

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: P242115

Luminaire Tested: **S121DR-S880D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242115
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-18)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121DR-S880D927-X4F0-XX-UDD-A-W
Description: DEFINE 1 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: 2892.8 lumens
Efficiency: N/A
Efficacy: 83.1 lumens/watt
Spacing Criteria (0/90/45): 1.27 / 1.22 / 1.37
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

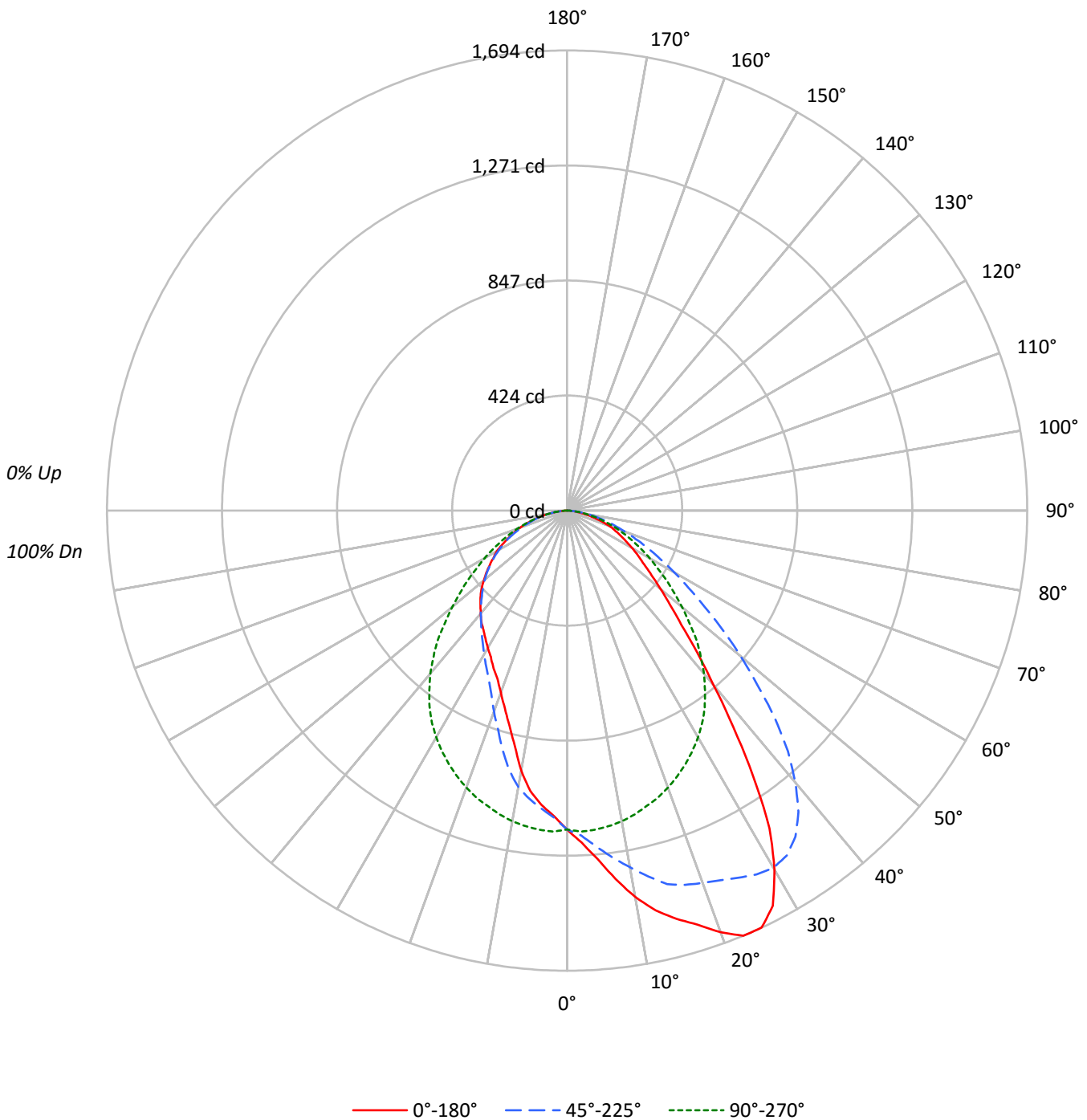
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	105	102	98	107	103	100	96	99	96	93	95	93	91	92	90	88					86				
2	101	93	87	82	98	91	85	81	88	83	79	85	80	77	82	78	75					73				
3	92	83	75	69	90	81	74	68	78	72	67	75	70	66	73	69	65					63				
4	85	74	66	59	83	73	65	59	70	63	58	68	62	57	66	61	57					54				
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50					48				
6	73	60	52	46	71	59	51	45	57	50	45	56	49	45	54	49	44					42				
7	68	55	46	41	66	54	46	40	52	45	40	51	45	40	50	44	40					38				
8	63	50	42	36	62	50	42	36	48	41	36	47	41	36	46	40	36					34				
9	59	46	38	33	58	46	38	33	44	38	33	43	37	33	42	37	32					31				
10	56	43	35	30	54	42	35	30	41	34	30	40	34	30	39	34	30					28				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	34782	34782	34782
5°	38282	35067	32331
10°	43466	34940	29241
15°	47724	34552	25132
20°	52083	34211	22488
25°	55388	33674	20940
30°	52227	32975	19977
35°	43156	31939	19402
40°	32355	30286	19146
45°	24932	28234	18923
50°	20679	25403	18489
55°	17848	23065	17951
60°	16403	20806	17719
65°	15158	18803	16714
70°	14355	16893	16018
75°	11791	14917	14230
80°	9316	12149	11722
85°	7207	8941	7887



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	112.9	3.9
10°-20°	329.3	11.4
20°-30°	504.2	17.4
30°-40°	575.3	19.9
40°-50°	516.2	17.8
50°-60°	404.9	14.0
60°-70°	275.5	9.5
70°-80°	141.9	4.9
80°-90°	32.7	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°	946.3	32.7
