

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: P242764

Luminaire Tested: **S124RDR-S1020D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242764
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-31)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124RDR-S1020D940-X4F0-XX-UDD-A-W
Description: DEFINE 4 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3567.4 lumens
Efficiency: N/A
Efficacy: 102.5 lumens/watt
Spacing Criteria (0/90/45): 1.27 / 1.22 / 1.39
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

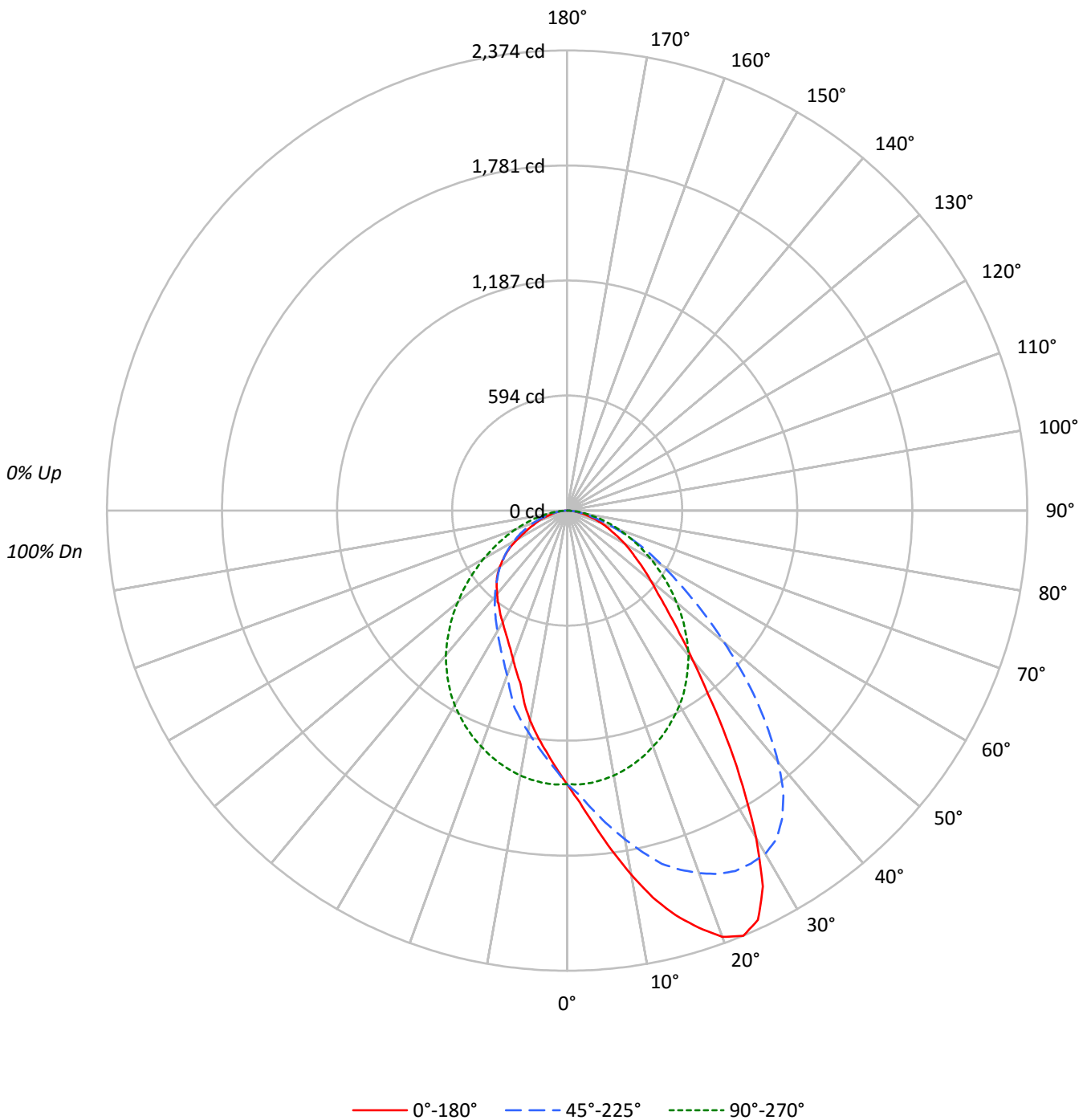
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86
2	101	93	87	82	98	92	86	81	88	83	79	85	81	77	82	79	76	74
3	93	83	76	70	90	81	75	69	79	73	68	76	71	67	73	69	65	63
4	85	74	66	60	83	73	65	59	71	64	59	68	63	58	66	61	57	55
5	79	67	58	52	77	66	58	52	64	57	51	62	56	51	60	55	50	48
6	73	61	52	46	71	60	52	46	58	51	46	56	50	45	55	49	45	43
7	68	55	47	41	66	54	47	41	53	46	41	52	45	40	50	44	40	38
8	64	51	42	37	62	50	42	37	49	42	37	47	41	36	46	40	36	34
9	59	47	39	33	58	46	38	33	45	38	33	44	38	33	43	37	33	31
10	56	43	35	30	55	43	35	30	42	35	30	41	34	30	40	34	30	28

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	12544	12544	12544
5°	14551	12582	11121
10°	17213	12527	9925
15°	19883	12411	8529
20°	22138	12252	7712
25°	22852	12095	7161
30°	20006	11905	6828
35°	15573	11624	6627
40°	11678	11302	6519
45°	9221	10786	6461
50°	7784	10190	6274
55°	6785	9534	5939
60°	6105	8855	5257
65°	5382	8121	4520
70°	4847	7360	4078
75°	4063	6522	3476
80°	3435	5559	3261
85°	2896	4345	2896



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	136.6	3.8
10°-20°	412.6	11.6
20°-30°	646.4	18.1
30°-40°	717.8	20.1
40°-50°	636.1	17.8
50°-60°	495.7	13.9
60°-70°	324.2	9.1
70°-80°	159.1	4.5
80°-90°	38.7	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°	1195.7	33.5
0°-40°	1913.5	53.6
0°-60°	3045.3	85.4
0°-90°	3567.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3567.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1411	1411	1411	1411	1411	
5°	1631	1552	1410	1276	1246	164
15°	2161	1886	1349	1051	927	615
25°	2330	2051	1233	803	730	1040
35°	1435	1935	1071	646	611	898
45°	734	1379	858	513	514	578
55°	438	780	615	387	383	398
65°	256	401	386	251	215	257
75°	118	152	190	122	101	130
85°	28	31	43	30	28	33
