

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: P243443

Luminaire Tested: **S123RDR-H1165D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243443  
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-H1165D930-X4F0-XX-UDD-A-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

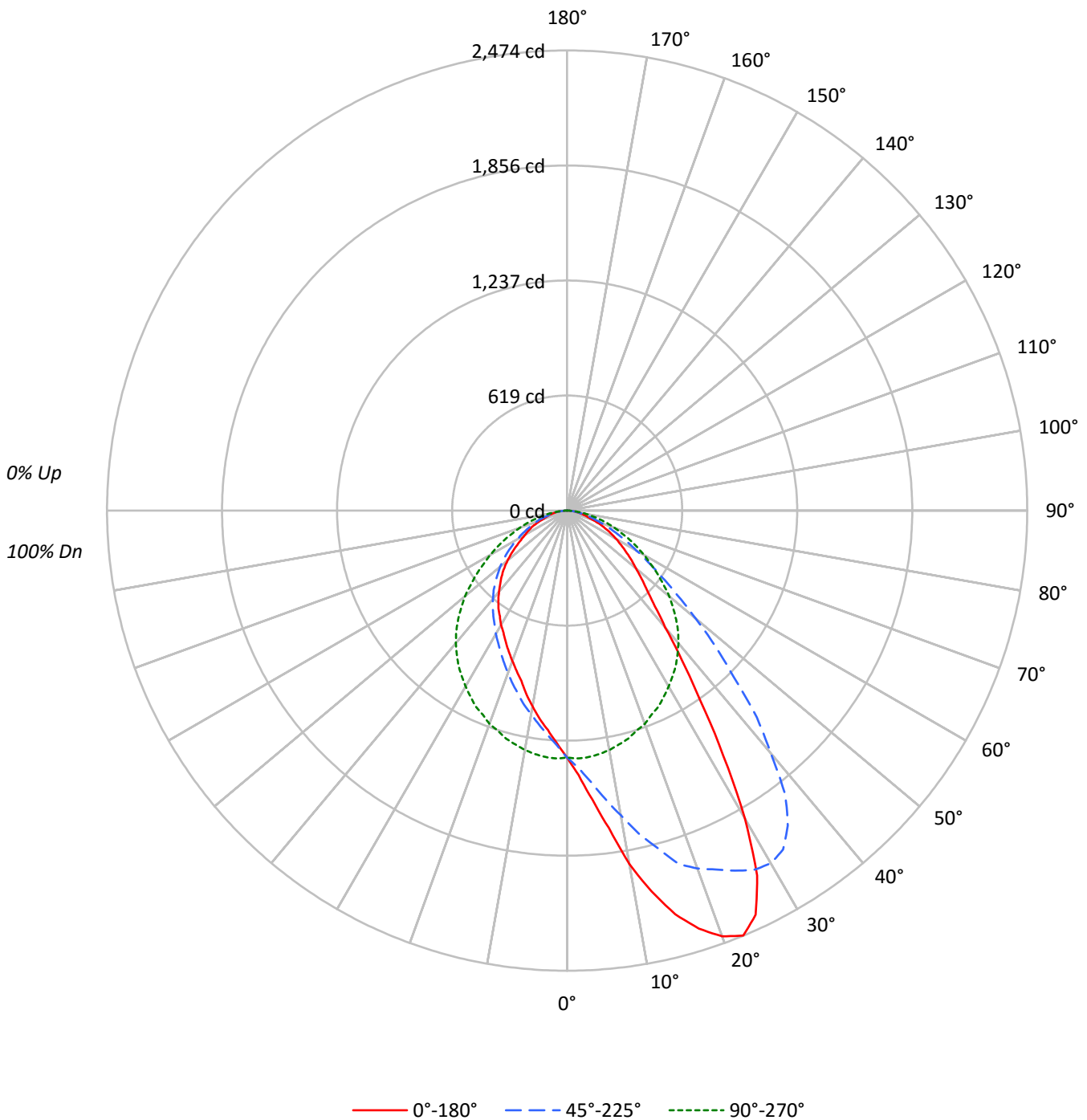
Lumens per Lamp: N/A  
Luminaire Lumens: 3460.2 lumens  
Efficiency: N/A  
Efficacy: 91.8 lumens/watt  
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4  
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 37.7  
Input Voltage (V): 120  
Input Current (Ain): 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°	16097	16097	16097
5°	18976	16186	14414
10°	23755	16091	13155
15°	28191	15931	11915
20°	31418	15740	11095
25°	32070	15545	10445
30°	26725	15280	9936
35°	18463	15068	9519
40°	12973	14725	9018
45°	10419	14202	8532
50°	9082	13526	7894
55°	8142	12517	7029
60°	7367	11566	6366
65°	6448	10658	5954
70°	5203	9590	5040
75°	4510	8350	4941
80°	4160	7127	4963
85°	3672	5744	4311



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	130.2	3.8
10°-20°	410.1	11.9
20°-30°	657.1	19.0
30°-40°	713.4	20.6
40°-50°	611.2	17.7
50°-60°	463.3	13.4
60°-70°	296.1	8.6
70°-80°	141.6	4.1
80°-90°	37.2	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°	1197.5	34.6
0°-40°	1910.9	55.2
0°-60°	2985.4	86.3
0°-90°	3460.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3460.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1328	1328	1328	1328	1328	
5°	1560	1464	1330	1209	1185	160
15°	2246	1878	1270	1020	950	637
25°	2398	2136	1162	844	781	1064
35°	1248	2068	1018	692	643	801
45°	608	1266	828	547	498	480
55°	385	620	592	392	333	347
65°	225	299	372	237	208	223
75°	96	117	178	112	106	104
85°	26	28	41	33	31	30
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°	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0
2.5°	1423.1	1424.9	1422.0	1421.4	1420.9	1411.7	1408.8	1404.2	1388.2	1384.2	1381.3
5°	1559.6	1555.0	1560.2	1550.4	1539.5	1533.2	1522.9	1500.0	1479.9	1463.9	1453.5
7.5°	1721.3	1723.0	1717.9	1708.7	1686.9	1677.7	1649.6	1622.1	1595.7	1562.5	1537.8
10°	1930.0	1916.3	1919.1	1890.5	1867.5	1840.0	1801.6	1757.4	1711.0	1664.0	1629.0
