

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: P242734

Luminaire Tested: **S124RDR-S1020D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242734
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-S1020D927-X4F0-XX-UDD-A-W
Description: DEFINE 4 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3169.2 lumens
Efficiency: N/A
Efficacy: 91.1 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

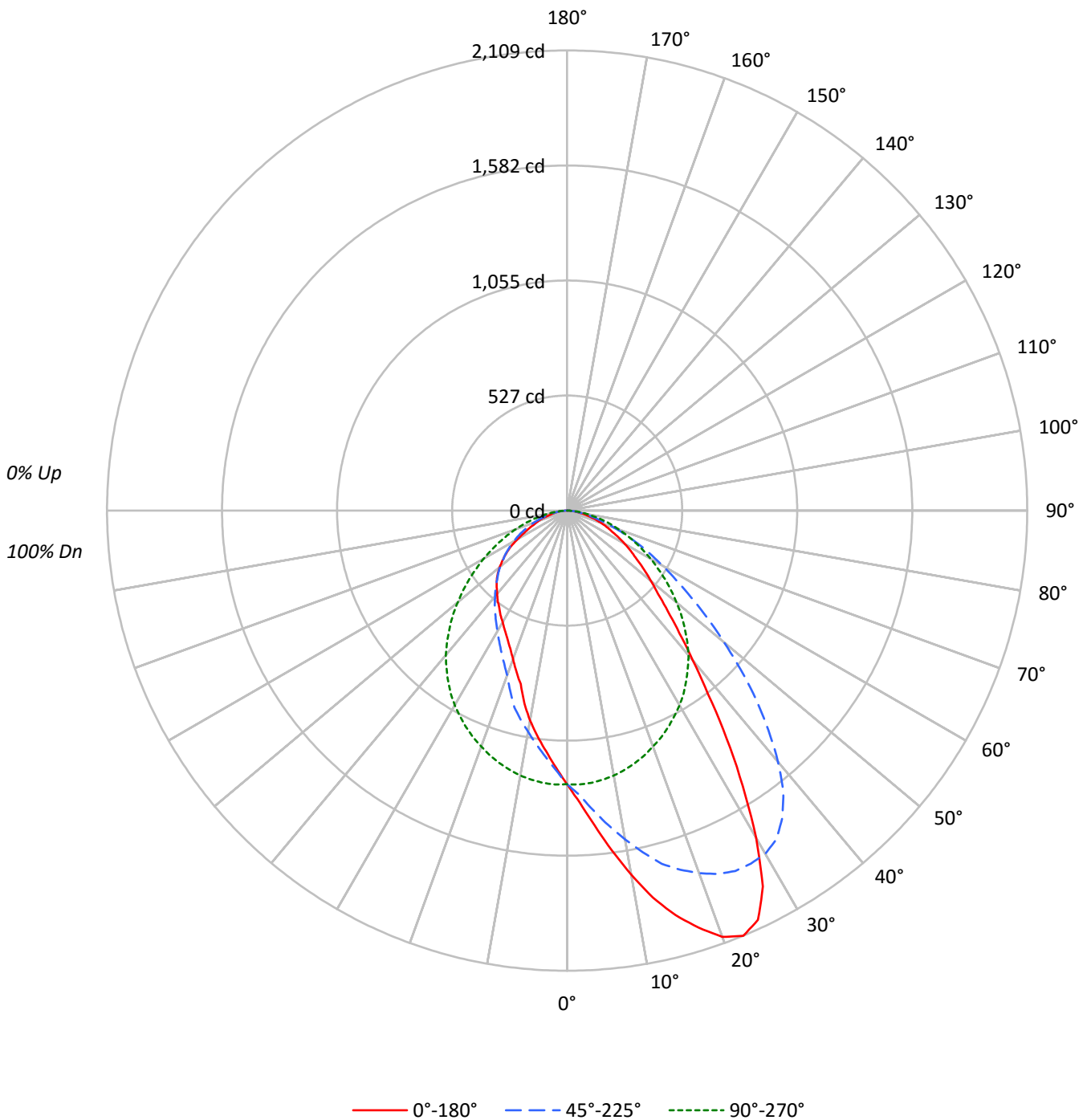
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	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°	11144	11144	11144
5°	12927	11178	9879
10°	15292	11129	8818
15°	17663	11025	7576
20°	19667	10885	6851
25°	20302	10745	6361
30°	17772	10576	6066
35°	13834	10326	5887
40°	10375	10041	5791
45°	8191	9581	5740
50°	6916	9052	5574
55°	6027	8469	5275
60°	5424	7867	4670
65°	4781	7214	4015
70°	4306	6536	3623
75°	3610	5794	3088
80°	3051	4940	2897
85°	2580	3865	2580



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	121.4	3.8
10°-20°	366.6	11.6
20°-30°	574.2	18.1
30°-40°	637.7	20.1
40°-50°	565.1	17.8
50°-60°	440.4	13.9
60°-70°	288.0	9.1
70°-80°	141.3	4.5
80°-90°	34.4	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°	1062.2	33.5
0°-40°	1699.9	53.6
0°-60°	2705.4	85.4
0°-90°	3169.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3169.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1254	1254	1254	1254	1254	
5°	1449	1379	1253	1134	1107	146
15°	1919	1676	1198	934	823	546
25°	2070	1822	1096	714	649	924
35°	1275	1719	952	574	542	798
45°	652	1225	762	456	457	514
55°	389	693	546	344	340	353
65°	227	356	343	223	191	228
75°	105	135	169	108	90	115
85°	25	27	38	27	25	29
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°	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7
2.5°	1339.6	1344.1	1339.6	1339.1	1334.0	1332.5	1330.5	1323.9	1311.8	1304.7	1306.2
5°	1448.7	1461.3	1454.2	1453.2	1442.1	1431.0	1423.9	1407.8	1390.6	1379.0	1369.4
7.5°	1569.9	1577.5	1572.4	1566.9	1547.7	1541.6	1524.9	1505.7	1477.0	1455.2	1435.5
10°	1694.2	1700.2	1698.2	1685.1	1671.9	1645.2	1630.0	1600.2	1561.3	1530.5	1501.7
12.5°	1816.4	1823.0	1801.2	1805.3	1777.5	1757.8	1731.5	1692.1	1645.7	1603.7	1565.9
