

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: P243625

Luminaire Tested: **S124RDR-H1195D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243625  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-70)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124RDR-H1195D940-X4F0-XX-UDD-A-W  
Description: DEFINE 4 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 4000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

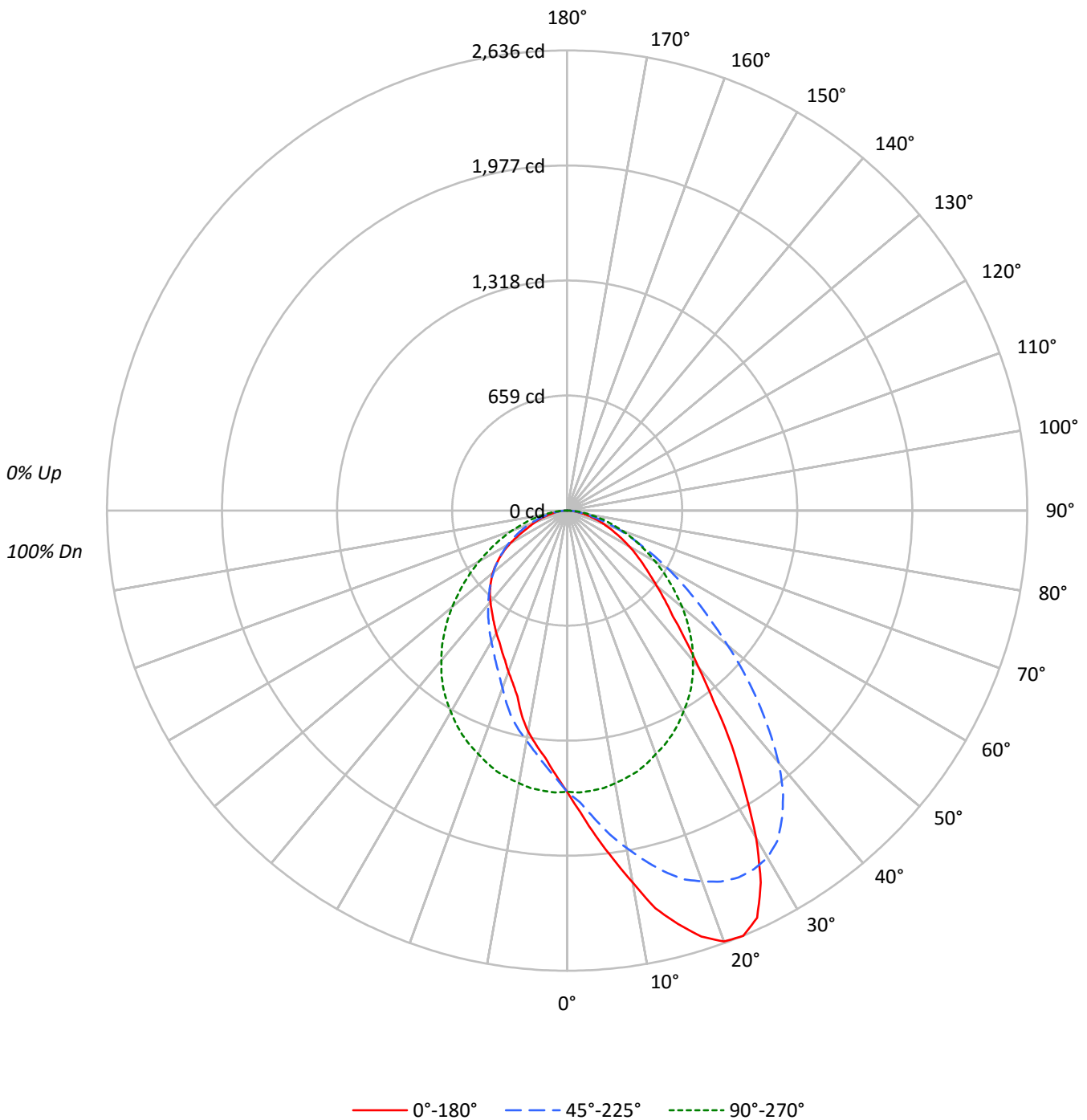
Lumens per Lamp: N/A  
Luminaire Lumens: 4156.6 lumens  
Efficiency: N/A  
Efficacy: 110.3 lumens/watt  
Spacing Criteria (0/90/45): 1.27 / 1.23 / 1.39  
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 37.7  
Input Voltage (V): 120  
Input Current (A<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	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					100			
1	110	105	102	98	107	103	100	97	99	96	93	95	93	91	92	90	88	86					86			
2	101	93	87	82	98	91	86	81	88	83	79	85	81	77	82	78	75	73					73			
3	92	83	75	69	90	81	74	68	78	72	67	76	70	66	73	69	65	63					63			
4	85	74	66	59	83	73	65	59	70	63	58	68	62	57	66	61	57	55					55			
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50	48					48			
6	73	60	52	46	71	59	51	45	58	50	45	56	50	45	54	49	44	42					42			
7	68	55	46	41	66	54	46	40	53	45	40	51	45	40	50	44	40	38					38			
8	63	50	42	36	62	50	42	36	48	41	36	47	41	36	46	40	36	34					34			
9	59	46	38	33	58	46	38	33	45	38	33	43	37	33	42	37	32	31					31			
10	56	43	35	30	54	42	35	30	41	35	30	40	34	30	39	34	30	28					28			

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

	0°	90°	180°
0°	14316	14316	14316
5°	16676	14376	12692
10°	19530	14316	11605
15°	22565	14244	10135
20°	24845	14042	9290
25°	25243	13913	8685
30°	22221	13666	8329
35°	17830	13434	8057
40°	13565	13004	7932
45°	10769	12527	7837
50°	9244	11908	7701
55°	8164	11138	7329
60°	7314	10336	6711
65°	6436	9551	5645
70°	5738	8670	5086
75°	4997	7882	4523
80°	4238	6772	4172
85°	3712	5824	4222



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	156.3	3.8
10°-20°	473.9	11.4
20°-30°	739.6	17.8
30°-40°	824.7	19.8
40°-50°	741.4	17.8
50°-60°	585.8	14.1
60°-70°	389.1	9.4
70°-80°	195.1	4.7
80°-90°	50.8	1.2
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°	1369.8	33.0
0°-40°	2194.5	52.8
0°-60°	3521.7	84.7
0°-90°	4156.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4156.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1610	1610	1610	1610	1610	
