

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: P242238

Luminaire Tested: **S121RDR-S880D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242238  
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-S880D930-X4F0-XX-UDD-A-W  
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2505.5 lumens  
Efficiency: N/A  
Efficacy: 72.0 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

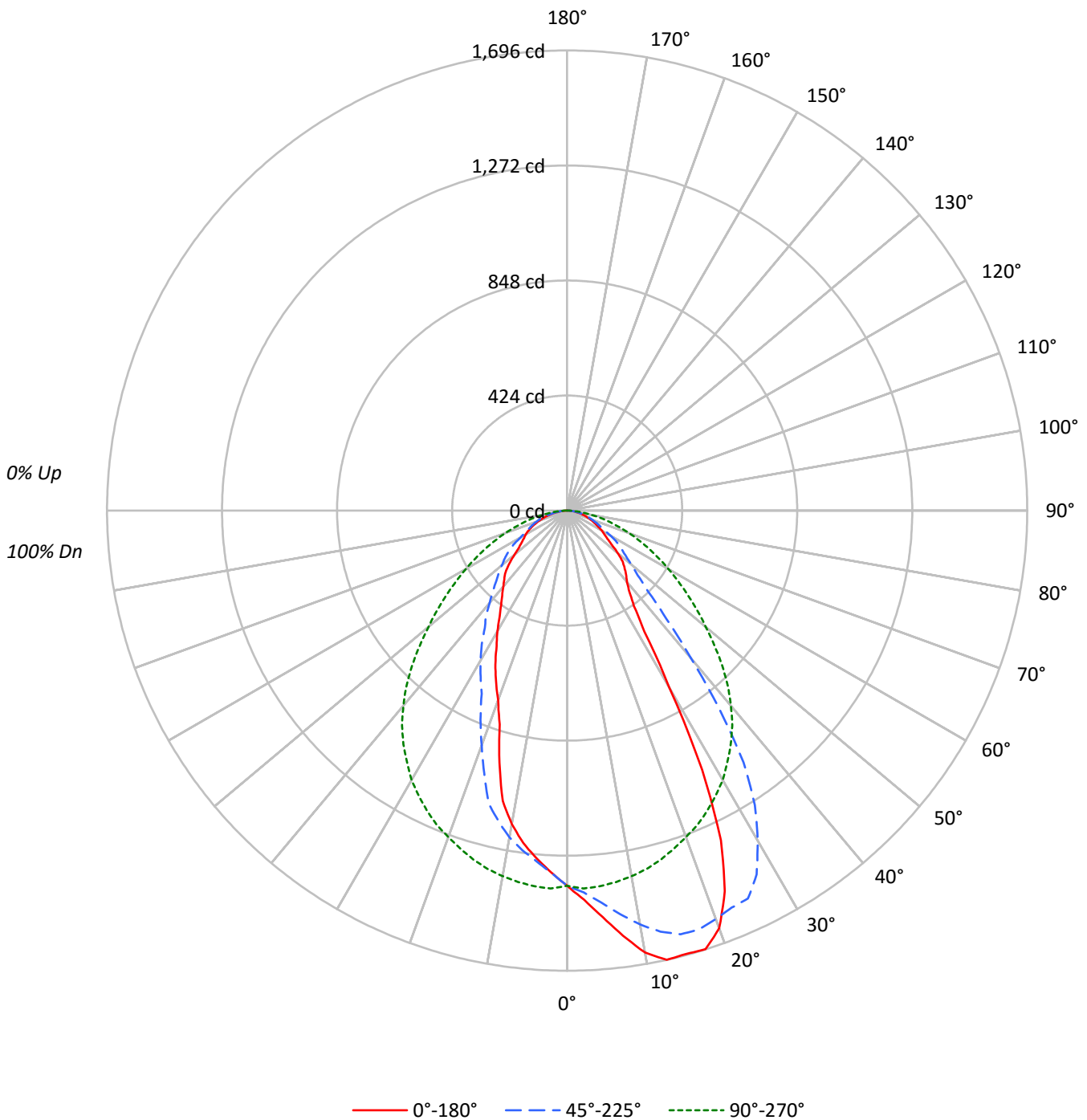
Input Watts (W): 34.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P242238