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°	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2
2.5°	1507.9	1513.0	1507.9	1507.3	1501.6	1499.9	1497.6	1490.2	1476.6	1468.6	1470.3
5°	1630.7	1644.9	1636.9	1635.8	1623.3	1610.8	1602.8	1584.6	1565.3	1552.2	1541.4
7.5°	1767.1	1775.7	1770.0	1763.7	1742.1	1735.3	1716.5	1694.9	1662.5	1638.1	1615.9
10°	1907.0	1913.8	1911.6	1896.8	1882.0	1851.9	1834.8	1801.3	1757.5	1722.8	1690.4
12.5°	2044.6	2052.0	2027.5	2032.1	2000.8	1978.6	1949.1	1904.7	1852.4	1805.2	1762.6
15°	2160.6	2151.5	2151.5	2140.1	2108.9	2075.9	2048.0	2003.7	1940.0	1886.5	1830.3
17.5°	2256.1	2260.1	2255.5	2226.5	2203.8	2170.3	2120.2	2069.6	2014.5	1942.8	1887.1
20°	2340.3	2340.3	2335.1	2317.0	2285.1	2248.7	2193.6	2137.3	2062.2	1990.0	1925.2
22.5°	2374.4	2376.7	2370.4	2356.2	2328.3	2293.1	2248.2	2190.7	2112.8	2029.3	1945.1
25°	2330.0	2340.8	2342.0	2338.0	2329.5	2307.9	2267.5	2208.9	2139.6	2051.4	1965.0
27.5°	2186.7	2201.0	2206.6	2219.2	2242.5	2251.0	2245.9	2206.6	2139.6	2052.6	1966.7
30°	1949.1	1960.5	1997.4	2045.7	2083.3	2117.4	2146.9	2154.9	2120.8	2044.6	1953.1
32.5°	1685.3	1701.8	1738.7	1791.6	1860.4	1924.1	1999.7	2040.1	2047.4	2009.4	1926.3
35°	1435.1	1446.5	1480.6	1535.2	1610.2	1696.1	1801.3	1883.1	1938.8	1934.9	1883.1
37.5°	1195.1	1211.1	1245.8	1290.7	1364.6	1474.3	1573.8	1683.6	1783.6	1832.5	1806.4
40°	1006.4	1007.0	1040.5	1087.1	1155.3	1248.0	1358.9	1484.0	1598.8	1692.7	1710.8
42.5°	857.4	857.4	876.7	927.9	972.3	1058.1	1162.7	1286.7	1426.0	1538.0	1593.7
45°	733.5	738.6	756.8	786.9	825.6	899.5	984.2	1099.6	1250.3	1378.8	1459.0
47.5°	635.7	644.8	655.6	682.9	714.7	766.4	838.7	946.7	1071.8	1214.5	1325.4
50°	562.9	564.0	578.8	592.5	619.2	658.4	719.8	806.2	918.8	1054.7	1181.5
52.5°	500.3	499.8	507.2	525.4	545.8	574.3	620.9	697.6	794.3	912.6	1044.5
55°	437.8	440.6	447.5	461.1	477.6	499.2	538.4	597.6	676.0	780.1	898.9
57.5°	390.0	391.7	398.0	403.1	419.0	435.0	466.8	509.4	578.2	665.2	781.8
60°	343.4	344.0	345.7	354.2	366.2	380.9	400.8	435.5	491.3	569.1	656.7
62.5°	297.9	299.1	301.9	307.6	316.1	325.2	346.3	372.4	416.2	479.9	556.6
65°	255.9	256.4	260.4	262.7	270.1	279.2	294.5	313.3	345.1	400.8	460.5
67.5°	220.6	220.6	220.6	224.0	229.7	236.0	246.2	262.1	287.7	323.5	379.2
70°	186.5	186.5	187.6	189.3	192.2	197.3	202.4	213.8	231.4	259.3	299.6
72.5°	154.7	155.2	156.4	156.4	157.5	161.5	164.9	171.1	183.1	202.4	233.1