5°	1869	1768	1611	1462	1422	187
15°	2452	2140	1548	1226	1101	697
25°	2574	2320	1419	964	886	1152
35°	1643	2147	1238	783	742	1021
45°	857	1546	996	626	623	679
55°	527	908	719	475	473	475
65°	306	465	454	311	268	306
75°	146	184	230	154	132	156
85°	36	39	57	43	41	41
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°	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5
2.5°	1729.7	1723.4	1722.8	1714.6	1714.0	1705.8	1703.3	1696.4	1682.6	1672.0	1672.6
5°	1868.9	1863.9	1863.3	1855.1	1852.6	1842.6	1826.9	1808.1	1786.1	1767.9	1756.0
7.5°	2011.9	2020.7	2011.3	2011.3	1993.1	1981.2	1950.4	1934.8	1897.1	1870.8	1843.2
10°	2163.7	2171.8	2168.0	2160.5	2136.7	2112.2	2080.2	2049.5	2003.7	1962.3	1934.8
12.5°	2333.0	2308.5	2324.2	2301.0	2281.6	2242.7	2211.9	2150.5	2114.1	2053.9	2000.0
15°	2452.1	2442.7	2442.1	2426.4	2405.1	2362.5	2329.2	2265.3	2203.2	2139.8	2079.0
17.5°	2558.8	2560.0	2551.2	2526.2	2498.6	2457.2	2412.0	2354.9	2284.1	2213.8	2141.7
20°	2626.5	2627.1	2620.8	2607.7	2577.6	2539.9	2493.5	2418.9	2338.6	2260.9	2188.7
22.5°	2636.5	2638.4	2636.5	2628.4	2607.7	2576.9	2534.3	2471.0	2390.1	2301.0	2215.1
25°	2573.8	2580.1	2580.7	2592.0	2581.3	2569.4	2538.1	2484.8	2410.1	2319.8	2226.4
27.5°	2402.0	2419.5	2435.8	2455.9	2474.1	2490.4	2492.9	2464.7	2400.7	2316.7	2227.6
30°	2164.9	2185.6	2218.2	2239.5	2296.0	2331.7	2380.0	2390.7	2360.0	2295.4	2209.4
32.5°	1889.0	1910.9	1923.5	1993.7	2074.6	2132.9	2213.2	2260.9	2272.8	2242.1	2171.8
35°	1643.1	1646.9	1656.3	1735.9	1816.2	1904.6	2004.4	2087.1	2143.6	2146.7	2112.2
37.5°	1379.7	1384.1	1421.1	1481.9	1551.6	1648.8	1763.5	1881.4	1984.9	2032.6	2022.6
40°	1169.0	1167.7	1207.3	1259.9	1327.7	1428.6	1547.2	1675.7	1786.1	1885.8	1909.7
42.5°	998.4	1002.8	1036.7	1067.4	1132.6	1203.5	1330.2	1463.8	1605.5	1714.6	1787.4
45°	856.7	868.0	891.2	920.0	968.9	1034.2	1137.6	1270.6	1415.5	1546.5	1633.7
47.5°	758.8	762.0	773.9	809.6	842.3	894.9	983.4	1096.3	1224.8	1371.6	1486.3
50°	668.5	676.1	680.5	701.8	733.8	783.9	852.3	936.3	1063.6	1198.5	1342.1
52.5°	590.8	595.2	603.3	622.8	647.8	683.0	736.9	810.9	916.9	1041.7	1177.2
55°	526.8	527.4	535.6	549.4	568.8	595.8	647.2	700.5	794.6	908.1	1031.0
57.5°	469.1	465.3	472.9	481.0	499.8	523.0	556.3	610.8	684.2	780.8	891.8
60°	411.4	414.5	413.9	423.3	433.4	456.6	484.8	520.5	580.7	669.2	763.2
62.5°	357.5	356.8	363.1	368.8	375.7	394.5	417.7	447.2	494.2	559.4	650.4
65°	306.0	307.3	312.3	316.7	324.2	336.2	353.7	377.5	415.2	465.3	541.9
