

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: P243442

Luminaire Tested: **S123RDR-H1000D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243442
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-H1000D930-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: 2962.0 lumens
Efficiency: N/A
Efficacy: 94.0 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

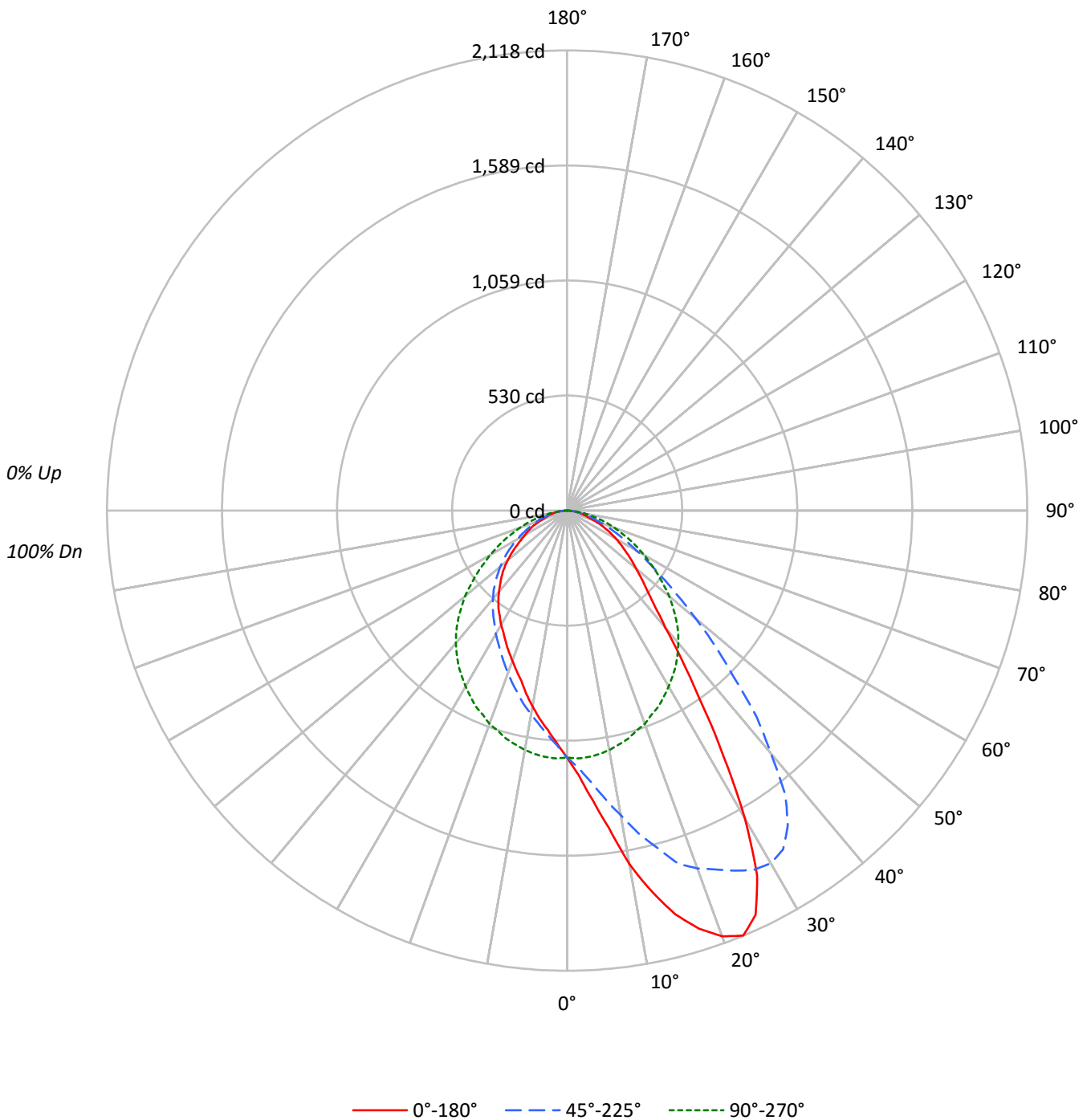
Input Watts (W): 31.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	13779	13779	13779
5°	16245	13855	12339
10°	20334	13774	11261
15°	24133	13637	10200
20°	26896	13473	9496
25°	27453	13306	8941
30°	22877	13080	8506
35°	15805	12899	8149
40°	11106	12605	7720
45°	8919	12159	7302
50°	7775	11578	6757
55°	6970	10714	6016
60°	6305	9901	5450
65°	5518	9124	5097
70°	4455	8211	4313
75°	3864	7147	4229
80°	3560	6101	4251
85°	3143	4909	3685



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	111.5	3.8
10°-20°	351.1	11.9
20°-30°	562.5	19.0
30°-40°	610.7	20.6
40°-50°	523.2	17.7
50°-60°	396.6	13.4
60°-70°	253.4	8.6
70°-80°	121.2	4.1
80°-90°	31.8	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°	1025.1	34.6
0°-40°	1635.8	55.2
0°-60°	2555.6	86.3
0°-90°	2962.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2962.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1137	1137	1137	1137	1137	
5°	1335	1253	1139	1035	1014	137
15°	1923	1608	1087	873	813	545
25°	2053	1828	995	722	668	911
35°	1068	1770	872	592	551	686
45°	520	1084	709	468	426	411
55°	330	531	507	335	285	297
65°	192	256	318	203	178	191
75°	82	100	153	96	90	89
85°	23	24	35	28	26	26
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°	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8
2.5°	1218.2	1219.7	1217.3	1216.8	1216.3	1208.4	1206.0	1202.0	1188.3	1184.9	1182.4
5°	1335.1	1331.1	1335.6	1327.2	1317.9	1312.5	1303.7	1284.0	1266.8	1253.1	1244.3
7.5°	1473.5	1475.0	1470.5	1462.7	1444.0	1436.2	1412.1	1388.6	1366.0	1337.5	1316.4
10°	1652.1	1640.4	1642.8	1618.3	1598.6	1575.1	1542.2	1504.4	1464.6	1424.4	1394.5
12.5°	1794.5	1802.8	1796.9	1785.2	1747.4	1724.3	1694.4	1639.4	1576.6	1522.6	1476.9
15°	1923.1	1911.8	1913.3	1884.8	1871.1	1849.9	1800.4	1745.9	1705.2	1607.5	1553.5