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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	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°	40975	40975	40975
5°	44718	41331	38285
10°	49773	41168	35289
15°	51893	40856	29534
20°	51670	40376	23440
25°	43818	39924	20462
30°	25790	39239	17572
35°	15496	38041	15344
40°	13271	36316	14156
45°	12550	33853	13463
50°	11215	30746	11648
55°	9345	28066	10528
60°	8687	25570	10477
65°	8021	23290	10131
70°	7563	20991	9547
75°	7144	18569	8689
80°	6382	15527	7627
85°	6017	12205	6017



TEST NUMBER: P242238

CATALOG NUMBER: S121RDR-S880D930-X4F0-XX-UDD-A-W

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	132.6	5.3
10°-20°	377.7	15.1
20°-30°	515.9	20.6
30°-40°	480.6	19.2
40°-50°	397.3	15.9
50°-60°	293.0	11.7
60°-70°	187.3	7.5
70°-80°	96.4	3.8
80°-90°	24.8	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°	1026.1	41.0
0°-40°	1506.8	60.1
0°-60°	2197.1	87.7
0°-90°	2505.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2505.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1383	1383	1383	1383	1383	
5°	1504	1450	1390	1297	1287	148
15°	1692	1617	1332	1117	963	477
25°	1340	1577	1221	746	626	582
35°	428	1133	1052	529	424	291
45°	300	423	808	370	321	230
55°	181	242	543	265	204	167
65°	114	132	332	154	144	114
75°	62	68	162	85	76	65
85°	18	18	36	20	18	20
90°	0	0	0	0	0	



TEST NUMBER: P242238

CATALOG NUMBER: S121RDR-S880D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9
2.5°	1435.9	1434.9	1436.4	1435.4	1434.4	1431.8	1429.7	1423.4	1414.1	1408.9	1414.1
5°	1503.5	1507.7	1506.1	1504.0	1499.3	1495.2	1485.8	1480.1	1463.5	1450.5	1454.1
7.5°	1580.4	1585.6	1578.9	1574.2	1571.6	1559.6	1549.3	1533.1	1514.9	1500.4	1492.1
10°	1654.3	1655.8	1653.7	1649.6	1640.8	1627.8	1612.7	1594.5	1571.6	1549.3	1534.2
12.5°	1695.9	1698.5	1701.6	1694.3	1687.5	1677.1	1661.5	1643.3	1615.3	1589.3	1572.1
15°	1691.7	1693.8	1699.5	1696.9	1693.8	1689.1	1680.3	1665.2	1645.4	1616.8	1592.4
17.5°	1694.8	1696.4	1699.0	1689.6	1684.4	1678.7	1667.3	1656.9	1640.2	1617.9	1599.7
20°	1638.7	1664.1	1661.0	1673.5	1678.7	1678.2	1667.3	1647.5	1624.6	1601.8	1593.4
22.5°	1518.1	1538.3	1540.9	1560.2	1584.1	1603.3	1627.2	1636.1	1618.4	1584.1	1572.6
25°	1340.3	1354.8	1369.4	1396.9	1422.4	1475.9	1524.8	1561.7	1582.0	1577.3	1555.0
27.5°	1077.2	1061.6	1119.3	1151.0	1222.2	1300.2	1368.9	1436.4	1468.7	1511.8	1533.7
30°	753.8	752.3	795.9	851.0	957.6	1029.4	1157.8	1266.4	1351.2	1404.2	1463.5
32.5°	529.2	537.0	569.3	603.1	661.8	778.8	877.0	1026.8	1171.3	1287.2	1360.0
35°	428.4	429.4	436.7	457.0	492.8	557.8	634.3	779.8	975.8	1133.3	1242.0
37.5°	375.4	378.5	380.6	392.0	405.0	432.5	480.9	581.7	744.0	919.7	1108.4
40°	343.1	345.7	347.8	351.4	359.2	372.2	403.9	452.3	545.9	707.6	917.6
42.5°	321.3	320.2	324.9	326.5	330.6	337.9	352.0	378.0	432.0	541.7	722.6
45°	299.5	301.0	301.0	303.1	306.7	310.9	316.6	332.7	360.3	422.7	564.6
47.5°	276.6	276.1	279.2	280.7	284.4	288.0	292.2	300.5	316.6	353.0	435.1
50°	243.3	244.3	250.1	255.3	260.5	265.1	270.3	275.5	285.9	305.7	356.1
52.5°	208.0	208.0	214.2	217.8	225.1	236.5	245.4	253.2	259.9	269.8	300.0
55°	180.9	181.4	183.5	186.6	191.8	197.6	209.0	222.5	233.9	242.3	258.9
57.5°	162.2	162.7	163.2	165.8	168.4	170.5	177.3	187.7	202.8	217.8	227.7
60°	146.6	146.1	146.1	147.6	149.7	152.3	156.0	160.1	168.4	184.6	202.2
62.5°	128.9	130.0	130.0	131.5	133.1	135.7	137.2	141.4	146.1	153.4	171.6
65°	114.4	115.4	114.4	115.9	117.0	118.5	121.1	123.2	127.4	132.1	139.3
67.5°	99.8	100.3	101.4	101.9	102.9	103.5	105.5	108.1	110.7	113.9	119.6
70°	87.3	87.3	87.3	88.4	89.4	89.4	91.0	92.0	94.6	97.7	100.9
72.5°	73.8	74.3	74.3	73.8	75.9	76.4	76.9	78.0	80.1	82.7	85.3
75°	62.4	61.3	61.3	61.9	63.4	63.4	63.9	64.5	66.0	68.1	69.7
77.5°	48.9	48.9	49.4	49.9	50.4	50.4	51.5	51.5	53.5	54.6	55.6
80°	37.4	38.5	39.0	38.5	38.5	39.0	39.0	40.0	40.6	41.1	42.1
82.5°	28.1	28.6	27.6	27.6	28.1	28.1	28.6	28.6	29.1	29.6	29.6
85°	17.7	17.7	18.2	17.7	18.2	17.7	17.7	18.7	18.2	18.2	18.7
87.5°	8.3	8.8	8.3	8.8	8.3	8.8	8.8	8.8	8.8	8.8	8.3
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: P242238

