

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: P242243

Luminaire Tested: **S121RDR-S880D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242243
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-28)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-S880D935-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2646.0 lumens
Efficiency: N/A
Efficacy: 76.0 lumens/watt
Spacing Criteria (0/90/45): 0.96 / 1.23 / 1.1
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

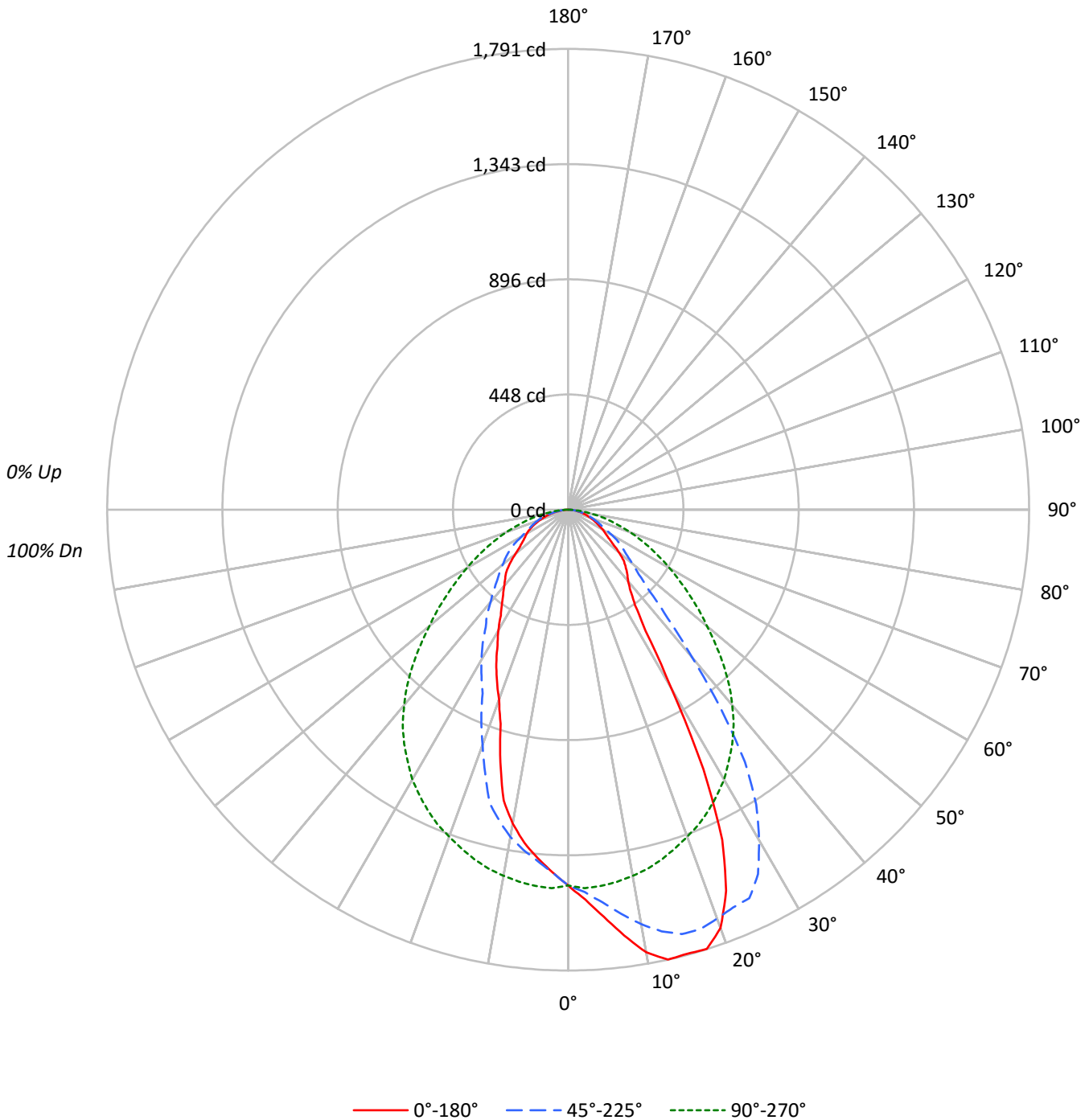
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P242243

