

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: P242588

Luminaire Tested: **S123RDR-S1165D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242588  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-30)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123RDR-S1165D935-X4F0-XX-UDD-A-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3711.3 lumens  
Efficiency: N/A  
Efficacy: 90.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.35  
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')  
CIE Type: Direct

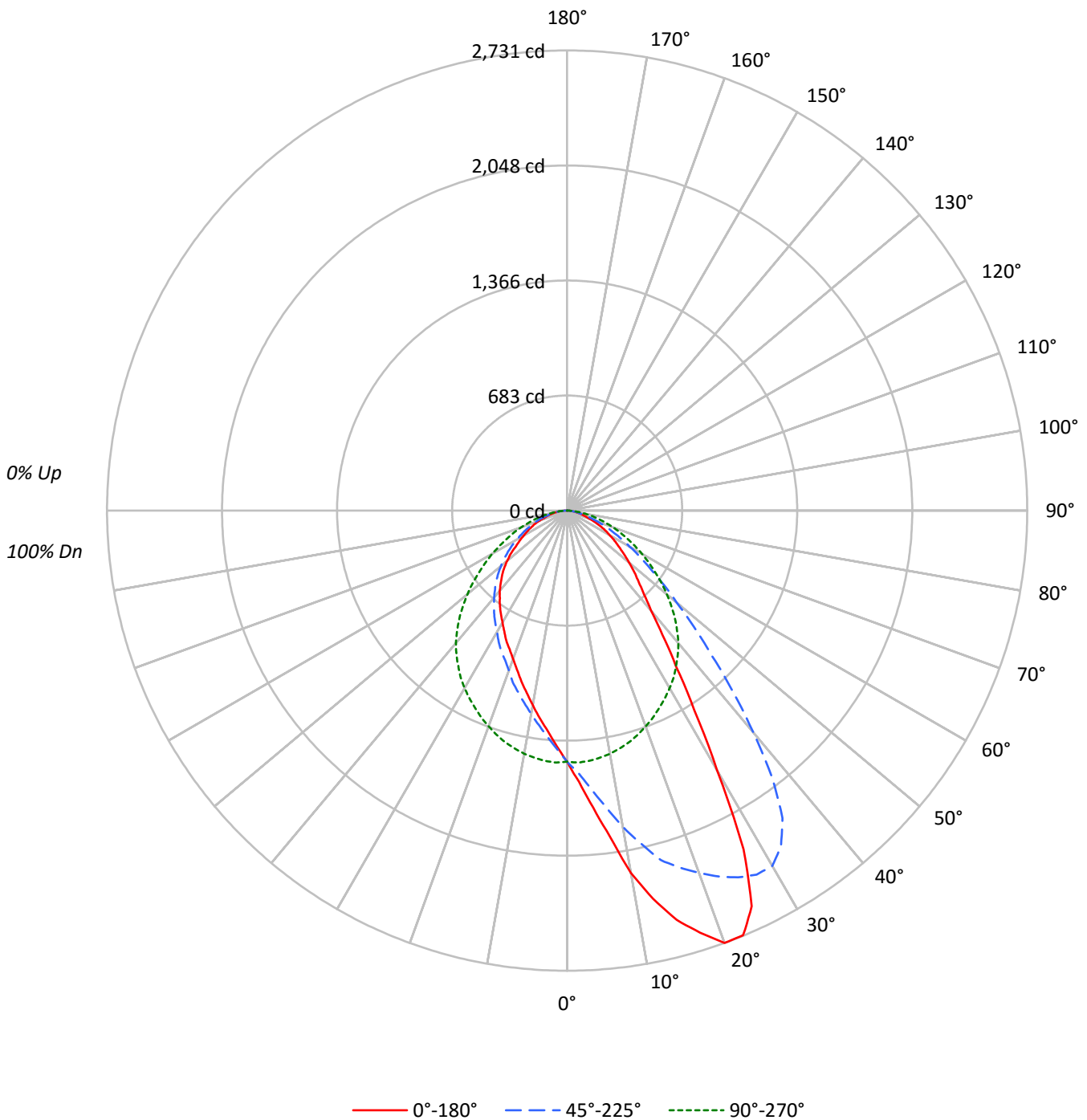
Input Watts (W): 41.1  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	108	104	100	97	100	97	94	96	93	91	92	90	89	87
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	74
3	93	84	76	71	91	82	75	70	79	74	69	77	72	68	74	70	66	64
4	86	75	67	61	84	74	66	61	71	65	60	69	64	59	67	62	58	56
5	80	68	60	53	78	67	59	53	65	58	53	63	57	52	61	56	52	50
6	74	62	53	47	72	61	53	47	59	52	47	57	51	46	56	50	46	44
7	69	56	48	42	67	55	48	42	54	47	42	53	46	42	51	46	41	39
8	64	52	44	38	63	51	43	38	50	43	38	48	42	38	47	42	37	36
9	60	48	40	35	59	47	40	35	46	39	34	45	39	34	44	38	34	32
10	57	44	37	32	55	44	36	32	43	36	31	42	36	31	41	35	31	29

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	18067	18067	18067
5°	21535	18143	15977
10°	26890	18039	14434
15°	31563	17854	13162
20°	35225	17580	12083
25°	34662	17289	11418
30°	24916	17021	10734
35°	16635	16674	10292
40°	12257	16255	9834
45°	10282	15520	9384
50°	9072	14558	8759
55°	7954	13457	7902
60°	7084	12405	7239
65°	6221	11272	6734
70°	4884	10267	6149
75°	4304	8964	5620
80°	3741	7616	5521
85°	3018	6119	5855



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	146.4	3.9
10°-20°	458.2	12.3
20°-30°	721.7	19.4
30°-40°	750.5	20.2
40°-50°	642.0	17.3
50°-60°	489.3	13.2
60°-70°	313.5	8.4
70°-80°	150.2	4.0
80°-90°	39.5	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°	1326.2	35.7
0°-40°	2076.7	56.0
0°-60°	3208.1	86.4
0°-90°	3711.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3711.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1490	1490	1490	1490	1490	
5°	1770	1660	1491	1346	1313	181
15°	2515	2148	1423	1118	1049	714
25°	2592	2402	1293	924	854	1126
35°	1124	2228	1127	754	696	731
45°	600	1210	905	596	547	470
55°	376	604	637	430	374	340
65°	217	297	393	269	235	214
75°	92	108	191	136	120	98