17.5°	2017.3	2016.3	2014.9	1990.8	1974.1	1930.0	1879.4	1823.4	1772.4	1704.7	1636.9
20°	2085.1	2092.4	2090.5	2070.8	2041.4	1998.7	1968.2	1898.5	1814.6	1752.8	1669.8
22.5°	2117.5	2117.9	2118.9	2109.6	2090.0	2062.5	2019.3	1963.3	1888.7	1787.6	1695.3
25°	2052.7	2055.1	2067.9	2075.7	2081.1	2068.9	2046.3	1995.7	1931.4	1828.4	1732.6
27.5°	1893.6	1901.5	1915.7	1962.8	1982.0	2008.5	2017.8	1997.7	1950.1	1864.2	1755.2
30°	1634.5	1656.6	1670.3	1723.8	1798.9	1869.6	1903.0	1935.8	1931.4	1874.5	1764.1
32.5°	1338.0	1352.2	1392.0	1449.4	1508.8	1612.4	1728.2	1807.7	1852.4	1849.5	1771.4
35°	1068.1	1088.7	1122.5	1166.2	1248.2	1355.7	1486.7	1611.9	1723.8	1770.4	1742.5
37.5°	866.8	868.8	900.7	962.5	1013.6	1108.3	1226.6	1381.2	1528.0	1649.7	1676.7
40°	701.9	715.6	732.3	771.1	831.5	922.3	1000.8	1153.0	1305.1	1457.8	1566.7
42.5°	597.8	597.8	616.5	641.0	681.3	735.8	829.5	967.4	1104.4	1291.9	1414.6
45°	520.3	525.2	533.5	549.2	577.7	619.9	692.6	786.3	926.2	1083.8	1268.3
47.5°	464.3	463.8	471.2	480.5	502.6	534.5	577.2	653.3	756.9	926.7	1089.6
50°	412.3	414.3	419.7	427.5	442.2	464.8	491.8	549.2	636.6	771.1	941.9
52.5°	372.1	371.6	376.0	380.9	392.2	404.9	429.0	471.7	532.1	639.1	780.9
55°	329.8	331.8	337.2	340.1	349.5	357.8	377.9	402.0	450.6	531.1	660.2
57.5°	293.5	296.0	298.9	301.9	308.2	316.6	333.3	348.0	383.3	441.3	544.3
60°	260.1	259.2	262.6	267.5	270.9	278.3	287.6	302.8	327.4	368.6	444.2
62.5°	226.8	227.3	227.7	230.7	237.1	243.5	251.8	263.1	277.8	308.2	361.7
65°	192.4	192.9	193.9	196.8	203.2	207.1	216.0	225.8	237.6	255.7	293.0
67.5°	162.0	163.9	163.9	166.4	168.8	172.8	179.2	186.5	196.3	209.6	233.6
70°	125.7	125.2	127.6	132.5	135.0	141.9	146.3	151.2	160.0	168.4	189.0
72.5°	101.1	101.1	101.1	103.1	103.6	105.0	108.0	118.3	125.2	133.5	144.8
75°	82.5	83.0	83.0	83.4	83.9	85.4	86.4	89.3	91.3	100.1	107.0
77.5°	65.8	66.3	66.3	66.8	67.2	67.7	69.7	69.7	71.2	73.1	76.1
80°	51.0	50.6	50.6	51.0	51.0	52.5	52.5	53.5	54.0	55.0	56.4
82.5°	36.3	35.8	36.3	35.8	36.3	36.8	37.8	37.3	38.3	39.3	39.8
85°	22.6	23.1	23.1	24.1	23.6	23.1	23.6	23.6	23.6	23.6	24.5
87.5°	9.8	10.8	10.8	10.3	10.8	10.8	9.8	10.8	10.8	10.8	11.3
