

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: P243594

Luminaire Tested: **S124RDR-H1020D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243594  
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-H1020D927-X4F0-XX-UDD-A-W  
Description: DEFINE 4 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 2700K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

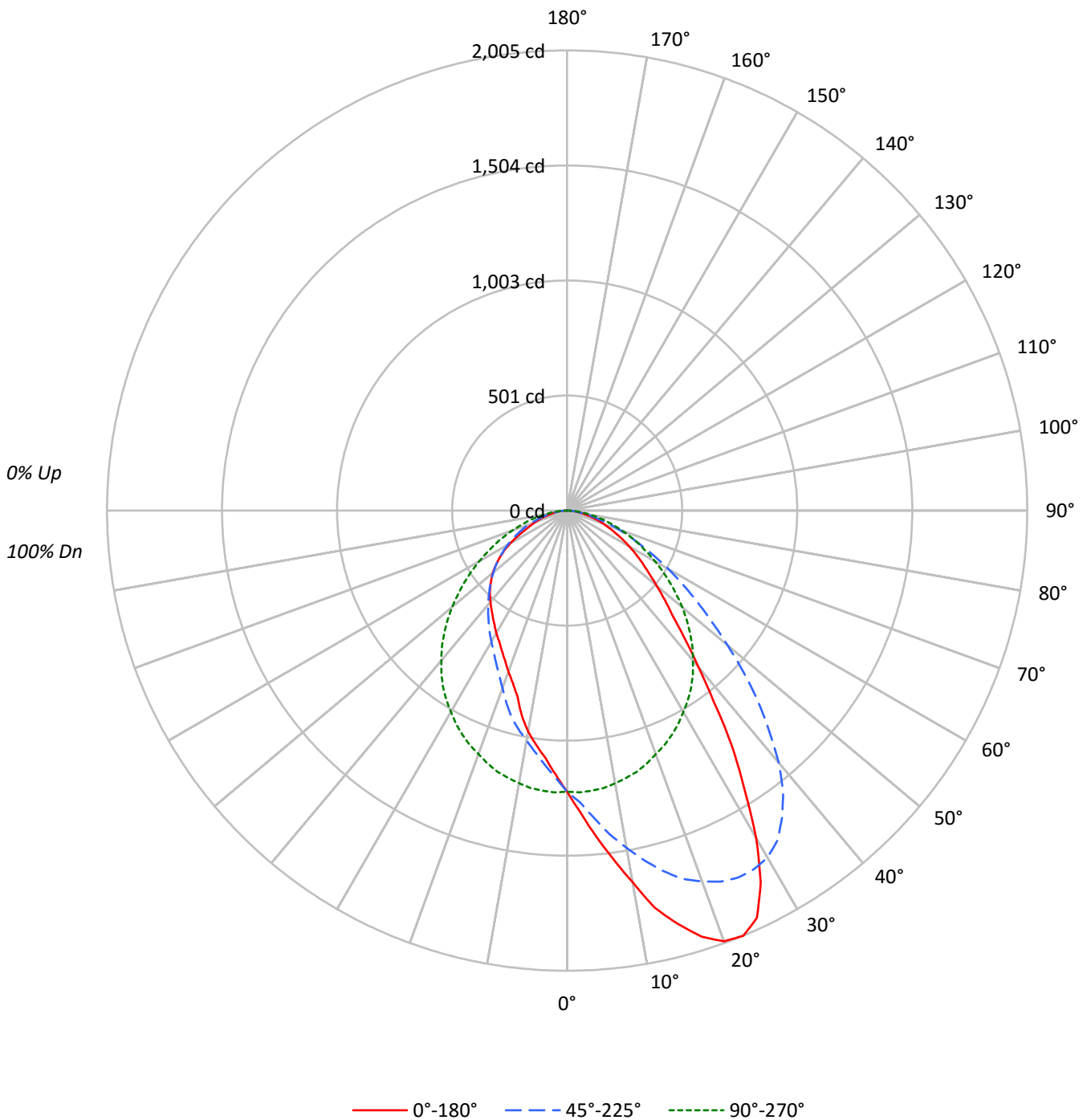
Lumens per Lamp: N/A  
Luminaire Lumens: 3161.0 lumens  
Efficiency: N/A  
Efficacy: 100.3 lumens/watt  
Spacing Criteria (0/90/45): 1.27 / 1.23 / 1.39  
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 31.5  
Input Voltage (V): 120  
Input Current (Ain): 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