85°	22	24	44	41	42	25
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°	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5
2.5°	1611.7	1614.3	1606.0	1604.7	1595.1	1592.6	1592.6	1579.2	1570.9	1560.0	1553.6
5°	1769.9	1780.2	1775.0	1763.6	1744.4	1740.0	1727.8	1708.7	1687.0	1660.2	1647.4
7.5°	1951.1	1972.2	1968.4	1950.5	1930.1	1917.3	1883.5	1856.1	1814.6	1777.0	1747.6
10°	2184.7	2170.0	2158.5	2141.3	2122.8	2092.8	2057.1	2007.9	1951.1	1906.5	1856.7
12.5°	2359.5	2360.1	2344.8	2327.0	2298.9	2270.8	2224.9	2162.3	2094.1	2024.5	1965.8
15°	2515.2	2519.0	2509.4	2490.9	2453.9	2403.5	2337.2	2312.3	2217.9	2147.7	2077.5
17.5°	2626.2	2626.8	2624.9	2600.0	2559.8	2525.4	2463.5	2405.4	2316.1	2221.0	2127.2
20°	2730.8	2724.5	2725.7	2697.0	2669.0	2627.5	2567.5	2472.4	2402.2	2288.0	2190.4
22.5°	2728.3	2728.3	2734.0	2728.9	2710.4	2681.1	2637.0	2560.5	2466.1	2350.6	2237.6
25°	2591.7	2586.6	2616.6	2624.9	2657.5	2663.2	2649.2	2605.1	2520.3	2401.6	2265.7
27.5°	2266.3	2247.8	2310.4	2372.3	2454.6	2506.9	2560.5	2572.6	2532.4	2435.4	2293.1
30°	1780.2	1840.1	1868.2	1969.0	2081.3	2215.3	2332.7	2444.4	2471.8	2434.8	2323.1
32.5°	1402.4	1452.8	1475.2	1558.1	1660.8	1823.5	2014.3	2184.0	2316.7	2361.4	2305.3
35°	1124.2	1124.9	1178.5	1216.8	1313.7	1475.2	1646.2	1858.0	2068.5	2228.1	2244.6
37.5°	927.7	930.3	964.7	1003.0	1080.9	1171.5	1330.3	1509.0	1762.3	2000.3	2124.1
40°	774.6	780.3	804.6	842.2	894.5	959.0	1076.4	1242.3	1445.2	1717.6	1940.3
42.5°	676.3	686.5	696.1	722.9	750.3	809.7	899.0	1017.7	1197.6	1451.6	1717.0
45°	599.8	604.9	614.4	627.8	657.2	699.3	763.1	849.2	1002.4	1209.7	1466.9
47.5°	541.1	537.9	548.7	560.2	580.0	610.6	655.3	729.9	844.8	1018.3	1241.0
50°	481.1	480.4	487.5	495.8	514.3	535.3	570.4	623.4	710.1	848.0	1047.7
52.5°	424.9	428.1	432.6	443.4	455.6	471.5	502.1	536.6	608.1	722.3	880.5
55°	376.4	378.4	385.4	391.1	400.7	417.9	437.7	469.6	520.6	603.6	740.8
57.5°	334.3	333.7	340.7	341.4	353.5	368.2	384.1	409.0	447.9	513.6	609.3
60°	292.2	290.3	296.1	300.5	306.3	317.7	330.5	354.8	384.1	429.4	508.5
62.5°	253.9	253.3	257.1	261.6	266.1	276.3	286.5	303.7	325.4	361.8	420.5
65°	216.9	218.9	220.8	222.7	225.2	231.6	241.8	254.6	270.5	297.3	342.6
67.5°	178.7	181.2	181.8	186.3	191.4	194.6	200.3	212.5	224.6	248.8	275.6
70°	137.8	137.2	137.8	139.7	146.8	153.8	162.1	170.4	177.4	193.3	215.0
72.5°	113.6	112.3	114.2	114.2	116.8	117.4	121.9	129.5	139.1	148.7	162.7
