

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: P243448

Luminaire Tested: **S123RDR-H1165D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243448  
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-H1165D935-X4F0-XX-UDD-A-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

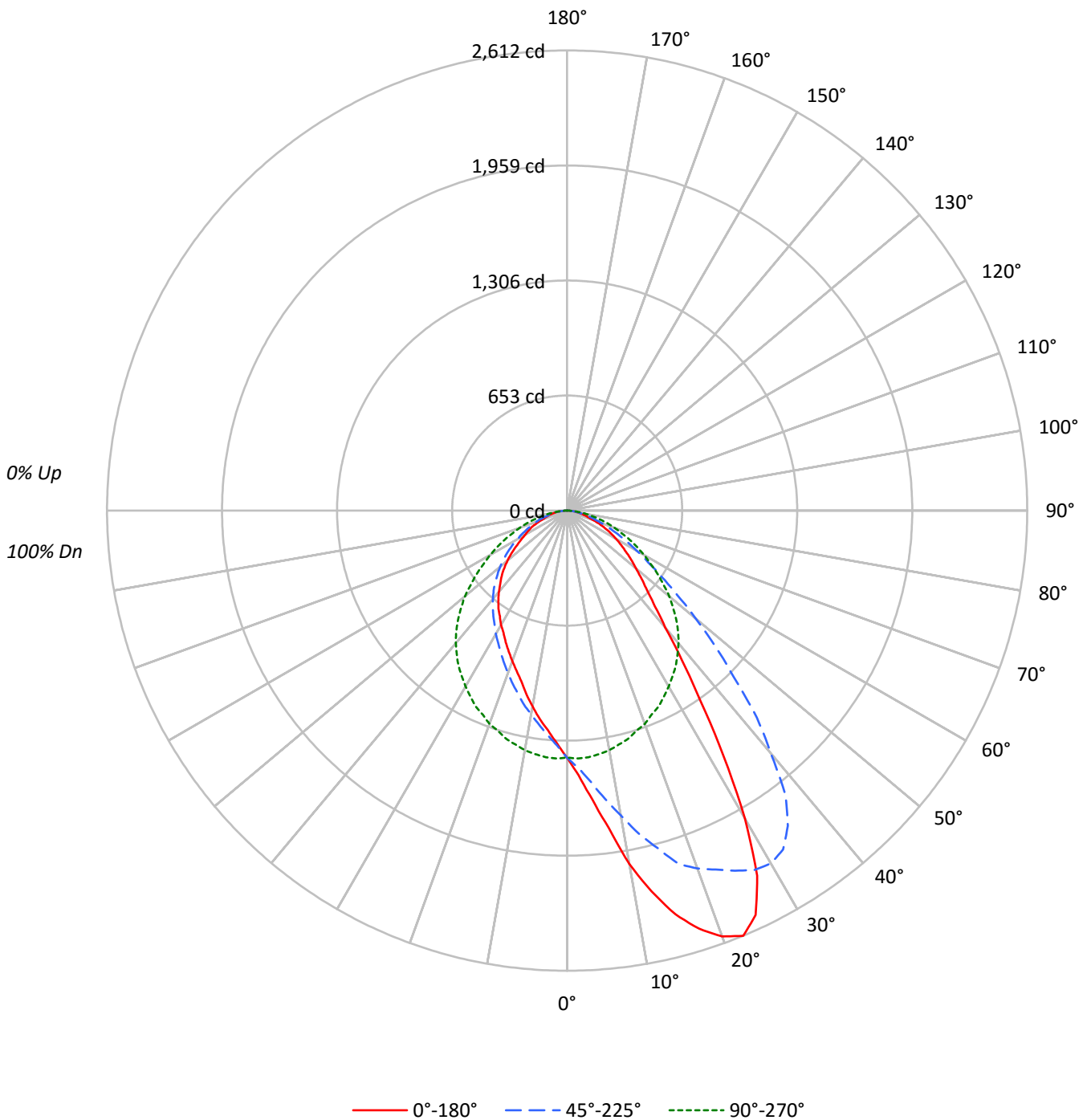
Lumens per Lamp: N/A  
Luminaire Lumens: 3654.1 lumens  
Efficiency: N/A  
Efficacy: 96.9 lumens/watt  
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4  
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 37.7  
Input Voltage (V): 120  
Input Current (Ain): 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				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°	16999	16999	16999
5°	20040	17093	15222
10°	25087	16993	13892
15°	29772	16823	12584
20°	33180	16622	11716
25°	33868	16416	11030
30°	28222	16136	10492
35°	19497	15913	10053
40°	13701	15551	9524
45°	11003	14999	9010
50°	9591	14284	8335
55°	8599	13219	7422
60°	7779	12213	6722
65°	6809	11255	6287
70°	5493	10129	5323
75°	4763	8819	5217
80°	4398	7525	5242
85°	3880	6064	4548



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	137.5	3.8
10°-20°	433.1	11.9
20°-30°	694.0	19.0
30°-40°	753.4	20.6
40°-50°	645.5	17.7
50°-60°	489.3	13.4
60°-70°	312.6	8.6
70°-80°	149.5	4.1
80°-90°	39.2	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°	1264.6	34.6
0°-40°	2018.0	55.2
0°-60°	3152.7	86.3
0°-90°	3654.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3654.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1402	1402	1402	1402	1402	
5°	1647	1546	1405	1277	1251	169
15°	2372	1983	1341	1077	1003	673
25°	2532	2256	1227	891	825	1124
35°	1318	2184	1075	730	679	846
45°	642	1337	875	578	526	507
55°	407	655	626	414	351	367
65°	237	316	392	250	219	236
75°	102	124	188	119	111	110
85°	28	29	44	34	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°	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4
2.5°	1502.9	1504.7	1501.7	1501.1	1500.5	1490.8	1487.8	1482.9	1466.0	1461.7	1458.7
5°	1647.0	1642.2	1647.6	1637.3	1625.8	1619.2	1608.3	1584.1	1562.9	1545.9	1535.0
7.5°	1817.8	1819.6	1814.2	1804.5	1781.5	1771.8	1742.1	1713.0	1685.2	1650.1	1624.0
10°	2038.2	2023.7	2026.7	1996.4	1972.2	1943.1	1902.6	1855.9	1806.9	1757.2	1720.3