0°-40°	1521.6	52.6
0°-60°	2442.8	84.4
0°-90°	2892.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2892.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1174	1174	1174	1174	1174	
5°	1287	1242	1179	1100	1087	128
15°	1556	1424	1126	915	819	443
25°	1694	1491	1030	683	640	764
35°	1193	1465	883	548	536	740
45°	595	1081	674	444	452	472
55°	346	617	446	344	348	315
65°	216	328	268	234	238	215
75°	103	144	130	120	124	111
85°	21	28	26	25	23	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°	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9
2.5°	1223.4	1223.4	1225.4	1224.9	1222.9	1219.4	1216.4	1212.8	1203.7	1197.7	1203.2
5°	1287.1	1289.6	1292.1	1291.6	1284.0	1277.5	1267.9	1265.3	1249.2	1241.6	1239.1
7.5°	1367.9	1367.4	1368.4	1359.8	1353.2	1346.7	1334.0	1318.4	1299.2	1288.6	1278.5
10°	1444.7	1449.2	1447.2	1436.6	1426.5	1419.4	1399.2	1380.0	1356.3	1333.5	1320.9
12.5°	1507.3	1504.8	1513.4	1503.3	1491.1	1478.0	1458.3	1441.1	1410.3	1379.5	1353.7
15°	1555.8	1553.3	1554.3	1546.7	1534.1	1522.5	1502.3	1484.1	1454.8	1424.0	1396.7
17.5°	1598.2	1600.8	1596.2	1587.1	1569.9	1556.3	1531.0	1506.3	1475.5	1444.7	1417.9
20°	1651.8	1654.3	1645.7	1632.6	1615.9	1592.7	1566.4	1531.0	1496.7	1458.8	1425.5
22.5°	1694.2	1692.7	1689.7	1677.0	1659.3	1637.6	1599.7	1560.8	1519.9	1473.0	1430.0
25°	1694.2	1696.2	1697.7	1691.2	1679.6	1661.4	1635.6	1594.7	1548.7	1491.1	1431.0
27.5°	1639.6	1648.7	1655.3	1655.3	1652.8	1652.3	1637.1	1611.4	1568.4	1510.3	1443.7
30°	1526.5	1538.6	1548.7	1564.4	1583.1	1595.2	1599.7	1589.6	1567.4	1518.4	1449.2
32.5°	1387.1	1386.1	1406.8	1432.0	1468.9	1494.7	1520.4	1535.6	1534.6	1505.3	1447.7
35°	1193.1	1207.3	1232.0	1267.4	1314.9	1357.3	1413.4	1442.6	1465.9	1464.9	1428.0
37.5°	1004.2	1006.2	1034.0	1082.5	1124.4	1190.1	1263.3	1324.4	1380.5	1398.7	1386.6
40°	836.5	850.6	869.3	909.7	951.7	1009.2	1102.2	1184.0	1253.2	1306.8	1321.4
42.5°	707.2	714.8	732.9	768.3	805.7	874.4	942.6	1030.0	1117.3	1202.7	1246.7
45°	595.0	602.1	618.8	643.5	678.4	732.4	802.7	887.5	981.0	1081.0	1143.6