75°	91.9	91.9	91.9	91.9	94.4	95.7	97.6	99.5	102.7	107.8	119.3
77.5°	71.5	71.5	72.7	73.4	74.0	74.7	75.9	77.8	79.1	81.7	87.4
80°	53.6	54.2	53.6	54.2	54.2	55.5	56.1	58.1	58.7	61.9	63.8
82.5°	37.0	36.4	37.0	37.6	37.6	38.9	38.9	40.2	40.2	41.5	43.4
85°	21.7	20.4	21.7	21.1	22.3	21.1	21.7	23.0	23.0	23.6	26.2
87.5°	6.4	7.7	6.4	7.0	7.0	7.7	7.7	7.7	8.9	8.3	8.9
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°	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5
2.5°	1551.1	1549.2	1540.2	1530.0	1516.6	1507.7	1500.7	1496.9	1485.4	1471.3	1461.8
5°	1634.0	1614.9	1594.5	1569.6	1546.6	1523.0	1508.3	1491.1	1470.1	1446.5	1429.9
7.5°	1716.3	1683.2	1646.8	1609.2	1570.9	1537.1	1505.8	1480.3	1448.4	1415.8	1393.5
10°	1814.0	1759.1	1702.3	1644.2	1591.3	1541.5	1503.2	1465.6	1425.4	1386.5	1357.1
12.5°	1902.7	1826.1	1758.5	1683.8	1612.3	1550.5	1491.1	1445.2	1394.8	1352.7	1318.2
15°	1974.8	1900.7	1821.6	1713.2	1623.2	1547.9	1480.9	1422.8	1364.1	1313.1	1280.6
17.5°	2050.0	1937.7	1833.7	1749.5	1632.1	1540.9	1462.4	1394.8	1331.0	1278.6	1237.8
20°	2093.4	1985.6	1870.1	1754.6	1639.8	1534.5	1439.4	1362.9	1295.9	1234.6	1197.6
22.5°	2119.6	1993.9	1870.8	1744.4	1620.6	1510.3	1416.5	1330.3	1256.3	1198.9	1151.0
25°	2138.7	1993.3	1859.3	1736.8	1612.3	1493.7	1382.0	1292.7	1214.2	1152.3	1103.8
27.5°	2154.0	1985.6	1831.8	1698.5	1572.8	1452.2	1351.4	1255.7	1177.2	1112.8	1059.8
30°	2157.9	1976.0	1799.3	1651.9	1523.7	1415.2	1306.7	1216.1	1131.9	1062.3	1013.9
32.5°	2163.0	1952.4	1755.3	1596.4	1464.3	1357.1	1261.4	1175.9	1089.1	1020.9	971.1
35°	2145.1	1946.7	1710.6	1530.7	1399.2	1295.2	1206.5	1126.8	1041.9	975.6	925.2
37.5°	2090.9	1915.4	1665.9	1457.3	1321.4	1225.7	1151.7	1078.9	1000.5	927.7	881.1
40°	1999.6	1864.4	1612.3	1391.6	1248.0	1149.1	1084.0	1027.3	952.0	885.0	833.9
42.5°	1863.7	1794.8	1561.3	1322.7	1165.1	1070.6	1018.3	966.0	902.2	833.9	786.7
45°	1691.5	1702.3	1487.9	1248.7	1089.8	994.1	942.4	905.4	846.7	790.5	741.4
47.5°	1482.2	1572.8	1409.4	1170.8	1008.1	918.1	872.8	839.0	798.2	740.1	694.8
50°	1278.0	1422.8	1311.2	1092.3	932.2	842.9	798.2	772.0	737.6	694.2	651.4
52.5°	1089.8	1248.0	1192.5	1004.9	849.9	770.1	726.7	706.3	680.8	640.6	603.0
55°	919.4	1077.0	1061.7	916.9	767.6	694.2	661.0	636.8	618.3	587.6	557.0
57.5°	771.4	923.9	927.1	819.3	696.1	621.5	592.7	573.6	560.8	536.6	506.6