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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	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89				87	
2	102	95	89	84	100	93	88	83	90	85	82	87	83	80	84	81	78				76	
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	68				67	
4	88	77	69	64	85	76	69	63	73	67	62	71	66	61	69	65	61				59	
5	81	70	62	56	79	69	62	56	67	60	55	65	59	55	63	58	54				52	
6	76	64	56	50	74	63	56	50	61	55	50	60	54	49	58	53	49				47	
7	71	59	51	45	69	58	51	45	57	50	45	55	49	45	54	48	44				43	
8	67	54	47	41	65	54	46	41	52	46	41	51	45	41	50	45	40				39	
9	63	50	43	38	61	50	43	38	49	42	37	48	42	37	47	41	37				35	
10	59	47	40	35	58	46	39	35	45	39	35	44	39	34	44	38	34				33	

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	43271	43271	43271
5°	47226	43648	40432
10°	52562	43475	37265
15°	54801	43147	31190
20°	54565	42637	24755
25°	46273	42164	21610
30°	27237	41436	18557
35°	16364	40175	16205
40°	14017	38350	14949
45°	13250	35751	14218
50°	11842	32470	12298
55°	9872	29636	11117
60°	9173	27005	11064
65°	8469	24595	10699
70°	7987	22160	10084
75°	7544	19610	9181
80°	6740	16398	8054
85°	6357	12885	6357



TEST NUMBER: P242243

CATALOG NUMBER: S121RDR-S880D935-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	140.0	5.3
10°-20°	398.9	15.1
20°-30°	544.8	20.6
30°-40°	507.6	19.2
40°-50°	419.6	15.9
50°-60°	309.4	11.7
60°-70°	197.8	7.5
70°-80°	101.8	3.8
80°-90°	26.2	1.0
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°	1083.6	41.0
0°-40°	1591.2	60.1
0°-60°	2320.2	87.7
0°-90°	2646.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2646.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1460	1460	1460	1460	1460	
5°	1588	1532	1468	1370	1359	157
15°	1786	1708	1407	1180	1017	503
25°	1415	1666	1290	787	661	615
35°	452	1197	1111	558	448	307
45°	316	446	853	391	339	242
55°	191	256	574	280	215	176
65°	121	140	351	162	153	120
75°	66	72	171	90	80	69
85°	19	19	38	21	19	21
90°	0	0	0	0	0	



TEST NUMBER: P242243

CATALOG NUMBER: S121RDR-S880D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4
2.5°	1516.4	1515.3	1517.0	1515.9	1514.8	1512.0	1509.8	1503.2	1493.3	1487.9	1493.3
5°	1587.8	1592.2	1590.5	1588.3	1583.4	1579.0	1569.1	1563.1	1545.5	1531.8	1535.6
7.5°	1669.0	1674.5	1667.4	1662.4	1659.7	1647.1	1636.1	1619.1	1599.9	1584.5	1575.7
10°	1747.0	1748.6	1746.4	1742.1	1732.7	1719.0	1703.1	1683.9	1659.7	1636.1	1620.2
12.5°	1790.9	1793.7	1797.0	1789.3	1782.1	1771.2	1754.7	1735.5	1705.8	1678.4	1660.2
15°	1786.5	1788.7	1794.8	1792.0	1788.7	1783.8	1774.4	1758.5	1737.7	1707.5	1681.7
17.5°	1789.8	1791.5	1794.2	1784.3	1778.8	1772.8	1760.7	1749.7	1732.2	1708.6	1689.3
20°	1730.5	1757.4	1754.1	1767.3	1772.8	1772.3	1760.7	1739.9	1715.7	1691.5	1682.8
22.5°	1603.2	1624.6	1627.3	1647.6	1672.9	1693.2	1718.4	1727.8	1709.1	1672.9	1660.8
25°	1415.4	1430.8	1446.1	1475.2	1502.1	1558.7	1610.3	1649.3	1670.7	1665.7	1642.1
27.5°	1137.6	1121.1	1182.0	1215.5	1290.8	1373.1	1445.6	1517.0	1551.0	1596.6	1619.6
30°	796.1	794.4	840.6	898.8	1011.3	1087.1	1222.7	1337.4	1426.9	1482.9	1545.5
32.5°	558.9	567.1	601.2	636.9	698.9	822.4	926.2	1084.3	1237.0	1359.4	1436.2
35°	452.4	453.5	461.2	482.6	520.5	589.1	669.8	823.5	1030.5	1196.9	1311.6
37.5°	396.4	399.7	401.9	414.0	427.7	456.8	507.8	614.4	785.7	971.2	1170.5
40°	362.4	365.1	367.3	371.1	379.4	393.1	426.6	477.7	576.5	747.2	969.0
42.5°	339.3	338.2	343.1	344.8	349.2	356.9	371.7	399.1	456.2	572.1	763.1
45°	316.2	317.9	317.9	320.1	323.9	328.3	334.4	351.4	380.5	446.4	596.2
47.5°	292.1	291.5	294.8	296.5	300.3	304.2	308.6	317.3	334.4	372.8	459.5
50°	256.9	258.0	264.1	269.6	275.1	280.0	285.5	291.0	302.0	322.8	376.1
52.5°	219.6	219.6	226.2	230.0	237.7	249.8	259.1	267.4	274.5	284.9	316.8
55°	191.1	191.6	193.8	197.1	202.6	208.6	220.7	235.0	247.1	255.8	273.4
57.5°	171.3	171.8	172.4	175.1	177.9	180.1	187.2	198.2	214.1	230.0	240.5
60°	154.8	154.3	154.3	155.9	158.1	160.9	164.7	169.1	177.9	194.9	213.6
62.5°	136.2	137.3	137.3	138.9	140.6	143.3	144.9	149.3	154.3	162.0	181.2
65°	120.8	121.9	120.8	122.4	123.5	125.2	127.9	130.1	134.5	139.5	147.1
67.5°	105.4	106.0	107.1	107.6	108.7	109.3	111.5	114.2	116.9	120.2	126.3
70°	92.2	92.2	92.2	93.3	94.4	94.4	96.1	97.2	99.9	103.2	106.5
72.5°	78.0	78.5	78.5	78.0	80.2	80.7	81.3	82.4	84.5	87.3	90.0
75°	65.9	64.8	64.8	65.3	67.0	67.0	67.5	68.1	69.7	71.9	73.6
77.5°	51.6	51.6	52.2	52.7	53.3	53.3	54.4	54.4	56.5	57.6	58.7
80°	39.5	40.6	41.2	40.6	40.6	41.2	41.2	42.3	42.8	43.4	44.5
82.5°	29.6	30.2	29.1	29.1	29.6	29.6	30.2	30.2	30.7	31.3	31.3
85°	18.7	18.7	19.2	18.7	19.2	18.7	18.7	19.8	19.2	19.2	19.8
87.5°	8.8	9.3	8.8	9.3	8.8	9.3	9.3	9.3	9.3	9.3	8.8
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: P242243