15°	1919.4	1911.4	1911.4	1901.3	1873.5	1844.2	1819.4	1780.0	1723.5	1676.0	1626.0
17.5°	2004.3	2007.8	2003.8	1978.0	1957.8	1928.0	1883.6	1838.6	1789.6	1726.0	1676.5
20°	2079.1	2079.1	2074.5	2058.3	2030.1	1997.7	1948.7	1898.7	1832.1	1767.9	1710.3
22.5°	2109.4	2111.4	2105.8	2093.2	2068.4	2037.1	1997.2	1946.2	1877.0	1802.8	1728.0
25°	2070.0	2079.6	2080.6	2077.0	2069.5	2050.3	2014.4	1962.4	1900.7	1822.5	1745.7
27.5°	1942.7	1955.3	1960.4	1971.5	1992.2	1999.8	1995.2	1960.4	1900.7	1823.5	1747.2
30°	1731.5	1741.6	1774.5	1817.4	1850.7	1881.0	1907.3	1914.4	1884.1	1816.4	1735.1
32.5°	1497.2	1511.8	1544.6	1591.6	1652.7	1709.3	1776.5	1812.4	1818.9	1785.1	1711.3
35°	1274.9	1285.0	1315.3	1363.8	1430.5	1506.8	1600.2	1672.9	1722.4	1718.9	1672.9
37.5°	1061.8	1075.9	1106.7	1146.6	1212.3	1309.8	1398.2	1495.6	1584.5	1628.0	1604.8
40°	894.1	894.6	924.4	965.8	1026.4	1108.7	1207.2	1318.4	1420.4	1503.7	1519.9
42.5°	761.7	761.7	778.9	824.3	863.7	940.0	1033.0	1143.1	1266.8	1366.3	1415.8
45°	651.6	656.1	672.3	699.1	733.4	799.1	874.4	976.9	1110.7	1224.9	1296.1
47.5°	564.7	572.8	582.4	606.6	634.9	680.9	745.0	841.0	952.1	1078.9	1177.4
50°	500.1	501.1	514.2	526.3	550.1	584.9	639.5	716.3	816.3	937.0	1049.6
52.5°	444.5	444.0	450.6	466.7	484.9	510.2	551.6	619.8	705.6	810.7	927.9
55°	388.9	391.5	397.5	409.6	424.3	443.5	478.3	530.9	600.6	693.0	798.6
57.5°	346.5	348.0	353.6	358.1	372.3	386.4	414.7	452.6	513.7	591.0	694.5
60°	305.1	305.6	307.1	314.7	325.3	338.4	356.1	386.9	436.4	505.6	583.4
62.5°	264.7	265.7	268.2	273.3	280.8	288.9	307.6	330.9	369.7	426.3	494.5
65°	227.3	227.8	231.3	233.4	239.9	248.0	261.6	278.3	306.6	356.1	409.1
67.5°	196.0	196.0	196.0	199.0	204.1	209.6	218.7	232.9	255.6	287.4	336.9
70°	165.7	165.7	166.7	168.2	170.7	175.3	179.8	189.9	205.6	230.3	266.2
72.5°	137.4	137.9	138.9	138.9	139.9	143.5	146.5	152.0	162.6	179.8	207.1
75°	105.1	106.6	109.1	111.1	113.7	113.1	116.7	120.7	124.3	135.4	152.0
77.5°	82.8	81.8	81.8	83.8	84.4	84.9	87.4	90.9	94.0	100.0	106.1
80°	59.6	59.6	61.1	61.6	61.1	61.6	64.1	65.7	66.7	68.7	74.3
82.5°	41.4	42.4	41.4	41.9	42.4	42.9	45.0	45.0	46.0	46.5	48.0
85°	25.3	25.8	26.3	25.3	25.3	25.3	26.3	26.8	27.8	27.3	28.3
87.5°	11.1	10.6	11.1	11.1	11.6	11.1	11.6	12.6	11.6	12.1	12.1