CATALOG NUMBER: S121RDR-S880D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9
2.5°	1412.5	1412.0	1409.4	1403.7	1399.5	1391.7	1391.7	1394.3	1380.8	1371.5	1370.9
5°	1445.3	1440.1	1431.2	1420.3	1410.4	1396.9	1391.7	1389.6	1371.5	1357.4	1352.7
7.5°	1480.1	1467.1	1452.0	1434.4	1417.7	1398.5	1388.6	1380.8	1357.4	1340.3	1329.9
10°	1516.5	1495.7	1472.3	1446.8	1424.0	1398.0	1381.8	1368.3	1341.3	1317.4	1305.4
12.5°	1548.7	1519.6	1490.0	1456.7	1425.5	1392.8	1370.4	1352.7	1321.0	1292.4	1277.9
15°	1563.8	1532.6	1508.2	1462.4	1420.3	1387.0	1358.5	1331.9	1298.1	1266.4	1244.1
17.5°	1576.8	1542.5	1510.3	1467.1	1418.2	1375.1	1340.8	1307.0	1270.6	1237.3	1209.8
20°	1573.2	1544.1	1504.5	1458.8	1412.5	1362.6	1323.6	1280.5	1235.2	1201.4	1172.3
22.5°	1552.4	1528.5	1487.4	1443.7	1399.0	1345.5	1301.3	1254.5	1198.8	1161.9	1129.2
25°	1525.9	1503.0	1462.4	1417.2	1373.0	1321.0	1269.0	1221.2	1161.4	1117.2	1075.1
27.5°	1505.1	1470.7	1430.2	1379.8	1337.1	1287.7	1233.2	1184.8	1120.3	1071.5	1022.6
30°	1481.1	1442.2	1392.2	1338.7	1293.5	1248.2	1195.2	1146.9	1075.6	1020.0	959.2
32.5°	1412.5	1413.0	1353.8	1294.0	1245.6	1197.3	1150.0	1098.5	1027.8	962.3	899.9
35°	1323.1	1357.9	1314.3	1245.6	1185.9	1141.1	1102.2	1051.7	973.2	905.6	834.9
37.5°	1203.5	1264.9	1270.1	1198.8	1132.8	1080.3	1041.8	999.7	920.7	847.9	777.7
40°	1084.0	1165.1	1197.3	1147.9	1076.2	1015.9	977.4	938.9	864.6	786.1	721.1
42.5°	937.3	1068.9	1108.9	1094.4	1017.4	952.4	911.9	877.0	804.8	727.8	663.4
45°	772.0	949.8	1008.1	1023.1	958.1	888.5	841.7	807.9	744.5	676.9	609.8
47.5°	620.2	815.7	911.9	927.5	893.2	825.6	772.0	736.7	686.2	628.0	561.5
50°	473.1	673.2	811.0	834.9	826.6	758.0	708.6	667.0	628.5	576.6	514.2
52.5°	376.4	538.1	701.8	746.6	749.2	695.1	643.1	605.1	567.7	526.6	470.0
55°	300.5	415.9	581.7	657.7	664.9	627.5	579.7	543.3	515.2	476.7	428.9
57.5°	253.2	321.8	465.8	568.2	571.4	561.0	515.2	485.1	461.7	428.4	386.3
60°	216.3	255.3	359.2	478.8	494.4	494.4	458.0	431.5	409.1	384.2	344.2
62.5°	187.2	208.5	272.4	380.6	420.6	426.8	403.9	380.6	363.9	339.0	302.1
65°	157.5	173.6	211.1	294.3	349.4	360.8	349.4	332.2	319.2	293.2	264.1
67.5°	129.5	145.0	168.4	223.0	283.3	297.4	295.3	286.5	272.9	253.7	223.0
70°	107.1	116.5	133.6	165.3	222.5	243.8	250.1	242.3	230.3	209.5	187.2
72.5°	88.4	95.7	104.0	126.9	166.4	194.4	204.8	200.7	191.8	172.1	153.4
75°	72.3	76.9	82.7	93.6	119.6	151.3	163.2	162.2	153.4	136.7	121.7
77.5°	58.2	59.8	63.9	70.7	83.7	112.3	121.7	124.8	118.0	104.0	92.0
80°	43.7	45.7	47.8	51.5	57.7	74.3	86.3	91.0	85.3	76.9	65.0
82.5°	30.7	31.2	33.3	35.4	38.5	45.2	57.7	62.9	57.7	48.9	45.2
85°	19.2	18.7	19.2	19.8	22.9	24.4	32.2	35.9	34.8	29.6	25.5
87.5°	8.8	8.8	8.3	8.8	8.3	9.9	11.4	16.6	12.5	10.9	9.9
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: P242238