TEST NUMBER: P243594

CATALOG NUMBER: S124RDR-H1020D927-X4F0-XX-UDD-A-W

### Luminous Intensity Polar Plot





TEST NUMBER: P243594

CATALOG NUMBER: S124RDR-H1020D927-X4F0-XX-UDD-A-W

**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	105	102	98	107	103	100	97	99	96	93	95	93	91	92	90	88	86
2	101	93	87	82	98	91	86	81	88	83	79	85	81	77	82	78	75	73
3	92	83	75	69	90	81	74	68	78	72	67	76	70	66	73	69	65	63
4	85	74	66	59	83	73	65	59	70	63	58	68	62	57	66	61	57	55
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50	48
6	73	60	52	46	71	59	51	45	58	50	45	56	50	45	54	49	44	42
7	68	55	46	41	66	54	46	40	53	45	40	51	45	40	50	44	40	38
8	63	50	42	36	62	50	42	36	48	41	36	47	41	36	46	40	36	34
9	59	46	38	33	58	46	38	33	45	38	33	43	37	33	42	37	32	31
10	56	43	35	30	54	42	35	30	41	35	30	40	34	30	39	34	30	28

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

	0°	90°	180°
0°	10887	10887	10887
5°	12682	10932	9652
10°	14851	10887	8825
15°	17161	10832	7707
20°	18894	10679	7065
25°	19197	10581	6605
30°	16899	10392	6335
35°	13560	10217	6128
40°	10316	9890	6033
45°	8190	9526	5960
50°	7031	9055	5856
55°	6208	8471	5573
60°	5563	7860	5104
65°	4894	7263	4293
70°	4364	6594	3867
75°	3798	5996	3441
80°	3225	5150	3174
85°	2825	4426	3213



TEST NUMBER: P243594

CATALOG NUMBER: S124RDR-H1020D927-X4F0-XX-UDD-A-W

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	118.8	3.8
10°-20°	360.4	11.4
20°-30°	562.4	17.8
30°-40°	627.2	19.8
40°-50°	563.8	17.8
50°-60°	445.5	14.1
60°-70°	295.9	9.4
70°-80°	148.3	4.7
80°-90°	38.6	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°	1041.7	33.0
0°-40°	1668.9	52.8
0°-60°	2678.2	84.7
0°-90°	3161.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3161.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1225	1225	1225	1225	1225	
5°	1421	1344	1225	1112	1082	142
15°	1865	1627	1177	932	838	530
25°	1957	1764	1079	733	673	876
35°	1250	1632	942	596	565	776
45°	652	1176	758	476	474	516
55°	401	691	547	361	360	361
65°	233	354	345	237	204	233
75°	111	140	175	117	100	118
85°	28	30	43	32	32	31
90°	0	0	0	0	0	