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°	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7
2.5°	1301.2	1294.1	1290.6	1282.5	1272.9	1267.8	1263.3	1256.7	1248.1	1239.0	1232.5
5°	1357.2	1345.1	1330.0	1311.8	1295.6	1280.0	1266.3	1252.7	1237.0	1220.9	1204.7
7.5°	1412.8	1391.1	1367.9	1340.1	1313.3	1288.5	1266.3	1244.6	1219.9	1197.6	1176.9
10°	1471.4	1439.1	1403.2	1365.3	1327.4	1294.6	1262.3	1233.0	1200.7	1171.9	1147.6
12.5°	1518.9	1479.5	1434.5	1385.0	1337.5	1296.1	1257.7	1217.3	1179.4	1147.6	1113.3
15°	1572.4	1520.4	1462.3	1405.7	1346.6	1292.6	1242.6	1198.1	1156.2	1112.3	1081.5
17.5°	1609.3	1549.2	1480.5	1414.8	1347.1	1284.5	1227.9	1176.4	1128.4	1084.5	1048.1
20°	1641.6	1573.4	1495.1	1417.9	1339.6	1271.4	1209.2	1150.7	1100.6	1052.2	1014.3
22.5°	1659.8	1582.5	1495.1	1413.3	1331.5	1256.2	1186.5	1124.9	1069.3	1020.8	977.9
25°	1660.8	1580.0	1492.6	1399.7	1310.8	1232.5	1161.8	1095.6	1035.0	986.5	942.0
27.5°	1656.8	1563.3	1475.4	1381.0	1289.6	1206.2	1133.0	1062.8	1002.7	951.1	905.7
30°	1644.7	1542.6	1446.7	1347.6	1254.7	1175.4	1097.1	1030.4	967.3	913.2	867.3
32.5°	1618.4	1517.4	1412.3	1310.3	1215.8	1133.5	1060.2	993.1	931.4	875.9	826.4
35°	1582.0	1479.5	1367.3	1263.3	1170.9	1086.0	1016.3	951.6	892.5	833.4	781.9
37.5°	1540.1	1433.0	1322.4	1208.2	1116.3	1035.5	970.3	908.2	850.6	796.6	739.5
40°	1475.4	1380.0	1264.8	1151.7	1056.7	979.4	920.3	865.3	807.2	753.6	696.6
42.5°	1397.1	1319.4	1202.7	1089.0	995.6	921.8	867.8	814.2	762.7	711.2	651.1
45°	1308.2	1246.6	1137.5	1028.4	934.0	860.2	809.7	762.2	715.7	666.2	610.2
47.5°	1209.2	1163.8	1068.8	954.7	866.3	798.6	750.1	710.7	669.8	619.8	569.3
50°	1105.2	1078.4	987.5	885.5	802.1	741.0	691.0	654.6	621.8	574.3	530.4
52.5°	994.1	983.0	909.7	813.2	733.4	673.8	632.9	601.1	567.7	530.4	490.0
55°	880.9	888.5	823.3	739.0	663.2	612.7	573.8	546.5	518.2	484.9	453.1
57.5°	763.2	792.0	743.5	667.3	594.0	546.5	516.7	492.5	468.7	440.5	411.7
60°	659.7	682.9	658.2	593.0	530.9	487.4	460.2	442.5	418.7	393.5	372.8
62.5°	558.7	583.9	571.8	522.3	465.7	429.9	406.6	390.5	374.3	353.1	331.4
65°	477.3	493.5	486.4	450.1	409.1	377.3	355.1	343.0	326.8	310.6	291.5
67.5°	381.9	413.7	408.6	388.4	349.0	323.8	308.1	297.0	281.9	269.7	256.1
