6
67.5°	349.0	415.2	438.3	411.6	386.1	360.5	344.7	335.6	330.7	319.8	306.4
70°	266.9	324.0	343.5	331.9	314.9	305.2	293.0	287.0	282.1	268.1	260.8
72.5°	200.0	238.9	263.2	259.6	256.0	249.3	242.0	240.1	232.9	223.7	217.0
75°	146.5	169.0	190.9	198.8	197.6	200.0	192.1	189.1	184.8	178.1	172.7
77.5°	105.2	118.6	133.8	143.5	148.3	149.0	149.0	147.1	144.1	139.2	135.0
80°	73.0	76.0	90.0	99.1	104.0	107.6	107.6	108.2	105.2	103.4	100.3
82.5°	50.5	52.3	55.3	62.6	68.7	73.0	73.6	73.0	71.7	71.1	66.9
85°	31.6	31.0	31.0	32.8	37.7	41.9	42.6	43.8	43.2	42.6	38.3
87.5°	13.4	13.4	14.0	13.4	15.2	15.8	17.0	20.1	19.5	16.4	15.2
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1	1408.1
2.5°	1381.3	1373.4	1366.1	1358.2	1348.5	1339.4	1338.1	1336.9	1340.0	1333.9	1331.4
5°	1347.3	1332.1	1320.5	1305.9	1295.6	1282.2	1274.9	1273.1	1272.5	1268.8	1264.0
7.5°	1310.2	1293.8	1277.3	1260.9	1243.9	1229.9	1222.0	1217.8	1214.1	1208.0	1203.2
10°	1275.5	1254.8	1237.2	1214.7	1196.5	1178.2	1170.9	1164.9	1161.2	1152.7	1146.0
12.5°	1236.6	1210.5	1191.0	1166.7	1150.3	1134.5	1122.9	1111.4	1102.9	1090.1	1084.6
15°	1202.6	1175.2	1142.4	1127.8	1104.7	1081.0	1068.2	1068.2	1050.6	1040.2	1033.5
17.5°	1157.0	1133.2	1110.1	1080.4	1047.5	1033.5	1019.0	1006.2	994.0	991.0	978.8
20°	1116.8	1088.9	1065.2	1032.9	1003.1	986.7	969.7	955.7	946.6	938.1	931.4
22.5°	1077.3	1049.4	1012.9	981.3	961.2	939.3	921.1	908.9	901.0	888.2	882.2
25°	1036.0	1002.5	969.7	938.7	913.8	894.9	876.1	869.4	855.4	848.7	840.2
27.5°	994.6	954.5	923.5	896.8	868.8	850.5	837.8	825.6	813.5	809.8	804.9
30°	948.4	911.3	881.6	855.4	828.7	812.9	797.7	786.7	776.4	768.5	763.0
32.5°	902.2	871.2	842.6	812.2	787.9	770.9	758.1	748.4	743.5	730.2	725.3
35°	859.7	828.1	797.7	769.1	749.6	733.2	721.7	712.5	702.2	693.7	688.8
37.5°	815.9	787.3	756.3	732.0	710.1	696.7	684.0	671.8	663.9	659.0	653.0
40°	773.3	742.9	719.2	692.5	673.0	657.8	644.4	635.3	625.6	621.3	613.4
42.5°	733.2	704.0	676.7	652.3	634.7	620.1	607.4	597.0	589.1	581.2	577.0
45°	687.0	661.5	636.5	612.2	595.8	580.0	566.0	556.9	546.0	539.3	536.8
47.5°	648.1	621.3	594.6	572.1	555.1	538.1	526.5	515.6	506.4	499.7	496.1
50°	601.9	577.0	555.1	532.6	516.2	497.9	483.9	473.6	463.3	458.4	452.3
52.5°	562.4	538.1	511.3	491.2	472.4	456.6	443.8	435.3	426.2	418.9	414.6
55°	513.1	489.4	468.1	446.9	428.0	415.2	404.9	390.3	382.4	375.1	363.6
57.5°	470.0	447.5	425.0	404.3	386.7	371.5	358.7	349.0	338.6	333.2	325.3
60°	424.4	400.6	380.0	364.2	344.7	328.3	319.8	308.2	299.7	291.2	288.8
62.5°	379.4	357.5	336.8	320.4	302.8	290.0	279.1	273.6	265.1	258.4	256.0
65°	332.6	314.3	294.9	276.6	265.7	251.1	245.0	235.9	231.0	228.0	227.4
67.5°	286.4	269.9	252.3	238.3	228.0	218.3	211.0	207.3	202.5	198.8	195.8
70°	244.4	228.6	213.4	201.8	193.9	186.6	181.8	175.1	170.2	165.4	158.7
72.5°	203.1	190.3	177.5	168.4	160.5	156.2	149.6	139.2	134.4	133.1	132.5
75°	164.8	150.8	141.7	136.8	129.5	119.2	114.9	113.7	113.1	111.9	111.9
77.5°	127.1	118.6	112.5	102.1	98.5	97.9	94.8	94.2	93.0	93.6	93.6
80°	92.4	87.5	80.3	77.2	76.0	76.6	75.4	76.0	74.8	75.4	74.2
82.5°	61.4	57.1	58.4	56.5	56.5	57.8	57.1	55.3	55.3	54.7	54.7
85°	36.5	35.9	37.1	37.1	36.5	34.7	35.9	35.3	33.4	34.0	34.0
87.5°	15.8	15.8	15.8	15.2	15.8	15.2	15.2	15.2	13.4	13.4	13.4
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: P243437

CATALOG NUMBER: S123RDR-H1000D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1408.1	1408.1	1408.1	1408.1
2.5°	1332.7	1331.4	1329.6	1327.8
5°	1264.0	1258.5	1257.9	1256.1
7.5°	1199.5	1197.1	1192.8	1197.7
10°	1140.5	1142.4	1138.1	1133.2
12.5°	1079.1	1075.5	1068.8	1072.5
15°	1025.0	1019.0	1015.3	1006.8
17.5°	968.5	963.6	963.6	958.2
20°	919.2	914.4	915.6	911.9
22.5°	877.9	874.3	868.8	869.4
25°	839.0	833.5	827.4	828.1
27.5°	795.8	791.0	789.7	785.5
30°	757.5	753.3	752.7	752.7
32.5°	720.4	718.6	715.6	713.8
35°	688.2	685.8	680.9	682.1
37.5°	648.1	645.7	645.1	644.4
40°	610.4	608.6	603.7	604.3
42.5°	572.7	569.7	566.6	565.4
45°	532.0	531.4	526.5	527.7
47.5°	493.1	491.8	489.4	486.4
50°	449.9	449.3	447.5	443.8
52.5°	407.9	406.1	402.5	398.8
55°	360.5	355.1	355.7	352.6
57.5°	321.6	319.2	314.3	312.5
60°	283.9	281.5	280.9	278.4
62.5°	252.3	249.9	248.1	248.1
65°	223.7	220.7	220.1	220.1
67.5°	192.1	189.1	188.5	187.3
70°	152.6	152.0	150.8	150.8
72.5°	131.3	130.7	131.3	128.9
75°	111.9	111.3	111.3	111.9
77.5°	93.0	93.0	92.4	92.4
80°	73.6	74.2	73.6	75.4
82.5°	55.3	54.1	54.7	53.5
85°	34.0	34.0	32.8	32.8
87.5°	13.4	13.4	13.4	13.4
90°	0.0	0.0	0.0	0.0

(END OF REPORT)