TEST NUMBER: P243594

CATALOG NUMBER: S124RDR-H1020D927-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8
2.5°	1315.4	1310.6	1310.1	1303.9	1303.5	1297.3	1295.3	1290.1	1279.6	1271.5	1272.0
5°	1421.3	1417.4	1417.0	1410.8	1408.9	1401.2	1389.3	1375.0	1358.3	1344.5	1335.4
7.5°	1530.0	1536.7	1529.5	1529.5	1515.7	1506.6	1483.3	1471.3	1442.7	1422.7	1401.7
10°	1645.4	1651.6	1648.8	1643.0	1624.9	1606.3	1582.0	1558.6	1523.8	1492.3	1471.3
12.5°	1774.2	1755.6	1767.5	1749.9	1735.1	1705.5	1682.1	1635.4	1607.7	1562.0	1520.9
15°	1864.8	1857.7	1857.2	1845.3	1829.0	1796.6	1771.3	1722.7	1675.5	1627.3	1581.0
17.5°	1945.9	1946.8	1940.2	1921.1	1900.1	1868.6	1834.3	1790.9	1737.0	1683.6	1628.7
20°	1997.4	1997.9	1993.1	1983.1	1960.2	1931.6	1896.3	1839.5	1778.5	1719.3	1664.5
22.5°	2005.0	2006.5	2005.0	1998.8	1983.1	1959.7	1927.3	1879.1	1817.6	1749.9	1684.5
25°	1957.3	1962.1	1962.6	1971.2	1963.1	1954.0	1930.1	1889.6	1832.9	1764.2	1693.1
27.5°	1826.7	1840.0	1852.4	1867.7	1881.5	1893.9	1895.8	1874.3	1825.7	1761.8	1694.1
30°	1646.4	1662.1	1686.9	1703.1	1746.1	1773.2	1810.0	1818.1	1794.7	1745.6	1680.2
32.5°	1436.5	1453.2	1462.8	1516.2	1577.7	1622.0	1683.1	1719.3	1728.4	1705.0	1651.6
35°	1249.6	1252.4	1259.6	1320.2	1381.2	1448.4	1524.3	1587.2	1630.2	1632.5	1606.3
37.5°	1049.3	1052.6	1080.7	1127.0	1179.9	1253.9	1341.1	1430.8	1509.5	1545.7	1538.1
40°	889.0	888.0	918.1	958.2	1009.7	1086.5	1176.6	1274.4	1358.3	1434.1	1452.3
42.5°	759.3	762.6	788.4	811.7	861.3	915.2	1011.6	1113.2	1220.9	1303.9	1359.3
45°	651.5	660.1	677.7	699.7	736.9	786.5	865.2	966.3	1076.4	1176.1	1242.4
47.5°	577.1	579.5	588.5	615.7	640.5	680.6	747.8	833.7	931.4	1043.1	1130.3
50°	508.4	514.1	517.5	533.7	558.0	596.2	648.2	712.1	808.9	911.4	1020.6
52.5°	449.3	452.6	458.8	473.6	492.7	519.4	560.4	616.7	697.3	792.2	895.2
55°	400.6	401.1	407.3	417.8	432.6	453.1	492.2	532.7	604.3	690.6	784.1
57.5°	356.7	353.9	359.6	365.8	380.1	397.8	423.0	464.5	520.3	593.8	678.2
60°	312.9	315.3	314.8	321.9	329.6	347.2	368.7	395.9	441.6	508.9	580.4
62.5°	271.9	271.4	276.1	280.4	285.7	300.0	317.6	340.1	375.8	425.4	494.6
65°	232.7	233.7	237.5	240.9	246.6	255.6	269.0	287.1	315.7	353.9	412.1
67.5°	197.5	200.8	202.7	203.7	208.9	215.6	227.0	241.8	261.4	291.9	340.5
70°	167.9	168.8	169.8	173.1	175.5	179.3	187.9	196.0	213.7	236.1	271.4
72.5°	140.2	139.3	142.1	143.1	144.0	147.8	153.1	157.4	168.8	187.9	209.9
75°	110.6	111.1	111.6	113.0	116.8	117.3	119.7	124.5	132.6	140.2	155.0
77.5°	83.0	84.4	83.9	85.4	86.8	88.2	89.2	93.5	99.2	105.4	112.6
80°	63.0	63.0	63.0	63.9	63.0	66.3	66.3	67.7	69.2	72.0	77.3
82.5°	42.9	43.9	44.4	44.8	45.3	45.3	45.8	46.7	48.6	49.6	51.0
85°	27.7	26.7	27.2	27.2	27.2	27.2	28.1	29.1	29.1	29.6	31.0
87.5°	12.4	12.4	12.4	12.4	11.9	12.4	12.9	12.9	13.4	13.4	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