12.5°	2096.3	2106.0	2099.2	2085.4	2041.3	2014.3	1979.3	1915.1	1841.7	1778.6	1725.3
15°	2246.5	2233.3	2235.1	2201.8	2185.7	2161.1	2103.2	2039.5	1991.9	1877.8	1814.8
17.5°	2356.6	2355.5	2353.7	2325.7	2306.2	2254.6	2195.5	2130.1	2070.5	1991.4	1912.2
20°	2435.7	2444.3	2442.1	2419.1	2384.7	2334.8	2299.3	2217.9	2119.8	2047.6	1950.7
22.5°	2473.6	2474.2	2475.3	2464.4	2441.5	2409.4	2358.9	2293.5	2206.4	2088.3	1980.5
25°	2397.9	2400.8	2415.7	2424.8	2431.2	2416.8	2390.4	2331.4	2256.3	2135.9	2024.1
27.5°	2212.1	2221.3	2237.9	2293.0	2315.3	2346.3	2357.2	2333.7	2278.1	2177.7	2050.4
30°	1909.4	1935.2	1951.2	2013.7	2101.5	2184.0	2223.0	2261.4	2256.3	2189.8	2060.7
32.5°	1563.1	1579.7	1626.1	1693.2	1762.6	1883.6	2018.9	2111.8	2164.0	2160.5	2069.3
35°	1247.7	1271.8	1311.3	1362.4	1458.1	1583.7	1736.8	1883.0	2013.7	2068.2	2035.5
37.5°	1012.6	1014.9	1052.2	1124.4	1184.0	1294.7	1432.9	1613.5	1785.0	1927.2	1958.7
40°	819.9	836.0	855.5	900.8	971.3	1077.4	1169.1	1346.9	1524.6	1703.0	1830.2
42.5°	698.4	698.4	720.2	748.8	795.9	859.5	969.0	1130.1	1290.1	1509.2	1652.5
45°	607.8	613.5	623.3	641.6	674.9	724.2	809.0	918.6	1082.0	1266.0	1481.6
47.5°	542.4	541.8	550.5	561.3	587.1	624.4	674.3	763.2	884.2	1082.6	1272.9
50°	481.6	483.9	490.2	499.4	516.6	543.0	574.5	641.6	743.7	900.8	1100.3
52.5°	434.6	434.1	439.2	444.9	458.1	473.0	501.1	551.0	621.6	746.5	912.3
55°	385.3	387.6	393.9	397.4	408.3	418.0	441.5	469.6	526.4	620.4	771.2
57.5°	342.9	345.8	349.2	352.6	360.1	369.8	389.3	406.5	447.8	515.5	635.9
60°	303.9	302.7	306.8	312.5	316.5	325.1	336.0	353.8	382.4	430.6	518.9
62.5°	264.9	265.5	266.1	269.5	276.9	284.4	294.1	307.3	324.5	360.1	422.6
65°	224.8	225.3	226.5	229.9	237.4	242.0	252.3	263.8	277.5	298.7	342.3
67.5°	189.2	191.5	191.5	194.4	197.2	201.8	209.3	217.9	229.4	244.8	272.9
70°	146.8	146.2	149.1	154.8	157.7	165.7	170.9	176.6	186.9	196.7	220.8
72.5°	118.1	118.1	118.1	120.4	121.0	122.7	126.1	138.2	146.2	156.0	169.1
75°	96.3	96.9	96.9	97.5	98.0	99.8	100.9	104.4	106.6	117.0	125.0
77.5°	76.8	77.4	77.4	78.0	78.6	79.1	81.4	81.4	83.1	85.4	88.9
80°	59.6	59.1	59.1	59.6	59.6	61.4	61.4	62.5	63.1	64.2	65.9
82.5°	42.4	41.9	42.4	41.9	42.4	43.0	44.2	43.6	44.7	45.9	46.4
85°	26.4	26.9	26.9	28.1	27.5	26.9	27.5	27.5	27.5	27.5	28.7
