

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: P243103

Luminaire Tested: **S121RDR-H880D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243103  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-67)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S121RDR-H880D935-X4F0-XX-UDD-A-W  
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2423.7 lumens  
Efficiency: N/A  
Efficacy: 76.9 lumens/watt  
Spacing Criteria (0/90/45): 0.89 / 1.21 / 1.07  
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')  
CIE Type: Direct

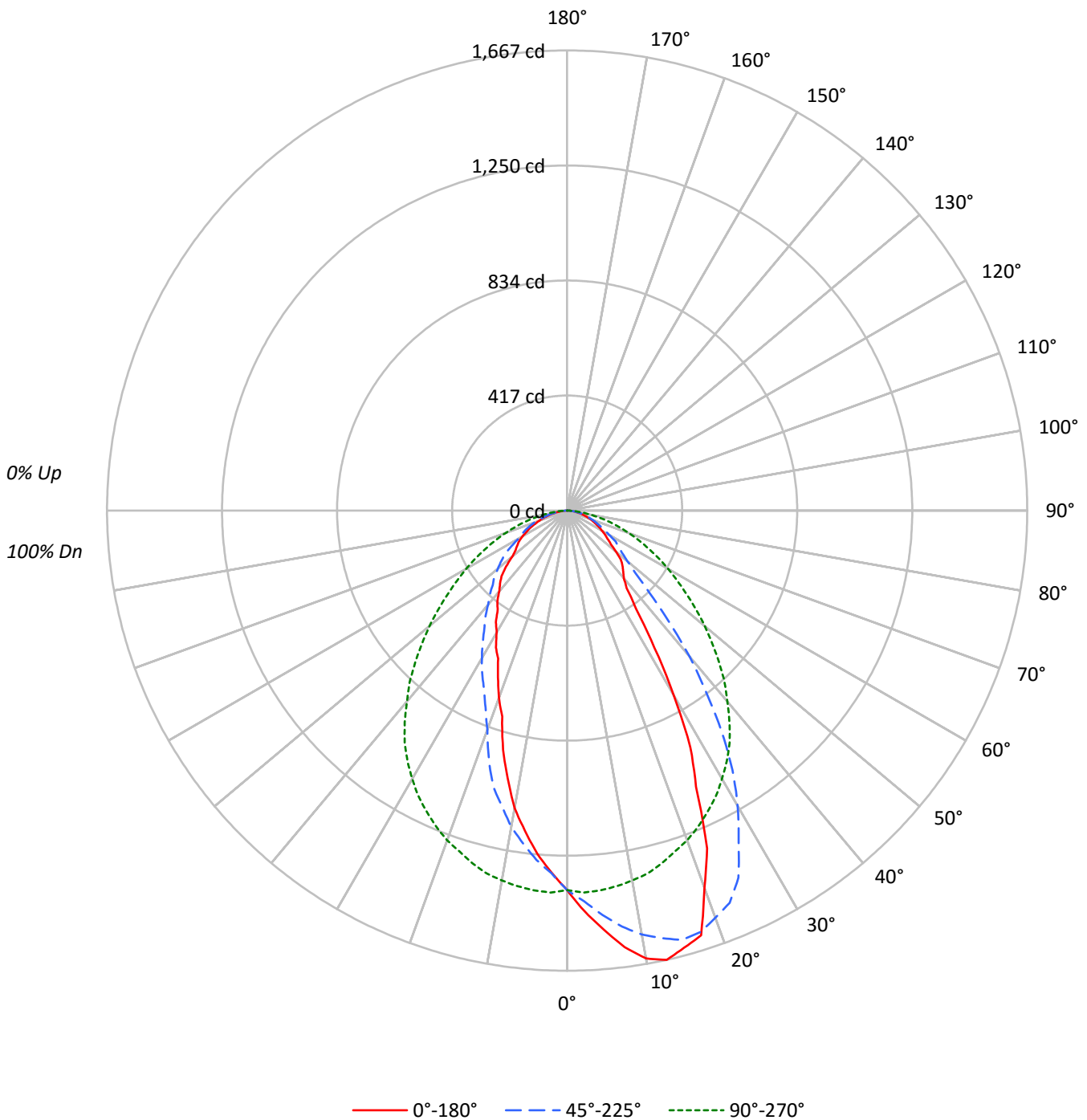
Input Watts (W): 31.5  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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	81	87	83	80	84	81	78	76
3	94	85	78	73	92	84	77	72	81	75	71	78	73	70	76	72	68	66
4	87	77	69	63	85	76	69	63	73	67	62	71	66	61	69	64	61	59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52
6	76	64	56	50	74	63	55	50	61	55	50	60	54	49	58	53	49	47
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44	42
8	66	54	46	41	65	53	46	41	52	46	41	51	45	41	50	44	40	39
9	62	50	43	38	61	50	42	38	49	42	37	48	42	37	47	41	37	35
10	59	47	39	35	58	46	39	35	45	39	34	44	38	34	44	38	34	33