CATALOG NUMBER: S121RDR-S880D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4
2.5°	1491.7	1491.2	1488.4	1482.4	1478.0	1469.7	1469.7	1472.5	1458.2	1448.3	1447.8
5°	1526.3	1520.8	1511.5	1499.9	1489.5	1475.2	1469.7	1467.5	1448.3	1433.5	1428.6
7.5°	1563.1	1549.3	1533.4	1514.8	1497.2	1476.9	1466.4	1458.2	1433.5	1415.4	1404.4
10°	1601.5	1579.5	1554.8	1527.9	1503.8	1476.3	1459.3	1445.0	1416.5	1391.2	1378.6
12.5°	1635.5	1604.8	1573.5	1538.4	1505.4	1470.8	1447.2	1428.6	1395.1	1364.9	1349.5
15°	1651.5	1618.5	1592.7	1544.4	1499.9	1464.8	1434.6	1406.6	1370.9	1337.4	1313.8
17.5°	1665.2	1629.0	1594.9	1549.3	1497.7	1452.2	1415.9	1380.2	1341.8	1306.7	1277.6
20°	1661.3	1630.6	1588.9	1540.6	1491.7	1439.0	1397.8	1352.2	1304.5	1268.8	1238.0
22.5°	1639.4	1614.1	1570.8	1524.6	1477.4	1420.9	1374.2	1324.8	1266.1	1227.1	1192.5
25°	1611.4	1587.2	1544.4	1496.6	1450.0	1395.1	1340.2	1289.7	1226.5	1179.9	1135.4
27.5°	1589.4	1553.2	1510.4	1457.1	1412.1	1359.9	1302.3	1251.2	1183.1	1131.5	1079.9
30°	1564.2	1523.0	1470.3	1413.7	1366.0	1318.2	1262.2	1211.1	1135.9	1077.2	1012.9
32.5°	1491.7	1492.2	1429.7	1366.5	1315.5	1264.4	1214.4	1160.1	1085.4	1016.2	950.4
35°	1397.3	1434.1	1387.9	1315.5	1252.3	1205.1	1163.9	1110.7	1027.8	956.4	881.7
37.5°	1271.0	1335.8	1341.3	1266.1	1196.3	1140.9	1100.2	1055.8	972.3	895.5	821.3
40°	1144.7	1230.4	1264.4	1212.2	1136.5	1072.8	1032.2	991.5	913.0	830.1	761.5
42.5°	989.9	1128.8	1171.1	1155.7	1074.4	1005.8	963.0	926.2	849.9	768.6	700.6
45°	815.3	1003.1	1064.6	1080.5	1011.9	938.3	888.9	853.2	786.2	714.8	644.0
47.5°	655.0	861.4	963.0	979.5	943.2	871.9	815.3	778.0	724.7	663.2	592.9
50°	499.6	711.0	856.5	881.7	872.9	800.5	748.3	704.4	663.8	608.9	543.0
52.5°	397.5	568.2	741.2	788.4	791.1	734.0	679.1	639.1	599.5	556.2	496.3
55°	317.3	439.2	614.4	694.5	702.2	662.7	612.2	573.7	544.1	503.5	452.9
57.5°	267.4	339.8	491.9	600.1	603.4	592.4	544.1	512.2	487.5	452.4	407.9
60°	228.4	269.6	379.4	505.7	522.1	522.1	483.7	455.7	432.1	405.7	363.5
62.5°	197.6	220.2	287.7	401.9	444.2	450.7	426.6	401.9	384.3	358.0	319.0
65°	166.4	183.4	222.9	310.7	368.9	381.0	368.9	350.8	337.1	309.6	278.9
67.5°	136.7	153.2	177.9	235.5	299.2	314.0	311.8	302.5	288.2	267.9	235.5
70°	113.1	123.0	141.1	174.6	235.0	257.5	264.1	255.8	243.2	221.3	197.6
72.5°	93.3	101.0	109.8	134.0	175.7	205.3	216.3	211.9	202.6	181.7	162.0
75°	76.3	81.3	87.3	98.8	126.3	159.8	172.4	171.3	162.0	144.4	128.5
77.5°	61.5	63.1	67.5	74.7	88.4	118.6	128.5	131.8	124.6	109.8	97.2
80°	46.1	48.3	50.5	54.4	60.9	78.5	91.1	96.1	90.0	81.3	68.6
82.5°	32.4	32.9	35.1	37.3	40.6	47.8	60.9	66.4	60.9	51.6	47.8
85°	20.3	19.8	20.3	20.9	24.2	25.8	34.0	37.9	36.8	31.3	26.9
87.5°	9.3	9.3	8.8	9.3	8.8	10.4	12.1	17.6	13.2	11.5	10.4
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: P242243