60°	632.9	770.1	796.9	720.4	618.3	554.5	526.4	511.7	502.1	483.6	461.9
62.5°	518.1	629.8	661.0	611.2	543.6	484.9	464.5	450.5	444.7	429.4	410.9
65°	414.1	511.1	540.4	509.8	470.9	423.0	405.2	393.0	387.3	378.4	364.3
67.5°	326.7	402.0	433.9	408.4	393.7	359.9	347.7	340.7	335.6	329.2	317.1
70°	250.1	302.4	335.6	329.9	318.4	302.4	294.1	289.7	284.6	279.5	269.3
72.5°	188.9	220.8	251.4	256.5	247.6	247.6	240.5	239.3	236.7	230.3	225.9
75°	133.4	158.2	179.9	188.2	192.1	195.2	192.1	191.4	190.8	185.7	182.5
77.5°	92.5	108.5	123.1	137.8	142.9	147.4	148.0	150.6	148.7	145.5	144.2
80°	67.0	70.2	79.8	91.9	101.4	105.3	107.8	109.1	108.5	107.8	105.3
82.5°	44.0	46.6	49.8	57.4	65.1	72.1	73.4	72.7	74.7	75.3	73.4
85°	26.2	26.8	28.1	29.4	33.8	40.8	42.7	44.0	45.3	45.3	41.5
87.5°	10.2	9.6	10.8	10.8	12.8	13.4	17.2	20.4	21.1	18.5	18.5
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°	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5	1490.5
2.5°	1458.6	1450.3	1444.5	1431.8	1423.5	1414.6	1405.6	1411.4	1410.7	1410.1	1410.1
5°	1415.8	1401.2	1387.8	1370.5	1359.7	1346.3	1336.1	1334.8	1337.3	1328.4	1323.3
7.5°	1375.6	1356.5	1337.3	1319.5	1299.7	1284.4	1274.8	1271.0	1264.0	1258.2	1253.1
10°	1332.9	1309.3	1290.8	1267.2	1245.5	1226.3	1214.2	1205.9	1201.4	1197.0	1188.7
12.5°	1288.9	1265.9	1241.0	1213.6	1193.1	1170.2	1161.9	1152.3	1142.7	1137.6	1125.5
15°	1246.1	1216.1	1191.2	1163.2	1140.2	1118.5	1105.7	1087.2	1084.7	1078.3	1066.8
17.5°	1204.6	1171.5	1135.1	1115.9	1093.0	1070.0	1049.6	1043.8	1024.7	1018.3	1007.5
20°	1153.6	1123.6	1097.4	1070.0	1032.4	1011.3	996.0	987.7	973.0	964.1	957.7
22.5°	1109.6	1078.9	1047.7	1014.5	985.1	960.9	950.7	936.7	930.3	916.9	909.9
25°	1068.1	1034.9	998.5	964.1	941.8	923.9	906.0	894.5	883.1	877.3	864.6
27.5°	1017.7	984.5	949.4	922.6	897.1	879.2	862.0	852.4	837.8	828.2	821.2
30°	977.5	936.7	907.3	883.7	848.6	832.0	819.9	807.1	796.9	786.7	779.7
32.5°	930.9	894.5	867.1	836.5	811.6	793.1	776.5	765.7	757.4	747.8	740.8
35°	881.8	850.5	821.8	792.5	772.7	754.2	735.7	726.1	717.8	708.9	702.5
37.5°	837.1	807.8	781.0	752.9	728.6	712.7	697.4	691.0	679.5	673.1	666.8
40°	796.3	767.6	738.2	711.4	685.9	674.4	661.0	650.2	640.0	635.5	628.5
42.5°	751.6	722.9	699.3	669.9	650.2	633.6	621.5	609.3	602.3	595.3	592.1
45°	707.6	682.1	657.8	629.1	609.3	595.9	581.9	571.1	564.0	559.6	552.5
47.5°	665.5	639.3	615.1	589.6	570.4	555.1	540.4	533.4	523.8	518.7	513.6