CATALOG NUMBER: S121RDR-S880D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9	1382.9
2.5°	1366.8	1365.2	1360.0	1352.7	1346.5	1336.1	1336.1	1338.7	1338.2	1339.2	1338.2
5°	1344.9	1337.7	1329.9	1320.0	1310.6	1297.1	1295.5	1296.6	1296.1	1295.5	1292.4
7.5°	1316.9	1308.5	1298.7	1286.2	1275.8	1262.8	1259.2	1258.1	1254.0	1252.4	1248.2
10°	1289.8	1280.0	1267.0	1251.9	1237.8	1222.8	1213.4	1208.2	1201.4	1194.2	1187.9
12.5°	1259.7	1246.7	1230.0	1211.8	1188.5	1171.8	1157.8	1148.9	1139.6	1127.1	1118.3
15°	1227.4	1200.9	1181.2	1151.5	1122.9	1117.2	1095.9	1067.8	1065.8	1004.9	983.6
17.5°	1184.3	1162.5	1125.5	1087.1	1048.1	1016.4	1016.9	941.0	917.6	917.1	879.6
20°	1139.6	1109.4	1066.8	1027.8	986.7	921.2	869.2	844.3	806.3	791.8	770.5
22.5°	1087.1	1047.6	997.7	944.6	887.4	834.4	783.5	759.5	740.3	724.2	715.4
25°	1024.7	984.7	924.9	858.8	794.9	745.5	717.4	706.5	673.8	662.3	651.4
27.5°	961.8	918.1	840.1	776.7	724.2	690.4	661.3	643.1	627.5	598.4	585.4
30°	902.0	831.8	767.3	709.1	669.6	637.9	616.6	579.7	557.8	544.3	538.6
32.5°	837.0	762.1	703.9	653.5	612.9	585.4	553.7	528.7	518.8	501.2	475.7
35°	770.5	702.4	641.5	601.0	566.2	528.7	509.0	485.1	460.1	446.6	444.5
37.5°	706.0	641.5	597.9	555.2	513.1	491.3	462.2	436.7	427.9	415.4	401.9
40°	647.8	592.7	552.1	503.2	477.8	444.0	421.6	408.6	387.3	382.6	378.5
42.5°	599.9	552.6	506.9	463.2	433.6	406.5	386.8	371.7	365.0	353.5	349.9
45°	551.6	507.9	461.1	426.8	393.0	370.2	356.6	343.6	335.8	332.7	326.5
47.5°	507.9	465.3	422.1	380.0	357.2	342.1	327.0	320.2	315.6	308.8	305.2
50°	466.3	419.0	378.5	352.0	327.5	314.0	304.1	297.9	290.6	283.3	272.9
52.5°	424.2	383.7	344.7	316.6	298.4	289.6	280.2	273.5	258.9	244.9	236.0
55°	381.6	340.0	308.3	287.0	274.0	264.6	253.7	233.9	220.4	212.6	208.5
57.5°	343.1	305.7	277.6	259.9	250.6	235.0	215.8	203.3	196.5	193.4	191.3
60°	302.1	269.8	246.4	232.9	218.4	197.6	187.2	180.9	178.8	177.8	176.2
62.5°	266.7	238.1	219.9	204.8	184.0	173.1	167.4	164.3	164.3	162.7	161.7
65°	229.3	206.9	191.3	169.5	158.6	153.9	151.8	150.2	148.7	148.2	146.1
67.5°	198.6	178.8	158.6	147.1	140.4	137.8	135.7	135.2	133.1	131.5	130.0
70°	167.4	148.2	131.5	126.3	122.7	121.7	119.6	117.5	115.9	113.9	112.8
72.5°	136.2	118.0	112.3	109.7	106.1	104.5	101.9	100.3	97.7	96.7	95.7
75°	104.0	96.7	93.6	91.5	88.9	85.3	84.2	82.7	81.6	80.1	78.5
77.5°	82.7	78.5	74.9	72.3	70.2	67.6	65.5	65.0	63.9	62.4	61.9
80°	61.9	58.7	57.2	54.6	52.0	50.4	49.4	48.9	47.3	46.8	46.3
82.5°	42.6	40.0	39.0	35.9	34.8	34.8	34.3	33.3	32.2	31.7	31.2
85°	23.9	22.9	21.3	21.8	20.3	20.3	19.8	19.2	18.7	18.2	17.7
87.5°	9.4	8.8	8.3	7.8	7.8	6.2	6.2	6.2	6.8	6.2	5.7
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: P242238