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8
2.5°	1180.9	1179.0	1171.6	1164.7	1154.4	1150.0	1144.1	1141.7	1133.8	1123.0	1118.1
5°	1235.9	1221.2	1207.0	1189.8	1175.5	1158.9	1149.5	1138.7	1122.0	1106.8	1096.0
7.5°	1294.3	1272.7	1246.2	1217.8	1192.2	1168.2	1147.6	1130.4	1108.8	1087.7	1071.0
10°	1358.6	1321.8	1279.1	1242.8	1206.0	1171.1	1145.1	1119.1	1091.1	1064.6	1044.5
12.5°	1427.8	1375.8	1324.3	1269.8	1214.8	1174.6	1135.8	1102.4	1071.0	1043.0	1019.0
15°	1499.5	1428.3	1362.6	1301.2	1224.6	1170.6	1127.9	1086.7	1047.4	1013.1	989.5
17.5°	1550.5	1469.1	1386.1	1299.2	1233.5	1166.7	1113.7	1061.7	1025.3	990.0	958.1
20°	1597.7	1505.4	1406.7	1325.7	1234.0	1152.5	1094.6	1044.5	993.9	956.1	929.1
22.5°	1617.8	1534.3	1434.7	1322.3	1230.5	1147.1	1072.5	1016.0	970.9	929.6	894.3
25°	1621.7	1528.5	1426.4	1317.9	1217.3	1127.0	1051.4	994.9	936.0	893.3	865.8
27.5°	1638.9	1511.3	1411.1	1303.2	1201.1	1106.8	1027.3	964.5	909.5	863.9	828.5
30°	1643.3	1503.9	1378.7	1275.7	1170.6	1078.4	997.9	934.5	874.7	828.0	796.1
32.5°	1645.3	1494.1	1344.9	1232.0	1131.9	1045.0	971.4	902.6	845.7	796.6	763.7
35°	1638.4	1480.4	1304.1	1182.4	1086.2	1000.8	932.6	871.7	808.4	762.3	727.4
37.5°	1611.4	1458.8	1281.1	1124.5	1032.7	952.2	894.3	834.4	776.0	725.9	690.1
40°	1560.4	1427.3	1237.9	1075.9	971.8	899.7	845.7	796.6	737.7	689.6	654.3
42.5°	1478.9	1384.6	1198.1	1020.9	911.5	843.3	798.1	755.9	702.9	657.2	618.4
45°	1358.1	1324.8	1145.1	965.0	845.7	781.4	742.1	709.3	661.2	619.4	583.6
47.5°	1227.6	1234.9	1091.6	908.0	785.8	724.5	690.1	661.2	624.8	580.2	547.3
50°	1076.9	1117.1	1016.5	850.6	725.9	665.6	631.7	614.0	580.2	542.9	511.9
52.5°	939.0	1002.8	940.4	787.8	667.0	607.7	576.2	558.6	536.0	505.1	473.7
55°	796.1	877.1	832.0	720.1	607.2	547.3	520.8	507.0	488.4	464.3	435.9
57.5°	677.8	764.2	735.8	648.9	548.8	494.8	471.2	455.5	444.2	422.1	399.0
60°	562.0	642.0	630.7	566.9	490.8	439.3	421.1	408.4	399.0	382.8	360.3
62.5°	453.5	531.1	538.0	487.9	434.4	387.8	371.1	362.2	354.9	342.1	321.5
65°	359.8	428.0	442.2	404.0	375.0	339.7	323.5	318.1	312.7	297.9	282.2
67.5°	281.7	335.2	353.9	332.3	311.7	291.1	278.3	270.9	267.0	258.2	247.4