70°	300.5	329.3	328.8	313.2	294.0	270.7	260.6	251.5	238.4	226.8	216.2
72.5°	232.4	258.1	263.2	252.1	240.4	224.3	214.7	209.1	196.5	189.4	181.3
75°	172.2	191.4	196.5	196.5	190.4	181.3	172.7	168.7	159.6	152.5	147.5
77.5°	121.2	134.4	141.9	143.5	144.0	140.4	132.3	129.3	122.2	119.7	114.2
80°	79.8	87.9	97.0	100.0	102.5	101.5	98.5	96.5	89.9	87.4	85.4
82.5°	49.0	52.5	59.6	67.2	65.7	69.2	66.7	65.2	60.6	60.1	58.1
85°	28.8	29.3	30.3	34.9	37.4	38.4	38.9	37.9	36.4	36.4	32.8
87.5°	12.1	11.6	12.6	12.6	13.1	15.2	16.7	17.2	15.7	14.1	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



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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7	1253.7
2.5°	1225.4	1220.4	1213.8	1206.2	1197.1	1189.0	1185.5	1188.5	1190.1	1186.0	1185.5
5°	1193.6	1181.0	1170.9	1155.7	1143.6	1133.5	1126.4	1123.4	1124.4	1116.3	1114.3
7.5°	1158.2	1144.6	1127.9	1110.7	1094.6	1080.4	1072.9	1069.3	1060.7	1057.2	1051.7
10°	1124.4	1104.2	1088.0	1066.8	1047.6	1029.9	1021.3	1014.3	1005.7	1001.6	993.1
12.5°	1089.5	1065.3	1047.1	1024.9	1005.2	983.0	974.9	960.2	945.6	936.0	924.4
15°	1057.2	1028.9	1007.2	980.9	957.7	933.5	911.7	887.5	878.4	859.2	848.1
17.5°	1018.8	989.5	965.3	931.4	896.6	867.3	843.0	817.8	804.1	791.0	785.5
20°	980.9	954.7	917.3	876.4	836.5	803.1	784.4	769.3	754.1	745.6	739.5
22.5°	945.1	909.7	864.8	819.8	779.9	755.7	740.5	724.8	713.2	705.1	696.6
25°	904.2	860.2	814.2	763.7	736.5	713.7	696.6	683.9	676.3	665.7	661.7
27.5°	864.3	811.2	759.2	724.8	696.6	674.8	659.2	650.1	640.0	632.9	627.4
30°	816.8	762.7	717.3	684.9	656.1	639.0	626.8	615.7	608.2	602.6	598.6
32.5°	769.8	715.7	679.4	644.0	622.8	606.1	593.0	585.4	579.9	572.3	570.3
35°	724.8	676.9	643.5	612.2	589.0	573.8	563.7	555.1	550.1	548.1	546.5
37.5°	680.9	641.0	604.1	578.9	557.1	545.5	532.4	528.4	524.8	520.3	522.3
40°	639.5	602.6	570.8	543.5	526.8	513.7	506.6	501.6	498.5	498.5	498.5
42.5°	603.6	567.7	536.9	513.2	496.5	485.9	477.8	473.8	473.3	472.8	475.8
45°	566.2	532.9	501.6	481.4	467.2	456.1	451.6	448.0	448.0	450.1	450.6
47.5°	528.9	497.5	472.3	449.0	435.9	428.8	424.8	422.8	422.8	425.3	427.3
50°	495.0	464.2	439.5	419.2	407.1	400.6	397.0	396.0	397.0	397.0	400.6
52.5°	458.1	431.4	407.1	391.0	376.8	370.8	369.2	367.7	368.2	370.2	371.3