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

	0°	90°	180°
0°	40735	40735	40735
5°	45331	41060	37098
10°	49568	40942	32942
15°	50282	40598	27509
20°	45834	40079	22753
25°	36099	39352	19354
30°	26392	38398	17452
35°	15753	37126	15865
40°	12350	34927	14799
45°	11905	32605	14075
50°	10611	29990	11948
55°	9267	27286	11406
60°	8664	24978	11058
65°	8070	22716	10250
70°	7632	20480	9339
75°	7006	18214	8311
80°	6365	14777	7252
85°	5983	11287	5303



TEST NUMBER: P243103

CATALOG NUMBER: S121RDR-H880D935-X4F0-XX-UDD-A-W

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	131.2	5.4
10°-20°	366.1	15.1
20°-30°	486.8	20.1
30°-40°	464.4	19.2
40°-50°	385.4	15.9
50°-60°	286.6	11.8
60°-70°	185.6	7.7
70°-80°	94.5	3.9
80°-90°	23.1	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°	984.2	40.6
0°-40°	1448.6	59.8
0°-60°	2120.5	87.5
0°-90°	2423.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2423.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1375	1375	1375	1375	1375	
5°	1524	1471	1380	1271	1247	149
15°	1639	1610	1324	1035	897	456
25°	1104	1468	1204	712	592	512
35°	436	975	1026	523	439	297
45°	284	420	778	382	336	217
55°	179	228	528	275	221	163
65°	115	131	324	166	146	115
75°	61	67	159	82	73	65
85°	18	17	33	18	16	19
90°	0	0	0	0	0	



TEST NUMBER: P243103

CATALOG NUMBER: S121RDR-H880D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8
2.5°	1453.6	1450.0	1454.1	1452.5	1445.8	1447.4	1439.1	1433.9	1421.4	1416.8	1416.8
5°	1524.1	1529.3	1526.2	1527.2	1520.5	1516.3	1507.5	1497.6	1482.1	1470.7	1466.5
7.5°	1594.6	1596.1	1597.7	1593.5	1585.8	1578.5	1566.1	1551.6	1534.5	1519.9	1508.5
10°	1647.5	1651.1	1649.0	1642.8	1637.1	1626.2	1612.7	1597.2	1578.5	1559.3	1545.3
12.5°	1667.2	1670.3	1674.9	1671.3	1670.8	1665.6	1652.1	1632.9	1610.1	1586.3	1570.2
15°	1639.2	1637.1	1649.5	1646.4	1645.4	1643.3	1646.9	1642.8	1630.9	1610.1	1590.4
17.5°	1613.2	1612.2	1624.7	1627.8	1623.1	1616.4	1612.2	1607.0	1601.3	1601.8	1599.2
20°	1453.6	1485.2	1491.4	1508.0	1543.3	1566.6	1589.9	1588.9	1572.3	1569.7	1568.7
22.5°	1325.0	1336.9	1331.2	1358.2	1377.4	1419.4	1460.3	1512.2	1546.9	1538.1	1532.4
25°	1104.2	1141.5	1158.6	1192.3	1241.0	1294.4	1317.8	1372.7	1426.1	1467.6	1499.2
27.5°	967.3	975.6	986.5	1021.2	1039.4	1088.1	1175.2	1249.9	1299.6	1344.7	1428.2
30°	771.4	775.0	812.8	832.0	885.4	933.1	1008.8	1068.9	1169.0	1235.9	1300.1
32.5°	588.9	585.8	627.3	649.5	702.4	766.7	851.2	907.2	1005.2	1114.6	1191.3
35°	435.5	434.9	457.2	472.8	530.8	580.1	687.4	760.5	867.8	975.1	1074.1
37.5°	354.6	354.1	358.7	372.2	396.6	452.0	503.9	612.2	716.9	822.7	946.6
40°	319.3	321.9	323.0	329.2	337.5	354.1	385.7	461.4	564.0	690.0	814.4
42.5°	300.7	300.7	301.7	303.3	307.4	312.1	331.3	360.3	442.7	543.3	682.7
45°	284.1	284.6	285.6	286.7	285.6	288.2	297.0	309.0	341.1	420.4	555.2
47.5°	264.4	263.9	266.5	268.0	270.1	273.2	273.7	279.9	293.9	335.4	433.4
50°	230.2	230.7	233.3	239.5	246.2	251.9	255.6	259.7	264.4	284.1	335.9
52.5°	199.1	199.6	201.1	205.8	212.0	219.3	230.7	240.0	243.6	249.9	278.9
55°	179.4	179.4	181.4	184.0	185.6	190.8	198.5	208.9	222.4	227.6	240.0
57.5°	162.8	162.8	163.8	163.8	165.9	168.5	173.7	178.8	190.3	206.8	214.6
60°	146.2	146.2	147.2	147.2	149.8	150.9	154.5	157.6	163.8	175.2	190.8
62.5°	130.6	129.6	130.6	131.2	132.7	134.3	136.9	140.5	144.1	150.9	162.3
65°	115.1	114.6	115.6	116.6	117.7	119.7	121.3	123.9	127.0	130.6	136.3
67.5°	101.6	101.1	101.6	103.2	102.6	103.7	106.3	107.3	110.4	114.0	118.7
70°	88.1	87.1	88.1	88.1	88.6	90.2	90.2	92.8	95.4	97.5	101.6
72.5°	73.6	74.1	73.6	74.1	75.2	75.7	76.7	78.3	79.8	81.9	84.5
75°	61.2	61.2	61.7	62.2	63.2	63.2	63.8	64.8	65.8	66.9	70.0
77.5°	48.7	49.2	49.8	50.3	50.3	50.8	51.3	51.8	53.4	53.9	55.5
80°	37.3	37.8	37.8	37.8	38.9	37.8	38.9	39.9	39.9	40.4	41.5
82.5°	27.0	27.5	27.0	27.5	28.0	28.0	27.5	28.0	28.0	29.0	29.0
85°	17.6	16.6	16.6	16.6	16.6	16.6	17.1	17.6	17.1	17.1	17.6
87.5°	7.3	7.3	7.3	7.3	7.8	7.3	7.8	7.8	7.8	7.3	7.8
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: P243103