67.5°	259.6	264.0	266.5	267.8	274.7	283.5	298.5	318.0	343.7	383.8	447.8
70°	220.8	222.0	223.3	227.7	230.8	235.8	247.1	257.8	281.0	310.4	356.8
72.5°	184.4	183.1	186.9	188.1	189.4	194.4	201.3	207.0	222.0	247.1	275.9
75°	145.5	146.1	146.8	148.6	153.7	154.3	157.4	163.7	174.3	184.4	203.8
77.5°	109.1	111.0	110.4	112.3	114.1	116.0	117.3	122.9	130.4	138.6	148.0
80°	82.8	82.8	82.8	84.0	82.8	87.2	87.2	89.1	90.9	94.7	101.6
82.5°	56.4	57.7	58.3	59.0	59.6	59.6	60.2	61.5	64.0	65.2	67.1
85°	36.4	35.1	35.7	35.7	35.7	35.7	37.0	38.3	38.3	38.9	40.8
87.5°	16.3	16.3	16.3	16.3	15.7	16.3	16.9	16.9	17.6	17.6	18.8
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°	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5
2.5°	1668.8	1667.0	1657.6	1647.5	1638.1	1628.7	1625.6	1616.2	1604.9	1594.8	1583.5
5°	1743.5	1728.4	1707.7	1686.4	1664.4	1644.4	1628.7	1611.1	1591.1	1567.2	1548.4
7.5°	1818.7	1791.1	1757.3	1725.9	1688.3	1658.2	1628.1	1603.0	1574.1	1540.3	1514.6
10°	1892.1	1846.3	1804.9	1755.4	1707.7	1666.3	1628.1	1586.1	1547.8	1511.4	1475.7
12.5°	1950.4	1904.6	1845.1	1784.2	1722.8	1668.8	1617.4	1567.9	1520.2	1476.3	1436.8
15°	2016.9	1951.1	1877.7	1810.6	1726.5	1660.1	1601.1	1547.8	1493.2	1439.9	1396.7
17.5°	2065.8	1988.1	1897.1	1820.0	1739.1	1656.3	1585.4	1518.3	1455.6	1399.8	1355.3
20°	2103.5	2011.3	1920.3	1822.5	1725.9	1641.2	1561.6	1484.5	1421.1	1360.3	1313.2
22.5°	2119.8	2022.6	1921.6	1815.6	1712.7	1616.8	1534.0	1454.4	1382.9	1320.1	1265.6
25°	2126.7	2020.0	1915.3	1794.9	1690.8	1593.0	1500.8	1418.6	1345.2	1274.4	1220.4
27.5°	2121.0	2006.9	1886.5	1772.9	1655.0	1559.1	1461.3	1377.8	1301.3	1233.0	1172.8
30°	2106.0	1976.8	1857.0	1729.7	1616.2	1515.2	1419.9	1331.4	1254.3	1184.7	1125.1
32.5°	2067.1	1942.9	1806.8	1682.6	1560.3	1460.6	1374.1	1286.9	1208.5	1135.8	1078.1
35°	2018.8	1897.1	1754.8	1624.9	1503.9	1402.9	1315.8	1238.0	1160.9	1083.7	1024.8
37.5°	1958.0	1834.4	1697.1	1557.2	1438.7	1340.8	1261.2	1182.8	1106.3	1035.4	969.6
40°	1875.8	1762.9	1624.9	1484.5	1365.3	1271.2	1192.8	1120.7	1053.0	983.4	912.5
42.5°	1773.6	1687.7	1545.3	1406.7	1290.0	1196.6	1127.0	1062.4	997.2	925.7	861.7
45°	1664.4	1591.1	1461.9	1322.0	1211.0	1120.1	1053.6	996.5	935.1	871.7	804.6
47.5°	1541.5	1487.0	1375.3	1236.7	1120.1	1042.3	980.9	928.8	873.0	816.5	751.3
50°	1402.9	1369.7	1274.4	1148.3	1037.3	958.3	907.5	861.1	813.4	757.0	701.2
52.5°	1264.3	1258.1	1169.0	1058.0	953.3	879.9	830.3	787.7	748.8	695.5	648.5