TEST NUMBER: P243594

CATALOG NUMBER: S124RDR-H1020D927-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8
2.5°	1269.1	1267.7	1260.5	1252.9	1245.7	1238.6	1236.2	1229.1	1220.5	1212.8	1204.3
5°	1325.9	1314.4	1298.7	1282.5	1265.8	1250.5	1238.6	1225.2	1210.0	1191.9	1177.5
7.5°	1383.1	1362.1	1336.4	1312.5	1283.9	1261.0	1238.1	1219.0	1197.1	1171.3	1151.8
10°	1438.9	1404.1	1372.6	1334.9	1298.7	1267.2	1238.1	1206.2	1177.1	1149.4	1122.2
12.5°	1483.3	1448.4	1403.1	1356.9	1310.1	1269.1	1230.0	1192.3	1156.1	1122.7	1092.7
15°	1533.8	1483.7	1427.9	1376.9	1313.0	1262.4	1217.6	1177.1	1135.6	1095.0	1062.1
17.5°	1571.0	1511.9	1442.7	1384.1	1322.5	1259.6	1205.7	1154.7	1107.0	1064.5	1030.7
20°	1599.6	1529.5	1460.4	1386.0	1312.5	1248.1	1187.6	1128.9	1080.7	1034.5	998.7
22.5°	1612.0	1538.1	1461.3	1380.7	1302.5	1229.5	1166.6	1106.0	1051.6	1003.9	962.5
25°	1617.3	1536.2	1456.6	1365.0	1285.8	1211.4	1141.3	1078.8	1023.0	969.1	928.1
27.5°	1613.0	1526.2	1434.6	1348.3	1258.6	1185.7	1111.3	1047.8	989.6	937.7	891.9
30°	1601.5	1503.3	1412.2	1315.4	1229.1	1152.3	1079.8	1012.5	953.9	900.9	855.6
32.5°	1572.0	1477.5	1374.0	1279.6	1186.6	1110.8	1045.0	978.7	919.0	863.7	819.8
35°	1535.2	1442.7	1334.5	1235.7	1143.7	1066.9	1000.6	941.5	882.8	824.1	779.3
37.5°	1489.0	1395.0	1290.6	1184.2	1094.1	1019.7	959.1	899.5	841.3	787.4	737.3
40°	1426.5	1340.7	1235.7	1128.9	1038.3	966.7	907.1	852.3	800.8	747.8	693.9
42.5°	1348.8	1283.4	1175.2	1069.8	981.1	910.0	857.0	807.9	758.3	704.0	655.3
45°	1265.8	1210.0	1111.7	1005.4	921.0	851.8	801.2	757.8	711.1	662.9	611.9
47.5°	1172.3	1130.8	1045.9	940.5	851.8	792.7	745.9	706.3	663.9	621.0	571.4
50°	1066.9	1041.6	969.1	873.3	788.8	728.8	690.1	654.8	618.6	575.7	533.2
52.5°	961.5	956.7	889.0	804.6	724.9	669.1	631.5	599.0	569.5	528.9	493.1
55°	850.8	865.2	808.9	731.1	660.1	606.2	572.8	546.6	520.8	486.5	452.1
57.5°	752.6	768.8	730.2	658.6	592.4	546.6	517.9	494.1	471.7	440.2	417.3
60°	643.9	673.4	652.9	587.6	528.9	487.9	461.2	442.1	423.5	396.3	376.3
62.5°	558.0	578.5	566.6	517.9	466.0	432.6	408.7	391.1	376.3	355.3	335.8
65°	466.0	491.7	485.5	453.6	407.8	377.3	359.1	345.3	330.0	313.3	297.1
67.5°	383.0	409.7	408.3	386.3	352.5	327.2	310.0	300.0	287.6	271.4	261.4
70°	308.1	332.9	333.9	322.9	299.0	275.2	262.8	253.7	244.2	232.3	225.1
72.5°	239.4	261.8	265.7	260.4	245.1	229.4	218.4	212.2	204.1	194.1	187.9
75°	178.8	195.1	204.1	201.7	195.5	185.0	178.8	174.6	166.4	159.3	154.0
77.5°	127.3	140.2	149.3	153.1	150.2	145.9	140.2	136.9	128.3	125.0	122.1
80°	85.4	96.8	104.9	107.3	108.7	107.8	102.5	100.6	96.3	94.9	92.0
82.5°	52.5	58.7	64.4	70.6	73.4	73.4	70.6	71.1	67.2	65.3	64.4
85°	32.0	33.4	34.3	39.1	42.9	44.4	42.9	43.4	42.0	40.5	39.1
87.5°	14.8	14.8	15.3	16.2	17.2	20.0	21.0	22.4	20.5	20.5	17.2
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: P243594