CATALOG NUMBER: S121RDR-H880D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8
2.5°	1419.4	1415.2	1411.6	1405.4	1397.6	1386.2	1384.6	1385.2	1371.2	1357.7	1355.6
5°	1457.7	1451.0	1439.6	1426.1	1413.7	1394.5	1386.2	1380.5	1359.2	1341.1	1333.8
7.5°	1498.7	1482.6	1467.1	1445.8	1425.1	1400.2	1384.6	1372.7	1344.7	1320.9	1308.4
10°	1530.8	1511.1	1488.8	1461.9	1433.4	1402.8	1379.5	1360.8	1327.1	1297.5	1282.0
12.5°	1553.6	1531.3	1504.9	1472.8	1440.1	1399.7	1371.2	1346.3	1305.3	1270.1	1251.4
15°	1565.6	1541.7	1509.0	1473.8	1440.1	1397.6	1359.8	1323.5	1283.0	1239.0	1215.6
17.5°	1576.4	1545.3	1508.5	1468.1	1433.9	1389.3	1342.6	1295.5	1249.9	1208.4	1170.5
20°	1568.7	1542.2	1501.3	1459.3	1420.9	1369.1	1319.8	1271.1	1214.1	1165.9	1128.0
22.5°	1532.4	1527.7	1483.6	1438.5	1394.5	1344.7	1287.7	1239.5	1178.3	1121.3	1075.7
25°	1489.9	1484.2	1460.3	1412.1	1362.3	1310.5	1259.2	1203.7	1133.2	1074.1	1021.8
27.5°	1454.1	1441.1	1424.0	1378.9	1325.5	1273.7	1220.8	1166.9	1091.7	1025.9	966.3
30°	1381.5	1394.0	1374.8	1343.7	1282.0	1231.7	1180.9	1122.3	1047.7	972.0	910.8
32.5°	1266.4	1341.6	1322.4	1297.5	1236.9	1181.9	1133.7	1076.2	993.8	919.1	855.9
35°	1164.8	1229.6	1273.2	1243.1	1189.7	1126.0	1076.7	1026.4	940.4	864.2	803.5
37.5°	1066.3	1135.3	1207.9	1180.4	1136.3	1067.9	1016.1	966.3	886.5	809.7	749.1
40°	937.3	1037.8	1107.8	1118.7	1073.6	1004.7	954.4	903.0	832.5	756.3	691.5
42.5°	813.4	942.4	998.9	1054.9	1008.8	944.0	888.0	844.5	776.6	709.7	639.2
45°	683.8	830.5	913.9	957.0	940.4	881.3	820.1	778.1	721.1	658.9	592.0
47.5°	571.3	710.7	830.0	854.3	870.4	812.3	755.3	712.8	663.5	612.2	548.5
50°	453.1	597.7	725.2	769.3	799.9	747.0	687.4	650.6	609.1	563.0	506.5
52.5°	352.5	487.8	621.6	696.7	707.1	679.6	624.7	588.4	555.2	513.7	462.4
55°	279.9	384.6	518.4	606.0	615.9	609.1	559.9	528.2	503.9	469.1	426.1
57.5°	232.2	299.1	419.9	521.0	535.5	541.7	501.3	472.8	451.0	423.5	384.6
60°	200.6	235.9	328.1	427.2	467.1	478.0	442.2	421.5	403.3	378.4	342.1
62.5°	177.3	193.4	250.9	346.3	397.6	406.9	388.8	373.2	358.2	334.4	302.2
65°	147.7	164.8	193.4	267.5	330.7	335.4	339.0	324.0	312.1	292.4	263.9
67.5°	123.9	137.4	156.0	205.3	265.4	278.9	288.2	281.5	270.1	250.4	226.0
70°	105.2	113.0	126.5	154.0	202.7	231.7	241.6	236.4	230.7	209.4	188.7
72.5°	87.6	93.8	101.6	118.2	152.9	184.0	198.5	196.0	189.7	173.7	156.6
75°	72.6	75.2	81.4	90.7	110.9	140.0	157.1	159.1	151.9	136.9	123.4
77.5°	57.0	59.6	63.2	68.9	81.9	101.6	115.6	120.8	116.1	105.2	91.8
80°	43.5	45.1	47.7	50.3	55.5	68.9	83.5	86.6	84.0	75.2	66.9
82.5°	29.0	30.1	32.1	34.2	36.8	43.0	55.5	57.5	57.0	49.2	43.5
85°	17.6	17.6	18.1	19.7	20.7	23.3	30.1	33.2	31.6	26.4	23.8
87.5°	7.3	7.8	7.3	7.3	7.3	7.8	9.8	13.5	10.4	7.8	7.3
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: P243103