55°	1118.8	1137.6	1063.6	961.4	868.0	797.1	753.2	718.7	684.8	639.7	594.5
57.5°	989.6	1011.0	960.2	866.1	778.9	718.7	681.1	649.7	620.2	578.9	548.8
60°	846.6	885.5	858.6	772.6	695.5	641.6	606.5	581.4	556.9	521.2	494.8
62.5°	733.8	760.7	745.1	681.1	612.7	568.8	537.5	514.3	494.8	467.2	441.5
65°	612.7	646.6	638.4	596.4	536.2	496.1	472.2	454.1	434.0	412.0	390.7
67.5°	503.6	538.7	536.8	508.0	463.5	430.2	407.6	394.5	378.2	356.8	343.7
70°	405.1	437.7	439.0	424.6	393.2	361.9	345.6	333.6	321.1	305.4	296.0
72.5°	314.8	344.3	349.3	342.4	322.4	301.7	287.2	279.1	268.4	255.2	247.1
75°	235.2	256.5	268.4	265.3	257.1	243.3	235.2	229.5	218.9	209.5	202.6
77.5°	167.4	184.4	196.3	201.3	197.6	191.9	184.4	180.0	168.7	164.3	160.5
80°	112.3	127.3	138.0	141.1	143.0	141.7	134.8	132.3	126.7	124.8	121.0
82.5°	69.0	77.1	84.7	92.8	96.6	96.6	92.8	93.4	88.4	85.9	84.7
85°	42.0	43.9	45.2	51.4	56.4	58.3	56.4	57.1	55.2	53.3	51.4
87.5°	19.4	19.4	20.1	21.3	22.6	26.3	27.6	29.5	27.0	27.0	22.6
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°	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5	1610.5
2.5°	1576.6	1568.5	1562.2	1552.2	1544.0	1530.9	1526.5	1526.5	1529.0	1525.9	1529.0
5°	1535.3	1520.2	1503.9	1489.5	1473.8	1462.5	1451.2	1448.7	1447.5	1439.9	1440.6
7.5°	1493.9	1473.8	1453.1	1434.3	1414.8	1397.3	1385.4	1380.4	1376.0	1370.9	1365.3
10°	1449.3	1426.1	1401.7	1380.4	1361.5	1337.7	1325.8	1322.0	1309.5	1307.0	1298.2
12.5°	1402.3	1378.5	1354.0	1326.4	1308.2	1285.0	1267.5	1259.3	1247.4	1238.6	1225.4
15°	1365.3	1335.2	1302.6	1275.6	1251.8	1226.1	1202.2	1186.6	1170.9	1146.4	1134.5
17.5°	1319.5	1285.0	1256.8	1228.0	1193.5	1155.8	1127.6	1104.4	1087.5	1067.4	1055.5
20°	1270.0	1238.0	1202.9	1162.1	1125.7	1083.1	1057.4	1037.9	1024.8	1012.8	1006.6
22.5°	1226.1	1189.1	1140.8	1101.9	1051.1	1017.2	996.5	984.0	971.5	958.9	952.6
25°	1178.4	1135.1	1076.2	1028.5	990.3	963.9	943.9	931.9	918.8	911.2	901.8
27.5°	1131.4	1075.6	1016.6	973.3	943.2	912.5	895.6	886.2	876.1	865.5	857.9
30°	1074.3	1011.0	962.0	922.5	892.4	866.7	854.2	840.4	831.6	825.3	820.9
32.5°	1014.7	953.9	909.4	875.5	846.0	826.6	810.9	802.1	794.6	787.7	782.7
35°	958.9	900.0	862.3	829.7	805.3	783.3	771.4	763.2	757.0	751.3	748.8
37.5°	903.7	853.5	812.8	787.1	761.4	743.8	732.5	725.0	721.2	715.6	716.2
40°	849.2	804.0	771.4	741.9	718.1	703.0	694.3	691.1	685.5	683.6	685.5
42.5°	800.2	758.8	727.5	699.9	679.2	664.8	657.9	653.5	651.6	651.0	651.6
45°	752.6	713.7	683.6	661.0	639.7	626.5	620.9	617.7	615.9	619.0	619.6