CATALOG NUMBER: S124RDR-H1020D927-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8	1224.8
2.5°	1199.0	1192.8	1188.0	1180.4	1174.2	1164.2	1160.9	1160.9	1162.8	1160.4	1162.8
5°	1167.5	1156.1	1143.7	1132.7	1120.8	1112.2	1103.6	1101.7	1100.8	1095.0	1095.5
7.5°	1136.1	1120.8	1105.1	1090.7	1076.0	1062.6	1053.5	1049.7	1046.4	1042.6	1038.3
10°	1102.2	1084.5	1065.9	1049.7	1035.4	1017.3	1008.2	1005.4	995.8	993.9	987.3
12.5°	1066.4	1048.3	1029.7	1008.7	994.9	977.2	963.9	957.7	948.6	941.9	931.9
15°	1038.3	1015.4	990.6	970.1	952.0	932.4	914.3	902.4	890.4	871.8	862.8
17.5°	1003.5	977.2	955.8	933.8	907.6	879.0	857.5	839.9	827.0	811.7	802.7
20°	965.8	941.5	914.8	883.8	856.1	823.7	804.1	789.3	779.3	770.2	765.5
22.5°	932.4	904.3	867.5	838.0	799.3	773.6	757.8	748.3	738.8	729.2	724.5
25°	896.2	863.2	818.4	782.2	753.1	733.0	717.8	708.7	698.7	693.0	685.8
27.5°	860.4	817.9	773.1	740.2	717.3	693.9	681.1	673.9	666.3	658.2	652.4
30°	817.0	768.8	731.6	701.6	678.7	659.1	649.6	639.1	632.4	627.6	624.3
32.5°	771.7	725.4	691.6	665.8	643.4	628.6	616.7	610.0	604.3	599.0	595.2
35°	729.2	684.4	655.8	631.0	612.4	595.7	586.6	580.4	575.7	571.4	569.5
37.5°	687.3	649.1	618.1	598.6	579.0	565.6	557.1	551.3	548.5	544.2	544.7
40°	645.8	611.4	586.6	564.2	546.1	534.6	528.0	525.6	521.3	519.9	521.3
42.5°	608.6	577.1	553.2	532.3	516.5	505.5	500.3	497.0	495.5	495.1	495.5
45°	572.3	542.7	519.9	502.7	486.5	476.5	472.2	469.8	468.3	470.7	471.2
47.5°	536.1	509.4	488.9	468.8	455.5	448.3	444.0	442.1	443.5	444.5	447.8
50°	500.3	475.5	454.0	436.4	425.9	419.2	417.8	414.5	416.8	418.3	420.7
52.5°	464.1	441.6	422.6	405.9	394.9	390.6	387.3	385.8	389.2	389.2	391.6
55°	427.3	407.8	390.1	374.9	366.3	361.0	358.7	356.7	358.7	359.1	358.7
57.5°	393.0	374.4	355.8	342.9	335.8	330.0	327.7	326.7	326.2	328.1	327.7
60°	356.7	339.1	324.3	311.0	303.8	300.5	295.2	296.2	296.2	296.2	291.4
62.5°	320.5	302.9	290.0	280.9	272.3	266.6	265.7	264.2	261.4	260.9	254.7
65°	283.3	269.9	259.0	249.9	241.3	236.6	235.1	230.8	227.5	221.3	217.0
67.5°	249.0	239.4	226.5	218.9	211.8	206.0	200.8	197.5	190.8	184.6	180.8
70°	214.6	204.6	196.0	187.9	180.8	175.5	169.3	163.1	158.8	155.0	152.1
72.5°	180.3	171.7	164.5	156.9	149.3	144.0	139.3	134.5	132.6	130.7	129.2
75°	148.3	140.2	133.5	127.3	123.0	116.8	114.5	112.6	110.6	108.3	105.4
77.5°	117.3	111.1	105.9	100.6	96.8	93.5	91.6	85.8	81.1	80.1	79.2
80°	87.3	82.5	79.2	75.4	71.1	66.3	64.9	63.0	62.0	62.0	62.5
82.5°	61.0	58.2	54.4	51.0	49.6	47.7	47.7	47.2	46.7	47.2	47.2
85°	37.2	33.4	32.4	32.0	32.4	32.4	32.4	32.4	32.0	32.4	31.5
87.5°	16.2	17.6	18.1	16.7	17.2	16.2	16.7	16.7	16.7	17.2	16.7
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: P243594

CATALOG NUMBER: S124RDR-H1020D927-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1224.8	1224.8	1224.8	1224.8
2.5°	1159.9	1159.9	1155.1	1151.3
5°	1094.6	1088.4	1087.4	1081.7
7.5°	1033.5	1032.6	1030.2	1030.2
10°	984.9	981.5	978.2	977.7
12.5°	916.2	921.0	915.2	913.8
15°	856.1	852.3	847.5	837.5
17.5°	800.3	793.1	791.2	786.9
20°	756.4	751.2	749.3	746.9
22.5°	714.9	714.0	708.2	706.8
25°	684.4	679.6	675.8	673.4
27.5°	651.0	647.7	645.8	642.0
30°	620.5	619.5	617.2	617.2
32.5°	592.8	590.0	590.0	589.5
35°	567.6	568.5	565.6	564.7
37.5°	543.7	542.3	542.7	541.8
40°	520.3	519.4	519.4	519.9
42.5°	496.5	497.0	497.9	497.9
45°	472.6	473.1	474.1	474.1
47.5°	450.2	449.3	450.2	449.3
50°	421.6	424.5	424.0	423.5
52.5°	392.5	391.6	393.5	393.0
55°	361.0	359.6	361.5	359.6
57.5°	325.7	326.2	326.2	325.3
60°	290.5	289.0	287.1	287.1
62.5°	249.4	245.1	242.3	244.2
65°	209.9	206.5	205.6	204.1
67.5°	178.4	174.6	173.1	172.6
70°	151.2	149.3	148.8	148.8
72.5°	128.3	128.3	126.9	125.9
75°	104.4	102.5	100.2	100.2
77.5°	78.2	77.7	77.3	77.3
80°	61.0	61.0	61.5	62.0
82.5°	45.8	46.3	46.7	46.7
85°	31.0	31.0	31.5	31.5
87.5°	16.7	16.7	16.7	16.2
90°	0.0	0.0	0.0	0.0

(END OF REPORT)