70°	215.5	261.6	277.3	268.0	254.3	246.4	236.6	231.7	227.7	216.5	210.6
72.5°	161.5	192.9	212.5	209.6	206.6	201.2	195.4	193.9	188.0	180.6	175.2
75°	118.3	136.5	154.1	160.5	159.5	161.5	155.1	152.6	149.2	143.8	139.4
77.5°	84.9	95.7	108.0	115.8	119.8	120.3	120.3	118.8	116.3	112.4	109.0
80°	58.9	61.4	72.6	80.0	83.9	86.9	86.9	87.4	84.9	83.4	81.0
82.5°	40.7	42.2	44.7	50.6	55.5	58.9	59.4	58.9	57.9	57.4	54.0
85°	25.5	25.0	25.0	26.5	30.4	33.9	34.4	35.3	34.8	34.4	30.9
87.5°	10.8	10.8	11.3	10.8	12.3	12.8	13.7	16.2	15.7	13.3	12.3
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°	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8
2.5°	1115.2	1108.8	1102.9	1096.5	1088.7	1081.3	1080.3	1079.3	1081.8	1076.9	1074.9
5°	1087.7	1075.4	1066.1	1054.3	1046.0	1035.2	1029.3	1027.8	1027.3	1024.4	1020.4
7.5°	1057.7	1044.5	1031.2	1018.0	1004.2	993.0	986.6	983.1	980.2	975.3	971.4
10°	1029.8	1013.1	998.8	980.7	966.0	951.2	945.3	940.4	937.5	930.6	925.2
12.5°	998.4	977.2	961.5	941.9	928.7	915.9	906.6	897.2	890.4	880.1	875.6
15°	970.9	948.8	922.3	910.5	891.8	872.7	862.4	862.4	848.2	839.8	834.4
17.5°	934.1	914.9	896.3	872.2	845.7	834.4	822.6	812.3	802.5	800.1	790.2
20°	901.7	879.1	859.9	833.9	809.9	796.6	782.9	771.6	764.2	757.4	752.0
22.5°	869.8	847.2	817.7	792.2	776.0	758.3	743.6	733.8	727.4	717.1	712.2
25°	836.4	809.4	782.9	757.8	737.7	722.5	707.3	701.9	690.6	685.2	678.3
27.5°	803.0	770.6	745.6	724.0	701.4	686.7	676.4	666.6	656.7	653.8	649.9
30°	765.7	735.8	711.7	690.6	669.0	656.2	644.0	635.1	626.8	620.4	616.0
32.5°	728.4	703.4	680.3	655.8	636.1	622.4	612.1	604.2	600.3	589.5	585.6
35°	694.0	668.5	644.0	620.9	605.2	591.9	582.6	575.3	566.9	560.0	556.1
37.5°	658.7	635.6	610.6	591.0	573.3	562.5	552.2	542.4	536.0	532.1	527.2
40°	624.3	599.8	580.7	559.1	543.4	531.1	520.3	512.9	505.1	501.6	495.3
42.5°	591.9	568.4	546.3	526.7	512.4	500.6	490.3	482.0	475.6	469.2	465.8
45°	554.6	534.0	513.9	494.3	481.0	468.3	457.0	449.6	440.8	435.4	433.4
47.5°	523.2	501.6	480.0	461.9	448.1	434.4	425.1	416.2	408.9	403.5	400.5
50°	485.9	465.8	448.1	430.0	416.7	402.0	390.7	382.4	374.0	370.1	365.2
52.5°	454.0	434.4	412.8	396.6	381.4	368.6	358.3	351.4	344.1	338.2	334.7