55°	422.3	397.5	374.3	358.1	348.0	344.0	339.4	339.9	338.9	339.9	339.9
57.5°	385.9	364.2	341.5	328.3	319.7	313.7	308.6	310.1	308.6	308.6	308.1
60°	351.1	326.8	309.6	298.0	287.9	282.9	278.3	279.3	277.8	276.8	274.8
62.5°	313.2	294.0	277.8	266.7	259.1	253.1	248.5	247.0	243.0	238.9	233.9
65°	276.8	260.1	245.5	234.9	227.3	222.8	219.2	216.2	208.6	200.5	196.5
67.5°	240.9	228.8	214.7	205.6	199.5	193.5	186.9	181.3	173.8	168.7	166.2
70°	206.6	195.0	183.4	174.8	168.2	162.6	155.1	151.5	146.5	144.5	141.9
72.5°	173.8	163.2	152.5	145.0	137.9	133.9	128.3	124.8	123.2	122.7	120.2
75°	140.4	131.8	123.8	116.7	111.1	108.1	105.6	103.0	102.0	97.5	95.0
77.5°	108.1	102.0	97.0	91.4	87.9	85.9	80.3	76.8	74.8	72.2	71.7
80°	79.8	75.8	70.7	67.7	62.1	60.1	58.1	57.6	57.1	56.6	56.1
82.5°	55.1	51.0	46.0	44.5	43.9	42.9	41.9	41.4	40.9	41.4	41.4
85°	30.3	28.3	28.3	27.8	27.3	26.8	26.3	26.3	25.8	26.3	25.8
87.5°	12.6	12.1	12.1	11.1	11.6	11.6	11.1	11.1	11.6	10.6	10.6
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: P242734

CATALOG NUMBER: S124RDR-S1020D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1253.7	1253.7	1253.7	1253.7
2.5°	1182.5	1183.5	1179.9	1178.9
5°	1110.2	1109.2	1106.7	1107.2
7.5°	1047.6	1044.1	1046.6	1042.6
10°	991.0	985.5	980.9	976.9
12.5°	913.8	909.2	902.6	905.2
15°	841.5	833.9	821.8	823.3
17.5°	776.9	777.9	770.8	772.8
20°	728.9	725.3	725.9	724.3
22.5°	695.5	691.0	686.5	682.9
25°	657.2	654.1	649.6	648.6
27.5°	623.3	622.8	620.8	618.3
30°	594.5	593.5	592.5	591.0
32.5°	568.8	568.3	567.2	567.7
35°	544.5	544.0	543.0	542.5
37.5°	521.8	523.3	522.3	522.3
40°	498.0	498.5	499.6	499.1
42.5°	478.3	478.3	479.9	477.8
45°	454.1	457.1	456.6	456.6
47.5°	428.3	431.9	432.4	432.4
50°	403.1	402.1	403.6	403.1
52.5°	372.3	372.8	372.3	371.8
55°	340.4	341.0	339.9	340.4
57.5°	306.6	304.6	306.1	305.1
60°	269.7	265.7	264.7	262.7
62.5°	228.3	225.8	221.7	224.3
65°	192.4	190.4	188.9	190.9
67.5°	163.7	162.6	162.6	161.6
70°	141.9	140.4	140.4	139.4
72.5°	119.7	118.2	118.7	118.2
75°	91.9	89.4	89.4	89.9
77.5°	71.7	71.2	72.2	70.7
80°	56.1	55.6	55.1	56.6
82.5°	40.4	40.4	40.4	42.4
85°	26.3	25.3	26.3	25.3
87.5°	11.6	11.1	10.6	11.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)