47.5°	513.2	515.7	528.4	547.1	579.9	619.3	675.9	758.2	852.7	950.1	1042.1
50°	448.6	452.6	461.2	475.8	500.1	537.0	581.9	644.0	731.4	832.5	925.9
52.5°	392.0	395.0	405.1	413.2	431.9	463.2	502.1	558.7	632.4	723.3	819.8
55°	345.5	348.5	353.6	362.7	377.3	398.5	431.9	476.8	540.0	616.8	707.2
57.5°	310.1	311.7	312.7	318.7	330.4	347.5	375.8	411.2	460.2	530.4	610.7
60°	276.8	276.3	280.3	284.9	292.0	302.6	323.3	355.1	399.1	456.1	530.9
62.5°	243.5	246.0	248.5	252.1	256.6	262.7	279.3	303.1	337.9	386.9	448.6
65°	216.2	216.7	218.7	219.2	224.8	230.8	243.5	259.6	288.4	328.3	379.4
67.5°	189.9	190.4	189.9	191.4	194.0	199.0	205.6	218.7	240.9	273.3	317.7
70°	165.7	164.2	162.1	164.7	167.2	169.7	174.3	184.4	201.0	225.3	262.2
72.5°	133.4	134.4	135.4	136.4	136.9	140.4	144.5	151.5	164.7	183.4	211.6
75°	103.0	103.0	104.6	105.6	110.1	111.1	115.7	120.7	131.3	144.5	166.7
77.5°	75.8	75.3	77.8	78.3	80.8	83.9	86.4	91.4	99.5	110.6	125.3
80°	54.6	55.1	54.6	54.6	56.1	58.1	61.6	64.2	69.7	76.8	87.4
82.5°	36.4	36.4	36.9	36.9	38.4	38.4	40.4	42.4	46.0	50.5	58.1
85°	21.2	21.2	20.7	20.7	21.2	21.2	23.2	24.8	25.3	28.3	30.8
87.5°	9.1	9.1	8.6	9.1	8.6	9.1	8.6	9.6	10.1	10.6	11.6
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9
2.5°	1201.7	1200.2	1199.7	1194.1	1188.6	1182.0	1181.0	1183.0	1174.4	1163.8	1163.3
5°	1233.0	1227.5	1219.4	1208.8	1199.7	1187.6	1181.5	1179.0	1165.8	1150.7	1147.7
7.5°	1267.9	1254.2	1239.6	1223.4	1207.3	1189.6	1178.5	1171.9	1153.7	1135.0	1127.4
10°	1301.2	1283.5	1261.3	1236.6	1213.8	1189.6	1172.9	1161.3	1139.1	1115.8	1104.2
12.5°	1339.6	1310.3	1279.0	1248.2	1220.4	1189.1	1163.8	1146.1	1120.4	1095.6	1078.5
15°	1367.4	1325.0	1300.7	1256.8	1221.9	1184.0	1153.2	1126.4	1098.2	1070.9	1053.7
17.5°	1389.1	1355.8	1313.3	1264.8	1217.9	1177.0	1138.6	1108.8	1071.4	1041.6	1022.9
20°	1396.2	1362.3	1318.9	1265.9	1218.9	1166.3	1120.9	1085.0	1045.1	1008.7	983.0
22.5°	1393.7	1355.3	1310.8	1258.8	1211.3	1149.2	1101.7	1058.8	1014.3	975.4	940.0