55°	414.3	395.1	377.9	360.8	345.5	335.2	326.9	315.1	308.7	302.8	293.5
57.5°	379.4	361.3	343.1	326.4	312.2	299.9	289.6	281.7	273.4	269.0	262.6
60°	342.6	323.5	306.8	294.0	278.3	265.0	258.2	248.9	242.0	235.1	233.1
62.5°	306.3	288.6	271.9	258.7	244.4	234.1	225.3	220.9	214.0	208.6	206.6
65°	268.5	253.8	238.1	223.3	214.5	202.7	197.8	190.4	186.5	184.1	183.6
67.5°	231.2	217.9	203.7	192.4	184.1	176.2	170.3	167.4	163.4	160.5	158.0
70°	197.3	184.6	172.3	163.0	156.6	150.7	146.8	141.4	137.4	133.5	128.1
72.5°	163.9	153.6	143.3	136.0	129.6	126.1	120.7	112.4	108.5	107.5	107.0
75°	133.0	121.7	114.4	110.4	104.5	96.2	92.8	91.8	91.3	90.3	90.3
77.5°	102.6	95.7	90.8	82.5	79.5	79.0	76.6	76.1	75.1	75.6	75.6
80°	74.6	70.7	64.8	62.3	61.4	61.8	60.9	61.4	60.4	60.9	59.9
82.5°	49.6	46.1	47.1	45.6	45.6	46.6	46.1	44.7	44.7	44.2	44.2
85°	29.4	29.0	29.9	29.9	29.4	28.0	29.0	28.5	27.0	27.5	27.5
87.5°	12.8	12.8	12.8	12.3	12.8	12.3	12.3	12.3	10.8	10.8	10.8
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: P243442

CATALOG NUMBER: S123RDR-H1000D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1136.8	1136.8	1136.8	1136.8
2.5°	1075.9	1074.9	1073.5	1072.0
5°	1020.4	1016.0	1015.5	1014.1
7.5°	968.4	966.4	963.0	966.9
10°	920.8	922.3	918.8	914.9
12.5°	871.2	868.3	862.9	865.8
15°	827.5	822.6	819.7	812.8
17.5°	781.9	778.0	778.0	773.6
20°	742.1	738.2	739.2	736.2
22.5°	708.8	705.8	701.4	701.9
25°	677.3	672.9	668.0	668.5
27.5°	642.5	638.6	637.6	634.2
30°	611.6	608.1	607.7	607.7
32.5°	581.6	580.2	577.7	576.2
35°	555.6	553.7	549.7	550.7
37.5°	523.2	521.3	520.8	520.3
40°	492.8	491.3	487.4	487.9
42.5°	462.4	459.9	457.5	456.5
45°	429.5	429.0	425.1	426.0
47.5°	398.1	397.1	395.1	392.7
50°	363.2	362.7	361.3	358.3
52.5°	329.3	327.9	324.9	322.0
55°	291.1	286.6	287.1	284.7
57.5°	259.7	257.7	253.8	252.3
60°	229.2	227.3	226.8	224.8
62.5°	203.7	201.7	200.3	200.3
65°	180.6	178.2	177.7	177.7
67.5°	155.1	152.6	152.2	151.2
70°	123.2	122.7	121.7	121.7
72.5°	106.0	105.5	106.0	104.1
75°	90.3	89.8	89.8	90.3
77.5°	75.1	75.1	74.6	74.6
80°	59.4	59.9	59.4	60.9
82.5°	44.7	43.7	44.2	43.2
85°	27.5	27.5	26.5	26.5
87.5°	10.8	10.8	10.8	10.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)