87.5°	11.5	12.6	12.6	12.0	12.6	12.6	11.5	12.6	12.6	12.6	13.2
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°	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0
2.5°	1379.6	1377.3	1368.7	1360.6	1348.6	1343.4	1336.6	1333.7	1324.5	1311.9	1306.2
5°	1443.8	1426.6	1410.0	1389.9	1373.3	1353.8	1342.9	1330.3	1310.8	1293.0	1280.4
7.5°	1512.0	1486.8	1455.8	1422.6	1392.8	1364.7	1340.6	1320.5	1295.3	1270.6	1251.1
10°	1587.1	1544.1	1494.2	1451.8	1408.8	1368.1	1337.7	1307.3	1274.6	1243.7	1220.2
12.5°	1668.0	1607.2	1547.0	1483.3	1419.1	1372.1	1326.8	1287.8	1251.1	1218.4	1190.3
15°	1751.7	1668.6	1591.7	1520.0	1430.6	1367.5	1317.6	1269.5	1223.6	1183.5	1155.9
17.5°	1811.3	1716.1	1619.2	1517.8	1440.9	1362.9	1301.0	1240.2	1197.8	1156.5	1119.2
20°	1866.4	1758.6	1643.3	1548.7	1441.5	1346.3	1278.7	1220.2	1161.1	1117.0	1085.4
22.5°	1889.9	1792.4	1676.0	1544.7	1437.5	1340.0	1252.8	1186.9	1134.2	1086.0	1044.7
25°	1894.5	1785.5	1666.3	1539.5	1422.0	1316.5	1228.2	1162.3	1093.4	1043.6	1011.5
27.5°	1914.5	1765.5	1648.5	1522.3	1403.1	1293.0	1200.1	1126.7	1062.5	1009.2	967.9
30°	1919.7	1756.9	1610.6	1490.2	1367.5	1259.7	1165.7	1091.7	1021.8	967.3	930.0
32.5°	1922.0	1745.4	1571.1	1439.2	1322.2	1220.7	1134.7	1054.5	987.9	930.6	892.2
35°	1914.0	1729.3	1523.5	1381.3	1268.9	1169.1	1089.4	1018.3	944.4	890.5	849.8
37.5°	1882.4	1704.1	1496.5	1313.6	1206.4	1112.4	1044.7	974.8	906.5	848.0	806.2
40°	1822.8	1667.4	1446.1	1256.9	1135.3	1051.0	987.9	930.6	861.8	805.6	764.3
42.5°	1727.6	1617.5	1399.6	1192.6	1064.8	985.1	932.3	883.0	821.1	767.8	722.5
45°	1586.6	1547.6	1337.7	1127.3	987.9	912.8	867.0	828.5	772.4	723.6	681.8
47.5°	1434.0	1442.6	1275.2	1060.8	918.0	846.3	806.2	772.4	729.9	677.7	639.3
50°	1258.0	1305.0	1187.5	993.7	848.0	777.5	737.9	717.3	677.7	634.2	598.0
52.5°	1096.9	1171.4	1098.6	920.3	779.2	709.9	673.2	652.5	626.1	590.0	553.3
55°	930.0	1024.6	971.9	841.2	709.3	639.3	608.4	592.3	570.5	542.4	509.2
57.5°	791.8	892.8	859.5	758.0	641.0	578.0	550.5	532.1	518.9	493.1	466.2
60°	656.5	750.0	736.8	662.3	573.4	513.2	492.0	477.1	466.2	447.2	420.9
62.5°	529.8	620.4	628.4	569.9	507.4	453.0	433.5	423.2	414.6	399.6	375.6
65°	420.3	500.0	516.6	471.9	438.1	396.8	377.9	371.6	365.2	348.0	329.7