12.5°	2213.8	2224.1	2216.8	2202.3	2155.7	2127.2	2090.3	2022.5	1945.0	1878.3	1822.0
15°	2372.5	2358.5	2360.3	2325.2	2308.3	2282.2	2221.1	2153.9	2103.6	1983.1	1916.5
17.5°	2488.7	2487.5	2485.7	2456.0	2435.4	2380.9	2318.6	2249.5	2186.6	2103.0	2019.4
20°	2572.3	2581.4	2578.9	2554.7	2518.4	2465.7	2428.2	2342.2	2238.6	2162.3	2060.0
22.5°	2612.2	2612.8	2614.1	2602.6	2578.3	2544.4	2491.1	2422.1	2330.1	2205.3	2091.5
25°	2532.3	2535.3	2551.1	2560.8	2567.4	2552.3	2524.4	2462.1	2382.7	2255.6	2137.5
27.5°	2336.1	2345.8	2363.4	2421.5	2445.1	2477.8	2489.3	2464.5	2405.8	2299.8	2165.4
30°	2016.4	2043.7	2060.6	2126.6	2219.3	2306.5	2347.6	2388.2	2382.7	2312.5	2176.3
32.5°	1650.7	1668.2	1717.3	1788.1	1861.4	1989.2	2132.1	2230.2	2285.3	2281.6	2185.3
35°	1317.6	1343.1	1384.8	1438.7	1539.9	1672.5	1834.1	1988.5	2126.6	2184.1	2149.6
37.5°	1069.4	1071.8	1111.1	1187.4	1250.4	1367.3	1513.2	1704.0	1885.0	2035.2	2068.5
40°	865.9	882.9	903.4	951.3	1025.8	1137.8	1234.7	1422.4	1610.1	1798.4	1932.8
42.5°	737.5	737.5	760.5	790.8	840.5	907.7	1023.3	1193.5	1362.4	1593.7	1745.1
45°	641.9	647.9	658.2	677.6	712.7	764.8	854.4	970.1	1142.6	1337.0	1564.7
47.5°	572.8	572.2	581.3	592.8	620.1	659.4	712.1	806.0	933.7	1143.2	1344.3
50°	508.6	511.1	517.7	527.4	545.6	573.4	606.7	677.6	785.4	951.3	1162.0
52.5°	459.0	458.4	463.8	469.9	483.8	499.6	529.2	581.9	656.4	788.4	963.4
55°	406.9	409.3	416.0	419.6	431.1	441.4	466.3	495.9	555.9	655.2	814.4
57.5°	362.1	365.1	368.8	372.4	380.3	390.6	411.2	429.3	472.9	544.4	671.5
60°	320.9	319.7	324.0	330.0	334.3	343.3	354.8	373.6	403.9	454.8	548.0
62.5°	279.8	280.4	281.0	284.6	292.5	300.3	310.6	324.6	342.7	380.3	446.3
65°	237.4	238.0	239.2	242.8	250.7	255.5	266.4	278.5	293.1	315.5	361.5
67.5°	199.8	202.2	202.2	205.3	208.3	213.1	221.0	230.1	242.2	258.6	288.2
70°	155.0	154.4	157.4	163.5	166.5	175.0	180.4	186.5	197.4	207.7	233.1
72.5°	124.7	124.7	124.7	127.2	127.8	129.6	133.2	145.9	154.4	164.7	178.6
75°	101.7	102.3	102.3	102.9	103.5	105.4	106.6	110.2	112.6	123.5	132.0
77.5°	81.1	81.7	81.7	82.4	83.0	83.6	86.0	86.0	87.8	90.2	93.9
80°	63.0	62.4	62.4	63.0	63.0	64.8	64.8	66.0	66.6	67.8	69.6
82.5°	44.8	44.2	44.8	44.2	44.8	45.4	46.6	46.0	47.2	48.4	49.0
85°	27.9	28.5	28.5	29.7	29.1	28.5	29.1	29.1	29.1	29.1	30.3