CATALOG NUMBER: S121RDR-S880D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1382.9	1382.9	1382.9	1382.9
2.5°	1339.7	1340.8	1337.1	1335.1
5°	1292.4	1290.9	1288.8	1287.2
7.5°	1244.1	1242.5	1242.5	1236.3
10°	1185.3	1181.2	1178.1	1172.9
12.5°	1110.5	1104.2	1102.2	1095.9
15°	969.1	956.1	947.2	962.8
17.5°	870.8	837.0	839.6	826.6
20°	769.9	756.4	763.2	743.4
22.5°	704.4	696.1	688.3	684.2
25°	643.6	633.7	621.8	625.9
27.5°	567.2	567.2	559.4	562.5
30°	528.2	524.0	511.0	513.6
32.5°	467.4	462.2	460.6	461.7
35°	438.3	429.9	427.3	424.2
37.5°	397.7	394.6	395.1	393.0
40°	370.7	368.1	365.0	366.0
42.5°	347.3	345.7	342.6	343.1
45°	324.4	322.8	321.3	321.3
47.5°	298.9	295.8	293.2	290.1
50°	265.7	259.4	254.7	252.7
52.5°	229.8	226.7	223.5	223.5
55°	206.9	205.4	204.3	203.8
57.5°	190.8	189.8	189.8	188.2
60°	176.2	176.2	175.7	176.8
62.5°	162.2	160.6	161.2	161.2
65°	146.1	145.6	145.0	144.5
67.5°	128.9	128.4	128.9	127.9
70°	111.8	111.8	111.3	110.2
72.5°	94.1	95.1	94.1	93.6
75°	77.5	76.9	77.5	75.9
77.5°	61.9	59.8	60.8	61.3
80°	45.7	45.7	45.2	44.7
82.5°	30.7	31.2	30.2	30.2
85°	17.7	17.7	16.6	17.7
87.5°	5.2	5.2	5.2	6.2
90°	0.0	0.0	0.0	0.0

(END OF REPORT)