47.5°	704.9	669.8	642.8	616.5	598.9	589.5	583.9	581.4	583.2	584.5	588.9
50°	657.9	625.3	597.0	573.8	560.0	551.3	549.4	545.0	548.1	550.0	553.1
52.5°	610.2	580.7	555.7	533.7	519.3	513.6	509.2	507.4	511.8	511.8	514.9
55°	561.9	536.2	513.0	492.9	481.6	474.8	471.6	469.1	471.6	472.2	471.6
57.5°	516.8	492.3	467.9	450.9	441.5	434.0	430.9	429.6	429.0	431.5	430.9
60°	469.1	445.9	426.5	408.9	399.5	395.1	388.2	389.5	389.5	389.5	383.2
62.5°	421.4	398.2	381.3	369.4	358.1	350.6	349.3	347.4	343.7	343.0	334.9
65°	372.5	355.0	340.5	328.6	317.3	311.1	309.2	303.5	299.1	291.0	285.4
67.5°	327.4	314.8	297.9	287.9	278.5	270.9	264.0	259.6	250.9	242.7	237.7
70°	282.2	269.0	257.8	247.1	237.7	230.8	222.6	214.5	208.8	203.8	200.1
72.5°	237.1	225.8	216.4	206.3	196.3	189.4	183.1	176.9	174.3	171.8	170.0
75°	195.0	184.4	175.6	167.4	161.8	153.7	150.5	148.0	145.5	142.4	138.6
77.5°	154.3	146.1	139.2	132.3	127.3	122.9	120.4	112.9	106.6	105.4	104.1
80°	114.8	108.5	104.1	99.1	93.4	87.2	85.3	82.8	81.5	81.5	82.2
82.5°	80.3	76.5	71.5	67.1	65.2	62.7	62.7	62.1	61.5	62.1	62.1
85°	48.9	43.9	42.6	42.0	42.6	42.6	42.6	42.6	42.0	42.6	41.4
87.5°	21.3	23.2	23.8	22.0	22.6	21.3	22.0	22.0	22.0	22.6	22.0
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: P243625

CATALOG NUMBER: S124RDR-H1195D940-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1610.5	1610.5	1610.5	1610.5
2.5°	1525.2	1525.2	1519.0	1513.9
5°	1439.3	1431.2	1429.9	1422.4
7.5°	1359.0	1357.8	1354.6	1354.6
10°	1295.1	1290.7	1286.3	1285.7
12.5°	1204.8	1211.0	1203.5	1201.6
15°	1125.7	1120.7	1114.4	1101.3
17.5°	1052.4	1042.9	1040.4	1034.8
20°	994.7	987.8	985.2	982.1
22.5°	940.1	938.8	931.3	929.4
25°	900.0	893.7	888.7	885.5
27.5°	856.1	851.7	849.2	844.1
30°	815.9	814.7	811.5	811.5
32.5°	779.5	775.8	775.8	775.2
35°	746.3	747.6	743.8	742.5
37.5°	714.9	713.1	713.7	712.4
40°	684.2	683.0	683.0	683.6
42.5°	652.9	653.5	654.7	654.7
45°	621.5	622.1	623.4	623.4
47.5°	592.0	590.8	592.0	590.8
50°	554.4	558.2	557.5	556.9
52.5°	516.1	514.9	517.4	516.8
55°	474.8	472.9	475.4	472.9
57.5°	428.3	429.0	429.0	427.7
60°	381.9	380.1	377.5	377.5
62.5°	328.0	322.4	318.6	321.1
65°	275.9	271.6	270.3	268.4
67.5°	234.6	229.5	227.7	227.0
70°	198.8	196.3	195.7	195.7
72.5°	168.7	168.7	166.8	165.6
75°	137.3	134.8	131.7	131.7
77.5°	102.9	102.2	101.6	101.6
80°	80.3	80.3	80.9	81.5
82.5°	60.2	60.8	61.5	61.5
85°	40.8	40.8	41.4	41.4
87.5°	22.0	22.0	22.0	21.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)