CATALOG NUMBER: S121RDR-S880D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4	1460.4
2.5°	1443.4	1441.7	1436.2	1428.6	1422.0	1411.0	1411.0	1413.7	1413.2	1414.3	1413.2
5°	1420.3	1412.6	1404.4	1394.0	1384.1	1369.8	1368.2	1369.3	1368.7	1368.2	1364.9
7.5°	1390.7	1381.9	1371.5	1358.3	1347.3	1333.6	1329.7	1328.6	1324.2	1322.6	1318.2
10°	1362.1	1351.7	1338.0	1322.1	1307.2	1291.3	1281.4	1275.9	1268.8	1261.1	1254.5
12.5°	1330.3	1316.6	1299.0	1279.8	1255.1	1237.5	1222.7	1213.3	1203.5	1190.3	1181.0
15°	1296.2	1268.2	1247.4	1216.1	1185.9	1179.9	1157.3	1127.7	1125.5	1061.3	1038.8
17.5°	1250.7	1227.6	1188.6	1148.0	1106.8	1073.3	1073.9	993.7	969.0	968.5	928.9
20°	1203.5	1171.6	1126.6	1085.4	1042.0	972.9	918.0	891.6	851.5	836.2	813.7
22.5°	1148.0	1106.3	1053.6	997.6	937.2	881.2	827.4	802.1	781.8	764.8	755.5
25°	1082.1	1039.9	976.7	907.0	839.5	787.3	757.7	746.1	711.5	699.5	687.9
27.5°	1015.7	969.6	887.2	820.2	764.8	729.1	698.4	679.1	662.7	631.9	618.2
30°	952.6	878.4	810.4	748.9	707.1	673.7	651.1	612.2	589.1	574.8	568.8
32.5°	883.9	804.9	743.4	690.1	647.3	618.2	584.7	558.4	547.9	529.3	502.4
35°	813.7	741.7	677.5	634.7	597.9	558.4	537.5	512.2	485.9	471.6	469.4
37.5°	745.6	677.5	631.4	586.4	541.9	518.8	488.1	461.2	451.8	438.7	424.4
40°	684.1	625.9	583.1	531.5	504.6	468.9	445.3	431.5	409.0	404.1	399.7
42.5°	633.6	583.6	535.3	489.2	457.9	429.3	408.5	392.6	385.4	373.3	369.5
45°	582.5	536.4	487.0	450.7	415.1	390.9	376.6	362.9	354.7	351.4	344.8
47.5°	536.4	491.4	445.8	401.3	377.2	361.3	345.3	338.2	333.3	326.1	322.3
50°	492.5	442.5	399.7	371.7	345.9	331.6	321.2	314.6	306.9	299.2	288.2
52.5°	448.0	405.2	364.0	334.4	315.1	305.8	295.9	288.8	273.4	258.6	249.3
55°	403.0	359.1	325.6	303.1	289.3	279.5	267.9	247.1	232.8	224.6	220.2
57.5°	362.4	322.8	293.2	274.5	264.6	248.2	227.8	214.7	207.5	204.2	202.0
60°	319.0	284.9	260.2	246.0	230.6	208.6	197.6	191.1	188.9	187.8	186.1
62.5°	281.6	251.5	232.2	216.3	194.4	182.8	176.8	173.5	173.5	171.8	170.7
65°	242.1	218.5	202.0	179.0	167.5	162.5	160.3	158.7	157.0	156.5	154.3
67.5°	209.7	188.9	167.5	155.4	148.2	145.5	143.3	142.7	140.6	138.9	137.3
70°	176.8	156.5	138.9	133.4	129.6	128.5	126.3	124.1	122.4	120.2	119.1
72.5°	143.8	124.6	118.6	115.8	112.0	110.4	107.6	106.0	103.2	102.1	101.0
75°	109.8	102.1	98.8	96.6	93.9	90.0	88.9	87.3	86.2	84.5	82.9
77.5°	87.3	82.9	79.1	76.3	74.1	71.4	69.2	68.6	67.5	65.9	65.3
80°	65.3	62.0	60.4	57.6	54.9	53.3	52.2	51.6	50.0	49.4	48.9
82.5°	45.0	42.3	41.2	37.9	36.8	36.8	36.2	35.1	34.0	33.5	32.9
85°	25.3	24.2	22.5	23.1	21.4	21.4	20.9	20.3	19.8	19.2	18.7
87.5°	9.9	9.3	8.8	8.2	8.2	6.6	6.6	6.6	7.1	6.6	6.0
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: P242243