67.5°	329.1	391.6	413.4	388.2	364.1	340.0	325.1	316.5	311.9	301.6	289.0
70°	251.7	305.6	324.0	313.1	297.0	287.8	276.4	270.6	266.1	252.9	246.0
72.5°	188.6	225.3	248.3	244.8	241.4	235.1	228.2	226.5	219.6	211.0	204.7
75°	138.2	159.4	180.0	187.5	186.4	188.6	181.2	178.3	174.3	168.0	162.8
77.5°	99.2	111.8	126.1	135.3	139.9	140.5	140.5	138.8	135.9	131.3	127.3
80°	68.8	71.7	84.9	93.5	98.0	101.5	101.5	102.1	99.2	97.5	94.6
82.5°	47.6	49.3	52.2	59.1	64.8	68.8	69.4	68.8	67.7	67.1	63.1
85°	29.8	29.2	29.2	31.0	35.5	39.6	40.1	41.3	40.7	40.1	36.1
87.5°	12.6	12.6	13.2	12.6	14.3	14.9	16.1	18.9	18.3	15.5	14.3
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°	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0	1328.0
2.5°	1302.7	1295.3	1288.4	1280.9	1271.8	1263.2	1262.0	1260.9	1263.7	1258.0	1255.7
5°	1270.6	1256.3	1245.4	1231.6	1221.9	1209.3	1202.4	1200.7	1200.1	1196.7	1192.1
7.5°	1235.6	1220.2	1204.7	1189.2	1173.1	1160.0	1152.5	1148.5	1145.1	1139.3	1134.7
10°	1203.0	1183.5	1166.8	1145.6	1128.4	1111.2	1104.3	1098.6	1095.2	1087.1	1080.8
12.5°	1166.3	1141.6	1123.3	1100.3	1084.8	1069.9	1059.0	1048.1	1040.1	1028.1	1022.9
15°	1134.2	1108.4	1077.4	1063.6	1041.8	1019.5	1007.4	1007.4	990.8	981.1	974.8
17.5°	1091.2	1068.8	1047.0	1018.9	987.9	974.8	961.0	949.0	937.5	934.6	923.2
20°	1053.3	1026.9	1004.6	974.2	946.1	930.6	914.6	901.4	892.8	884.7	878.4
22.5°	1016.0	989.7	955.3	925.4	906.5	885.9	868.7	857.2	849.8	837.7	832.0
25°	977.0	945.5	914.6	885.3	861.8	844.0	826.2	819.9	806.8	800.4	792.4
27.5°	938.1	900.2	871.0	845.7	819.4	802.2	790.1	778.7	767.2	763.8	759.2
30°	894.5	859.5	831.4	806.8	781.5	766.6	752.3	742.0	732.2	724.8	719.6
32.5°	850.9	821.7	794.7	766.0	743.1	727.1	715.0	705.8	701.3	688.6	684.0
35°	810.8	781.0	752.3	725.3	707.0	691.5	680.6	672.0	662.3	654.2	649.6
37.5°	769.5	742.5	713.3	690.4	669.7	657.1	645.1	633.6	626.1	621.6	615.8
40°	729.3	700.7	678.3	653.1	634.7	620.4	607.8	599.2	590.0	586.0	578.5
42.5°	691.5	664.0	638.2	615.2	598.6	584.9	572.8	563.1	555.6	548.2	544.1
45°	647.9	623.8	600.3	577.4	561.9	547.0	533.8	525.2	514.9	508.6	506.3
47.5°	611.2	586.0	560.8	539.6	523.5	507.4	496.6	486.2	477.6	471.3	467.9
50°	567.7	544.1	523.5	502.3	486.8	469.6	456.4	446.7	436.9	432.3	426.6