CATALOG NUMBER: S121RDR-H880D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8	1374.8
2.5°	1349.9	1347.8	1340.1	1332.8	1324.5	1314.7	1315.2	1316.7	1313.1	1312.1	1315.7
5°	1323.5	1316.2	1304.3	1292.4	1283.0	1270.6	1263.3	1267.0	1264.4	1259.7	1256.6
7.5°	1295.5	1285.1	1268.0	1253.0	1240.5	1217.2	1212.0	1205.8	1200.6	1190.2	1188.2
10°	1262.3	1247.3	1225.5	1204.2	1181.4	1163.3	1146.2	1138.9	1124.9	1115.6	1113.0
12.5°	1228.1	1203.2	1178.8	1147.7	1121.8	1095.4	1080.3	1070.0	1056.0	1033.2	1022.3
15°	1192.8	1155.0	1122.3	1088.1	1070.5	1034.7	1006.2	974.1	957.0	918.6	896.3
17.5°	1145.7	1102.1	1058.0	1030.1	993.2	943.5	895.8	879.2	853.3	828.4	803.5
20°	1081.9	1042.0	1000.0	958.0	902.0	844.5	826.3	797.8	769.3	754.3	741.3
22.5°	1023.3	980.3	930.5	875.1	817.5	772.4	748.6	727.8	710.2	696.7	681.7
25°	967.8	923.3	852.2	795.7	745.5	712.3	700.4	673.4	654.7	644.9	631.9
27.5°	906.7	845.5	788.5	729.9	685.3	666.7	639.2	617.9	598.2	579.0	574.4
30°	848.6	780.7	724.2	676.5	643.8	617.9	589.9	565.1	552.1	544.8	532.9
32.5°	791.1	722.1	669.2	631.9	596.7	569.2	542.8	529.8	510.1	494.0	483.7
35°	729.4	669.2	627.3	583.7	550.0	523.1	509.6	480.0	469.1	464.5	453.6
37.5°	675.0	621.6	579.0	545.9	509.1	487.3	460.9	454.1	439.6	427.2	423.5
40°	629.9	579.6	539.6	496.6	473.8	445.3	432.3	414.2	409.0	404.3	396.1
42.5°	580.6	537.6	492.0	462.9	429.2	416.3	396.1	390.9	378.4	373.8	370.7
45°	538.6	498.7	455.2	419.9	400.7	381.5	373.8	360.8	355.1	349.4	343.7
47.5°	497.7	456.2	421.5	388.3	367.0	358.2	344.2	334.9	328.7	323.0	317.3
50°	459.8	417.8	378.9	355.1	340.1	327.6	318.8	311.0	302.2	289.8	276.8
52.5°	418.9	381.0	349.4	326.1	312.6	300.7	292.9	279.4	262.3	248.8	242.6
55°	377.9	342.1	314.7	296.0	286.7	275.3	257.6	237.9	227.1	225.0	223.4
57.5°	343.2	309.5	284.1	269.6	258.7	238.5	219.8	212.5	209.4	208.4	207.4
60°	304.3	274.2	256.1	240.5	222.4	203.2	197.5	196.5	193.4	191.8	190.8
62.5°	268.5	242.6	226.0	207.4	188.2	184.5	180.4	177.8	176.3	172.6	171.1
65°	233.8	213.1	194.9	175.2	168.5	165.9	162.3	158.6	154.5	151.9	149.8
67.5°	200.6	180.4	161.2	154.0	150.3	146.2	141.5	136.3	134.3	130.6	130.1
70°	168.0	149.3	138.9	134.3	127.5	123.9	118.7	116.6	113.0	111.5	109.9
72.5°	136.9	123.4	119.2	112.5	107.8	102.1	99.5	97.5	95.4	92.8	92.8
75°	106.8	103.2	95.4	90.2	85.5	82.4	81.4	77.8	77.2	75.7	74.6
77.5°	85.0	77.8	75.2	69.5	66.4	64.8	63.8	61.7	59.6	59.1	58.6
80°	60.1	56.5	53.4	50.8	48.2	47.2	46.1	45.6	44.6	43.5	43.0
82.5°	39.4	37.3	35.3	33.7	33.2	31.6	30.6	30.1	29.0	29.0	29.0
85°	21.3	20.7	19.7	18.7	17.6	17.6	17.1	16.6	16.6	15.0	15.0
87.5°	6.7	6.7	6.2	6.2	5.2	5.7	5.2	5.2	4.7	5.2	5.2
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: P243103