87.5°	12.1	13.3	13.3	12.7	13.3	13.3	12.1	13.3	13.3	13.3	13.9
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):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4
2.5°	1456.9	1454.5	1445.4	1436.9	1424.2	1418.7	1411.5	1408.5	1398.8	1385.4	1379.4
5°	1524.7	1506.5	1489.0	1467.8	1450.2	1429.6	1418.1	1404.8	1384.2	1365.5	1352.1
7.5°	1596.8	1570.1	1537.4	1502.3	1470.8	1441.2	1415.7	1394.5	1367.9	1341.8	1321.3
10°	1676.1	1630.7	1578.0	1533.2	1487.8	1444.8	1412.7	1380.6	1346.1	1313.4	1288.6
12.5°	1761.5	1697.3	1633.7	1566.5	1498.7	1449.0	1401.2	1360.0	1321.3	1286.7	1257.1
15°	1849.9	1762.1	1680.9	1605.3	1510.8	1444.2	1391.5	1340.6	1292.2	1249.8	1220.7
17.5°	1912.9	1812.3	1710.0	1602.8	1521.7	1439.3	1373.9	1309.8	1264.9	1221.3	1182.0
20°	1971.0	1857.1	1735.4	1635.5	1522.3	1421.8	1350.3	1288.6	1226.2	1179.6	1146.3
22.5°	1995.8	1892.9	1770.0	1631.3	1518.1	1415.1	1323.1	1253.4	1197.7	1146.9	1103.3
25°	2000.7	1885.6	1759.7	1625.8	1501.7	1390.3	1297.0	1227.4	1154.7	1102.1	1068.1
27.5°	2021.9	1864.4	1740.9	1607.7	1481.7	1365.5	1267.4	1189.9	1122.0	1065.7	1022.1
30°	2027.3	1855.3	1700.9	1573.8	1444.2	1330.3	1231.0	1152.9	1079.0	1021.5	982.2
32.5°	2029.7	1843.2	1659.1	1519.9	1396.3	1289.2	1198.3	1113.6	1043.3	982.8	942.2
35°	2021.2	1826.3	1608.9	1458.7	1340.0	1234.7	1150.5	1075.4	997.3	940.4	897.4
37.5°	1987.9	1799.6	1580.4	1387.3	1274.0	1174.7	1103.3	1029.4	957.3	895.6	851.4
40°	1925.0	1760.9	1527.1	1327.3	1198.9	1109.9	1043.3	982.8	910.1	850.8	807.2
42.5°	1824.5	1708.2	1478.1	1259.5	1124.5	1040.3	984.6	932.5	867.1	810.8	763.0
45°	1675.5	1634.3	1412.7	1190.5	1043.3	964.0	915.6	875.0	815.6	764.2	720.0
47.5°	1514.4	1523.5	1346.7	1120.2	969.4	893.8	851.4	815.6	770.8	715.7	675.2
50°	1328.5	1378.2	1254.0	1049.4	895.6	821.1	779.3	757.5	715.7	669.7	631.6
52.5°	1158.4	1237.1	1160.2	971.9	822.9	749.6	710.9	689.1	661.2	623.1	584.3
55°	982.2	1082.1	1026.4	888.3	749.0	675.2	642.5	625.5	602.5	572.8	537.7
57.5°	836.2	942.8	907.7	800.5	677.0	610.4	581.3	561.9	548.0	520.8	492.3
60°	693.3	792.0	778.1	699.4	605.5	541.9	519.5	503.8	492.3	472.3	444.5
62.5°	559.5	655.2	663.7	601.9	535.9	478.4	457.8	446.9	437.8	422.1	396.6
65°	443.9	528.0	545.6	498.3	462.6	419.0	399.0	392.4	385.7	367.6	348.2