CATALOG NUMBER: S121RDR-S880D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1460.4	1460.4	1460.4	1460.4
2.5°	1414.8	1415.9	1412.1	1409.9
5°	1364.9	1363.2	1361.0	1359.4
7.5°	1313.8	1312.2	1312.2	1305.6
10°	1251.8	1247.4	1244.1	1238.6
12.5°	1172.7	1166.1	1163.9	1157.3
15°	1023.4	1009.7	1000.3	1016.8
17.5°	919.6	883.9	886.7	872.9
20°	813.1	798.8	806.0	785.1
22.5°	743.9	735.1	726.9	722.5
25°	679.7	669.3	656.6	661.0
27.5°	599.0	599.0	590.8	594.0
30°	557.8	553.4	539.7	542.4
32.5°	493.6	488.1	486.4	487.5
35°	462.8	454.0	451.3	448.0
37.5°	420.0	416.7	417.3	415.1
40°	391.5	388.7	385.4	386.5
42.5°	366.7	365.1	361.8	362.4
45°	342.6	340.9	339.3	339.3
47.5°	315.7	312.4	309.6	306.4
50°	280.6	274.0	269.0	266.8
52.5°	242.7	239.4	236.1	236.1
55°	218.5	216.9	215.8	215.2
57.5°	201.5	200.4	200.4	198.7
60°	186.1	186.1	185.6	186.7
62.5°	171.3	169.6	170.2	170.2
65°	154.3	153.7	153.2	152.6
67.5°	136.2	135.6	136.2	135.1
70°	118.0	118.0	117.5	116.4
72.5°	99.4	100.5	99.4	98.8
75°	81.8	81.3	81.8	80.2
77.5°	65.3	63.1	64.2	64.8
80°	48.3	48.3	47.8	47.2
82.5°	32.4	32.9	31.8	31.8
85°	18.7	18.7	17.6	18.7
87.5°	5.5	5.5	5.5	6.6
90°	0.0	0.0	0.0	0.0

(END OF REPORT)