75°	118.3	120.0	122.8	125.1	127.9	127.4	131.3	135.9	139.9	152.4	171.1
77.5°	93.2	92.1	92.1	94.4	95.0	95.5	98.4	102.3	105.8	112.6	119.4
80°	67.1	67.1	68.8	69.4	68.8	69.4	72.2	73.9	75.1	77.3	83.6
82.5°	46.6	47.8	46.6	47.2	47.8	48.3	50.6	50.6	51.7	52.3	54.0
85°	28.4	29.0	29.6	28.4	28.4	28.4	29.6	30.1	31.3	30.7	31.8
87.5°	12.5	11.9	12.5	12.5	13.1	12.5	13.1	14.2	13.1	13.6	13.6
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2
2.5°	1464.7	1456.7	1452.7	1443.6	1432.8	1427.1	1422.0	1414.6	1405.0	1394.7	1387.3
5°	1527.8	1514.1	1497.1	1476.6	1458.4	1440.8	1425.4	1410.1	1392.4	1374.3	1356.1
7.5°	1590.3	1565.9	1539.7	1508.4	1478.3	1450.4	1425.4	1401.0	1373.1	1348.1	1324.8
10°	1656.3	1619.9	1579.5	1536.9	1494.2	1457.3	1420.9	1387.9	1351.5	1319.1	1291.8
12.5°	1709.7	1665.4	1614.8	1559.0	1505.6	1459.0	1415.8	1370.3	1327.6	1291.8	1253.1
15°	1770.0	1711.4	1646.0	1582.4	1515.8	1455.0	1398.7	1348.7	1301.5	1252.0	1217.3
17.5°	1811.5	1743.8	1666.5	1592.6	1516.4	1445.9	1382.2	1324.2	1270.2	1220.7	1179.8
20°	1847.9	1771.1	1683.0	1596.0	1507.9	1431.1	1361.2	1295.2	1238.9	1184.3	1141.7
22.5°	1868.3	1781.4	1683.0	1590.9	1498.8	1414.1	1335.6	1266.2	1203.7	1149.1	1100.8
25°	1869.5	1778.5	1680.1	1575.5	1475.5	1387.3	1307.7	1233.2	1165.0	1110.4	1060.4
27.5°	1864.9	1759.7	1660.8	1554.5	1451.6	1357.8	1275.3	1196.3	1128.6	1070.6	1019.5
30°	1851.3	1736.4	1628.4	1517.0	1412.3	1323.1	1234.9	1159.9	1088.8	1028.0	976.2
32.5°	1821.7	1708.0	1589.7	1474.9	1368.6	1275.9	1193.4	1117.8	1048.5	985.9	930.2
35°	1780.8	1665.4	1539.1	1422.0	1318.0	1222.4	1144.0	1071.2	1004.7	938.2	880.2
37.5°	1733.6	1613.1	1488.5	1360.0	1256.6	1165.6	1092.2	1022.3	957.5	896.6	832.4
40°	1660.8	1553.4	1423.7	1296.4	1189.5	1102.5	1035.9	974.0	908.6	848.3	784.1
42.5°	1572.7	1485.1	1353.8	1225.9	1120.7	1037.7	976.8	916.5	858.6	800.6	732.9
45°	1472.6	1403.2	1280.4	1157.6	1051.3	968.3	911.4	858.0	805.7	750.0	686.8
47.5°	1361.2	1310.0	1203.1	1074.6	975.1	898.9	844.3	800.0	753.9	697.6	640.8
50°	1244.0	1213.9	1111.6	996.7	902.9	834.1	777.8	736.9	699.9	646.5	597.0
52.5°	1119.0	1106.5	1024.0	915.4	825.6	758.5	712.4	676.6	639.1	597.0	551.5
55°	991.6	1000.1	926.8	831.8	746.5	689.7	645.9	615.2	583.4	545.8	510.0
57.5°	859.1	891.5	836.9	751.1	668.6	615.2	581.7	554.4	527.6	495.8	463.4
60°	742.6	768.7	740.9	667.5	597.6	548.7	518.0	498.1	471.4	442.9	419.6