67.5°	347.6	413.6	436.6	409.9	384.5	359.1	343.3	334.3	329.4	318.5	305.2
70°	265.8	322.7	342.1	330.6	313.7	304.0	291.9	285.8	281.0	267.0	259.8
72.5°	199.2	238.0	262.2	258.6	254.9	248.3	241.0	239.2	231.9	222.8	216.2
75°	145.9	168.3	190.1	198.0	196.8	199.2	191.3	188.3	184.1	177.4	172.0
77.5°	104.8	118.1	133.2	142.9	147.7	148.4	148.4	146.5	143.5	138.7	134.4
80°	72.7	75.7	89.6	98.7	103.5	107.2	107.2	107.8	104.8	102.9	99.9
82.5°	50.3	52.1	55.1	62.4	68.4	72.7	73.3	72.7	71.5	70.8	66.6
85°	31.5	30.9	30.9	32.7	37.5	41.8	42.4	43.6	43.0	42.4	38.1
87.5°	13.3	13.3	13.9	13.3	15.1	15.7	17.0	20.0	19.4	16.3	15.1
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°	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4	1402.4
2.5°	1375.8	1367.9	1360.6	1352.7	1343.1	1334.0	1332.8	1331.6	1334.6	1328.5	1326.1
5°	1341.8	1326.7	1315.2	1300.7	1290.4	1277.1	1269.8	1268.0	1267.4	1263.7	1258.9
7.5°	1304.9	1288.6	1272.2	1255.9	1238.9	1225.0	1217.1	1212.9	1209.2	1203.2	1198.3
10°	1270.4	1249.8	1232.2	1209.8	1191.7	1173.5	1166.2	1160.2	1156.6	1148.1	1141.4
12.5°	1231.6	1205.6	1186.2	1162.0	1145.7	1129.9	1118.4	1106.9	1098.4	1085.7	1080.3
15°	1197.7	1170.5	1137.8	1123.3	1100.2	1076.6	1063.9	1063.9	1046.3	1036.1	1029.4
17.5°	1152.3	1128.7	1105.7	1076.0	1043.3	1029.4	1014.9	1002.1	990.0	987.0	974.9
20°	1112.4	1084.5	1060.9	1028.8	999.1	982.8	965.8	951.9	942.8	934.3	927.7
22.5°	1073.0	1045.1	1008.8	977.3	957.3	935.5	917.4	905.3	897.4	884.7	878.6
25°	1031.8	998.5	965.8	934.9	910.1	891.3	872.6	865.9	852.0	845.3	836.8
27.5°	990.6	950.7	919.8	893.2	865.3	847.1	834.4	822.3	810.2	806.6	801.7
30°	944.6	907.7	878.0	852.0	825.3	809.6	794.5	783.6	773.3	765.4	759.9
32.5°	898.6	867.7	839.3	809.0	784.8	767.8	755.1	745.4	740.6	727.2	722.4
35°	856.2	824.7	794.5	766.0	746.6	730.3	718.8	709.7	699.4	690.9	686.1
37.5°	812.6	784.2	753.3	729.1	707.3	693.9	681.2	669.1	661.2	656.4	650.3
40°	770.2	740.0	716.3	689.7	670.3	655.2	641.9	632.8	623.1	618.8	611.0
42.5°	730.3	701.2	674.0	649.7	632.2	617.6	604.9	594.6	586.8	578.9	574.6
45°	684.2	658.8	634.0	609.8	593.4	577.7	563.7	554.7	543.8	537.1	534.7
47.5°	645.5	618.8	592.2	569.8	552.8	535.9	524.4	513.5	504.4	497.7	494.1
50°	599.5	574.6	552.8	530.4	514.1	495.9	482.0	471.7	461.4	456.6	450.5