CATALOG NUMBER: S121RDR-H880D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1374.8	1374.8	1374.8	1374.8
2.5°	1311.5	1311.5	1309.5	1311.5
5°	1254.5	1249.9	1248.3	1247.3
7.5°	1181.9	1177.8	1173.6	1169.5
10°	1107.8	1101.6	1098.0	1094.9
12.5°	1011.4	1003.6	989.1	993.2
15°	892.7	893.2	859.5	896.8
17.5°	795.7	798.3	784.9	782.8
20°	734.0	733.0	727.8	721.6
22.5°	670.8	666.1	664.1	654.2
25°	611.7	603.4	606.0	592.0
27.5°	568.7	561.9	559.9	558.8
30°	525.7	511.7	507.0	510.1
32.5°	482.1	481.1	479.5	480.0
35°	445.3	443.2	438.6	438.6
37.5°	419.9	420.4	417.8	415.8
40°	388.8	386.2	385.7	382.6
42.5°	366.5	361.3	359.2	359.8
45°	340.6	337.5	334.9	335.9
47.5°	310.0	306.9	301.2	299.6
50°	268.5	264.4	261.8	259.2
52.5°	237.4	236.9	235.9	235.4
55°	222.4	220.8	220.8	220.8
57.5°	206.8	205.8	205.3	206.3
60°	189.7	188.7	186.6	186.6
62.5°	168.5	167.4	166.9	164.8
65°	147.2	146.7	145.7	146.2
67.5°	127.5	127.0	127.0	125.5
70°	108.3	108.3	106.8	107.8
72.5°	90.7	90.2	90.2	90.2
75°	73.6	73.1	72.6	72.6
77.5°	58.1	58.1	57.0	57.0
80°	42.0	42.0	41.5	42.5
82.5°	28.0	29.0	28.0	28.0
85°	15.0	15.6	15.6	15.6
87.5°	4.7	4.1	4.1	4.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)