50°	618.9	595.9	569.8	546.8	527.7	512.4	500.9	491.3	483.0	476.0	472.8
52.5°	576.2	551.3	529.6	508.5	488.1	470.2	460.0	449.8	444.1	435.8	432.0
55°	528.3	504.7	485.6	464.5	444.7	430.0	417.3	408.4	402.0	393.0	387.9
57.5°	484.3	463.9	440.3	421.7	400.7	389.2	378.4	365.6	357.9	350.9	345.8
60°	439.6	415.4	395.6	378.4	360.5	344.5	335.0	325.4	317.1	310.1	305.6
62.5°	393.0	372.6	354.1	335.0	319.0	305.6	294.1	286.5	279.5	275.6	271.2
65°	345.2	328.6	309.5	294.1	278.8	268.6	259.7	252.7	247.6	244.4	240.5
67.5°	301.2	285.2	268.0	252.0	241.8	233.5	227.1	220.8	218.2	214.4	211.8
70°	258.4	241.8	227.1	215.7	205.5	199.7	195.9	191.4	188.9	183.8	181.2
72.5°	211.8	201.0	191.4	182.5	174.8	169.7	164.6	158.9	154.4	148.7	146.1
75°	174.2	163.3	155.0	148.7	143.6	136.5	129.5	123.8	121.9	120.0	119.3
77.5°	135.9	128.9	122.5	117.4	110.4	104.0	102.1	100.8	100.2	98.9	98.9
80°	101.4	95.1	90.6	84.2	80.4	80.4	80.4	79.1	79.8	79.8	79.8
82.5°	68.9	63.2	61.3	60.0	60.0	60.6	60.6	61.3	60.6	61.9	61.3
85°	38.9	39.6	40.8	40.2	40.8	40.8	42.1	41.5	42.1	40.8	42.1
87.5°	17.9	19.8	20.4	21.1	21.7	21.1	21.7	21.7	22.3	22.3	22.3
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: P242588

CATALOG NUMBER: S123RDR-S1165D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1490.5	1490.5	1490.5	1490.5
2.5°	1402.4	1401.8	1402.4	1399.9
5°	1321.4	1320.8	1318.8	1313.1
7.5°	1248.0	1246.7	1241.6	1242.9
10°	1184.2	1184.9	1177.2	1172.7
12.5°	1122.3	1118.5	1112.8	1107.6
15°	1069.4	1063.0	1047.7	1048.9
17.5°	1003.6	998.5	997.9	989.0
20°	947.5	944.3	945.6	936.7
22.5°	903.5	900.3	893.3	892.0
25°	860.7	855.6	850.5	853.7
27.5°	817.3	813.5	807.8	807.8
30°	776.5	772.7	770.1	766.9
32.5°	735.0	735.0	729.9	729.9
35°	699.9	696.1	694.8	695.5
37.5°	666.1	661.0	658.5	655.9
40°	629.1	624.0	622.7	621.5
42.5°	587.6	586.4	585.7	583.2
45°	550.6	550.0	546.2	547.4
47.5°	511.1	507.9	506.0	507.9
50°	470.2	469.0	463.2	464.5
52.5°	429.4	423.7	422.4	421.1
55°	383.5	377.7	375.2	373.9
57.5°	338.2	336.3	333.7	335.6
60°	299.2	299.2	299.2	298.6
62.5°	269.3	267.3	266.7	268.0
65°	238.6	238.0	235.4	234.8
67.5°	210.6	208.0	208.0	206.7
70°	178.0	176.7	172.9	173.5
72.5°	142.9	141.6	141.6	140.4
75°	118.7	118.0	117.4	120.0
77.5°	98.9	98.9	99.5	98.3
80°	79.8	79.8	79.1	79.1
82.5°	60.0	60.6	61.3	60.0
85°	42.1	41.5	42.7	42.1
87.5°	23.6	22.3	22.3	23.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)