52.5°	560.1	535.9	509.2	489.3	470.5	454.8	442.0	433.6	424.5	417.2	413.0
55°	511.1	487.4	466.3	445.1	426.3	413.6	403.3	388.7	380.9	373.6	362.1
57.5°	468.1	445.7	423.3	402.7	385.1	370.0	357.3	347.6	337.3	331.8	324.0
60°	422.7	399.0	378.5	362.7	343.3	327.0	318.5	307.0	298.5	290.0	287.6
62.5°	377.8	356.0	335.5	319.1	301.6	288.8	277.9	272.5	264.0	257.3	254.9
65°	331.2	313.1	293.7	275.5	264.6	250.1	244.0	234.9	230.1	227.1	226.5
67.5°	285.2	268.9	251.3	237.4	227.1	217.4	210.1	206.5	201.6	198.0	195.0
70°	243.4	227.7	212.5	201.0	193.2	185.9	181.1	174.4	169.5	164.7	158.0
72.5°	202.2	189.5	176.8	167.7	159.9	155.6	149.0	138.7	133.8	132.6	132.0
75°	164.1	150.2	141.1	136.2	129.0	118.7	114.4	113.2	112.6	111.4	111.4
77.5°	126.6	118.1	112.0	101.7	98.1	97.5	94.5	93.9	92.6	93.3	93.3
80°	92.0	87.2	79.9	76.9	75.7	76.3	75.1	75.7	74.5	75.1	73.9
82.5°	61.2	56.9	58.1	56.3	56.3	57.5	56.9	55.1	55.1	54.5	54.5
85°	36.3	35.7	36.9	36.9	36.3	34.5	35.7	35.1	33.3	33.9	33.9
87.5°	15.7	15.7	15.7	15.1	15.7	15.1	15.1	15.1	13.3	13.3	13.3
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: P243448

CATALOG NUMBER: S123RDR-H1165D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1402.4	1402.4	1402.4	1402.4
2.5°	1327.3	1326.1	1324.3	1322.5
5°	1258.9	1253.4	1252.8	1251.0
7.5°	1194.7	1192.3	1188.0	1192.9
10°	1136.0	1137.8	1133.5	1128.7
12.5°	1074.8	1071.2	1064.5	1068.1
15°	1020.9	1014.9	1011.2	1002.8
17.5°	964.6	959.8	959.8	954.3
20°	915.6	910.7	911.9	908.3
22.5°	874.4	870.7	865.3	865.9
25°	835.6	830.2	824.1	824.7
27.5°	792.6	787.8	786.6	782.3
30°	754.5	750.2	749.6	749.6
32.5°	717.5	715.7	712.7	710.9
35°	685.5	683.0	678.2	679.4
37.5°	645.5	643.1	642.5	641.9
40°	607.9	606.1	601.3	601.9
42.5°	570.4	567.4	564.4	563.1
45°	529.8	529.2	524.4	525.6
47.5°	491.1	489.9	487.4	484.4
50°	448.1	447.5	445.7	442.0
52.5°	406.3	404.5	400.9	397.2
55°	359.1	353.6	354.2	351.2
57.5°	320.3	317.9	313.1	311.2
60°	282.8	280.4	279.8	277.3
62.5°	251.3	248.9	247.1	247.1
65°	222.8	219.8	219.2	219.2
67.5°	191.3	188.3	187.7	186.5
70°	152.0	151.4	150.2	150.2
72.5°	130.8	130.2	130.8	128.4
75°	111.4	110.8	110.8	111.4
77.5°	92.6	92.6	92.0	92.0
80°	73.3	73.9	73.3	75.1
82.5°	55.1	53.9	54.5	53.3
85°	33.9	33.9	32.7	32.7
87.5°	13.3	13.3	13.3	13.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)