52.5°	530.4	507.4	482.2	463.3	445.5	430.6	418.6	410.5	401.9	395.1	391.0
55°	483.9	461.6	441.5	421.4	403.7	391.6	381.9	368.1	360.7	353.8	342.9
57.5°	443.2	422.0	400.8	381.3	364.7	350.3	338.3	329.1	319.4	314.2	306.8
60°	400.2	377.9	358.4	343.5	325.1	309.6	301.6	290.7	282.7	274.7	272.4
62.5°	357.8	337.2	317.7	302.2	285.5	273.5	263.2	258.0	250.0	243.7	241.4
65°	313.6	296.4	278.1	260.9	250.6	236.8	231.1	222.5	217.9	215.0	214.4
67.5°	270.1	254.6	238.0	224.8	215.0	205.8	199.0	195.5	190.9	187.5	184.6
70°	230.5	215.6	201.3	190.4	182.9	176.0	171.4	165.1	160.5	156.0	149.7
72.5°	191.5	179.5	167.4	158.8	151.4	147.4	141.1	131.3	126.7	125.6	125.0
75°	155.4	142.2	133.6	129.0	122.1	112.4	108.4	107.2	106.6	105.5	105.5
77.5°	119.8	111.8	106.1	96.3	92.9	92.3	89.4	88.9	87.7	88.3	88.3
80°	87.2	82.6	75.7	72.8	71.7	72.2	71.1	71.7	70.5	71.1	70.0
82.5°	57.9	53.9	55.0	53.3	53.3	54.5	53.9	52.2	52.2	51.6	51.6
85°	34.4	33.8	35.0	35.0	34.4	32.7	33.8	33.3	31.5	32.1	32.1
87.5°	14.9	14.9	14.9	14.3	14.9	14.3	14.3	14.3	12.6	12.6	12.6
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: P243443

CATALOG NUMBER: S123RDR-H1165D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1328.0	1328.0	1328.0	1328.0
2.5°	1256.9	1255.7	1254.0	1252.3
5°	1192.1	1186.9	1186.3	1184.6
7.5°	1131.3	1129.0	1125.0	1129.6
10°	1075.7	1077.4	1073.4	1068.8
12.5°	1017.8	1014.3	1008.0	1011.5
15°	966.7	961.0	957.6	949.5
17.5°	913.4	908.8	908.8	903.7
20°	867.0	862.4	863.5	860.1
22.5°	828.0	824.5	819.4	819.9
25°	791.3	786.1	780.4	781.0
27.5°	750.6	746.0	744.8	740.8
30°	714.4	710.4	709.9	709.9
32.5°	679.5	677.7	674.9	673.2
35°	649.1	646.8	642.2	643.3
37.5°	611.2	608.9	608.4	607.8
40°	575.7	574.0	569.4	569.9
42.5°	540.1	537.3	534.4	533.2
45°	501.7	501.1	496.6	497.7
47.5°	465.0	463.9	461.6	458.7
50°	424.3	423.7	422.0	418.6
52.5°	384.7	383.0	379.6	376.1
55°	340.0	334.9	335.4	332.6
57.5°	303.3	301.0	296.4	294.7
60°	267.8	265.5	264.9	262.6
62.5°	238.0	235.7	233.9	233.9
65°	211.0	208.1	207.6	207.6
67.5°	181.2	178.3	177.7	176.6
70°	143.9	143.3	142.2	142.2
72.5°	123.9	123.3	123.9	121.6
75°	105.5	104.9	104.9	105.5
77.5°	87.7	87.7	87.2	87.2
80°	69.4	70.0	69.4	71.1
82.5°	52.2	51.0	51.6	50.5
85°	32.1	32.1	31.0	31.0
87.5°	12.6	12.6	12.6	12.6
90°	0.0	0.0	0.0	0.0

(END OF REPORT)