62.5°	628.8	657.3	643.6	587.9	524.2	483.9	457.7	439.5	421.3	397.4	373.0
65°	537.3	555.5	547.5	506.6	460.5	424.7	399.7	386.1	367.9	349.7	328.1
67.5°	429.8	465.7	460.0	437.2	392.9	364.5	346.8	334.3	317.3	303.6	288.3
70°	338.3	370.7	370.1	352.5	330.9	304.8	293.4	283.2	268.4	255.3	243.4
72.5°	261.5	290.5	296.2	283.7	270.6	252.4	241.6	235.4	221.2	213.2	204.1
75°	193.9	215.5	221.2	221.2	214.4	204.1	194.5	189.9	179.7	171.7	166.0
77.5°	136.5	151.2	159.8	161.5	162.0	158.1	149.0	145.6	137.6	134.8	128.5
80°	89.8	98.9	109.2	112.6	115.4	114.3	110.9	108.6	101.2	98.4	96.1
82.5°	55.2	59.1	67.1	75.6	73.9	77.9	75.1	73.3	68.2	67.7	65.4
85°	32.4	33.0	34.1	39.2	42.1	43.2	43.8	42.6	40.9	40.9	37.0
87.5°	13.6	13.1	14.2	14.2	14.8	17.1	18.8	19.3	17.6	15.9	14.2
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°	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2	1411.2
2.5°	1379.4	1373.7	1366.3	1357.8	1347.5	1338.4	1334.5	1337.9	1339.6	1335.0	1334.5
5°	1343.5	1329.3	1318.0	1300.9	1287.3	1275.9	1267.9	1264.5	1265.7	1256.6	1254.3
7.5°	1303.7	1288.4	1269.6	1250.3	1232.1	1216.2	1207.7	1203.7	1194.0	1190.0	1183.8
10°	1265.7	1242.9	1224.7	1200.8	1179.2	1159.3	1149.7	1141.7	1132.0	1127.5	1117.8
12.5°	1226.4	1199.1	1178.7	1153.6	1131.5	1106.5	1097.4	1080.9	1064.4	1053.6	1040.5
15°	1190.0	1158.2	1133.7	1104.2	1078.0	1050.7	1026.3	999.0	988.8	967.2	954.6
17.5°	1146.8	1113.8	1086.6	1048.5	1009.2	976.2	949.0	920.5	905.2	890.4	884.1
20°	1104.2	1074.6	1032.5	986.5	941.6	904.0	883.0	865.9	848.9	839.2	832.4
22.5°	1063.8	1024.0	973.4	922.8	877.9	850.6	833.5	815.9	802.8	793.7	784.1
25°	1017.8	968.3	916.5	859.7	829.0	803.4	784.1	769.9	761.3	749.4	744.8
27.5°	972.8	913.1	854.6	815.9	784.1	759.6	742.0	731.8	720.4	712.4	706.2
30°	919.4	858.6	807.4	771.0	738.6	719.3	705.6	693.1	684.6	678.3	673.8
32.5°	866.5	805.7	764.7	724.9	701.1	682.3	667.5	659.0	652.7	644.2	641.9
35°	815.9	761.9	724.4	689.1	663.0	645.9	634.5	624.9	619.2	616.9	615.2
37.5°	766.4	721.5	680.0	651.6	627.1	614.1	599.3	594.7	590.8	585.6	587.9
40°	719.8	678.3	642.5	611.8	593.0	578.2	570.3	564.6	561.2	561.2	561.2
42.5°	679.4	639.1	604.4	577.7	558.9	547.0	537.9	533.3	532.8	532.2	535.6
45°	637.4	599.8	564.6	541.9	525.9	513.4	508.3	504.3	504.3	506.6	507.2
47.5°	595.3	560.0	531.6	505.5	490.7	482.7	478.2	475.9	475.9	478.7	481.0
50°	557.2	522.5	494.7	471.9	458.3	450.9	446.9	445.8	446.9	446.9	450.9
52.5°	515.7	485.6	458.3	440.1	424.2	417.3	415.6	413.9	414.5	416.8	417.9
55°	475.3	447.5	421.3	403.1	391.7	387.2	382.1	382.7	381.5	382.7	382.7
57.5°	434.4	409.9	384.4	369.6	359.9	353.1	347.4	349.1	347.4	347.4	346.8
60°	395.2	367.9	348.5	335.5	324.1	318.4	313.3	314.4	312.7	311.6	309.3
62.5°	352.5	330.9	312.7	300.2	291.7	284.9	279.7	278.0	273.5	268.9	263.3
65°	311.6	292.8	276.3	264.4	255.9	250.7	246.8	243.4	234.8	225.7	221.2
67.5°	271.2	257.6	241.6	231.4	224.6	217.8	210.4	204.1	195.6	189.9	187.1
70°	232.5	219.5	206.4	196.7	189.3	183.1	174.6	170.6	164.9	162.6	159.8
72.5°	195.6	183.7	171.7	163.2	155.2	150.7	144.4	140.4	138.7	138.2	135.3
75°	158.1	148.4	139.3	131.3	125.1	121.7	118.8	116.0	114.9	109.7	106.9
77.5°	121.7	114.9	109.2	102.9	98.9	96.7	90.4	86.4	84.1	81.3	80.7
80°	89.8	85.3	79.6	76.2	69.9	67.7	65.4	64.8	64.2	63.7	63.1
82.5°	62.0	57.4	51.7	50.0	49.5	48.3	47.2	46.6	46.1	46.6	46.6
85°	34.1	31.8	31.8	31.3	30.7	30.1	29.6	29.6	29.0	29.6	29.0
87.5°	14.2	13.6	13.6	12.5	13.1	13.1	12.5	12.5	13.1	11.9	11.9
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: P242764

CATALOG NUMBER: S124RDR-S1020D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1411.2	1411.2	1411.2	1411.2
2.5°	1331.0	1332.2	1328.2	1327.1
5°	1249.7	1248.6	1245.8	1246.3
7.5°	1179.2	1175.2	1178.1	1173.5
10°	1115.5	1109.3	1104.2	1099.6
12.5°	1028.6	1023.4	1016.0	1018.9
15°	947.2	938.7	925.1	926.8
17.5°	874.5	875.6	867.6	869.9
20°	820.5	816.5	817.0	815.3
22.5°	782.9	777.8	772.7	768.7
25°	739.7	736.3	731.2	730.1
27.5°	701.6	701.1	698.8	695.9
30°	669.2	668.1	666.9	665.2
32.5°	640.2	639.6	638.5	639.1
35°	612.9	612.4	611.2	610.7
37.5°	587.3	589.0	587.9	587.9
40°	560.6	561.2	562.3	561.8
42.5°	538.4	538.4	540.1	537.9
45°	511.2	514.6	514.0	514.0
47.5°	482.2	486.1	486.7	486.7
50°	453.7	452.6	454.3	453.7
52.5°	419.0	419.6	419.0	418.5
55°	383.2	383.8	382.7	383.2
57.5°	345.1	342.9	344.6	343.4
60°	303.6	299.1	297.9	295.7
62.5°	257.0	254.2	249.6	252.4
65°	216.6	214.4	212.6	214.9
67.5°	184.2	183.1	183.1	181.9
70°	159.8	158.1	158.1	156.9
72.5°	134.8	133.0	133.6	133.0
75°	103.5	100.6	100.6	101.2
77.5°	80.7	80.2	81.3	79.6
80°	63.1	62.5	62.0	63.7
82.5°	45.5	45.5	45.5	47.8
85°	29.6	28.4	29.6	28.4
87.5°	13.1	12.5	11.9	12.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)