25°	1388.1	1343.6	1294.6	1245.6	1192.6	1131.5	1076.9	1030.0	976.4	934.0	891.6
27.5°	1385.1	1327.0	1271.9	1218.9	1168.4	1109.3	1050.7	998.1	939.0	887.5	833.0
30°	1384.1	1314.9	1245.6	1184.0	1137.6	1077.4	1019.4	963.8	894.6	836.5	780.9
32.5°	1382.0	1304.7	1223.4	1149.7	1096.6	1042.6	981.0	925.9	847.6	787.0	727.4
35°	1368.4	1287.1	1197.7	1113.8	1051.7	995.6	940.6	883.0	801.6	736.5	679.4
37.5°	1339.1	1267.9	1172.4	1077.9	1003.7	946.6	895.6	833.0	754.2	682.9	629.9
40°	1295.7	1237.6	1145.1	1042.6	955.2	892.6	838.5	783.0	701.6	633.4	585.4
42.5°	1239.1	1194.1	1107.2	1001.2	908.2	838.0	783.0	727.9	653.1	587.5	544.5
45°	1164.8	1137.0	1060.8	956.2	862.8	781.4	721.8	673.8	604.6	544.5	505.1
47.5°	1082.5	1070.4	1006.7	906.2	807.7	728.9	659.2	608.7	554.6	503.6	468.8
50°	983.0	992.6	942.6	850.1	754.7	673.8	605.7	551.1	504.1	464.7	433.9
52.5°	890.0	912.8	872.4	784.5	699.1	615.2	546.5	496.5	459.7	427.3	400.6
55°	786.5	819.3	795.1	719.3	634.4	560.2	491.5	446.5	414.7	390.0	367.2
57.5°	687.0	733.4	715.8	647.6	575.3	503.1	438.5	394.0	371.3	353.1	333.9
60°	598.6	641.0	638.5	580.4	508.2	444.0	391.0	351.1	330.9	318.7	302.1
62.5°	519.3	562.2	558.2	505.6	448.6	388.9	344.0	307.6	293.0	279.8	269.2
65°	438.5	475.3	477.3	438.5	383.4	335.4	297.0	268.2	255.1	247.0	239.4
67.5°	365.2	401.1	404.6	373.8	325.3	283.9	255.1	230.8	219.2	212.2	206.6
70°	301.1	330.4	336.9	311.2	270.2	237.9	213.7	195.0	187.4	180.3	178.3
72.5°	244.0	267.7	272.3	248.5	218.2	194.0	175.3	161.1	155.6	148.5	147.0
75°	194.0	210.6	211.1	195.5	172.8	154.1	138.9	130.3	124.3	119.2	118.2
77.5°	140.9	155.6	160.1	148.5	129.8	114.2	105.6	99.0	95.0	92.4	91.9
80°	102.0	111.6	113.7	103.6	92.4	82.8	76.8	71.2	68.7	66.2	65.2
82.5°	63.6	72.2	72.7	65.7	60.1	53.5	48.5	46.5	45.0	43.4	43.4
85°	34.3	38.9	38.4	35.4	32.8	29.3	27.3	26.3	25.3	24.2	24.2
87.5°	13.1	14.6	14.6	15.2	13.1	11.6	10.6	11.1	10.6	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



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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9	1173.9
2.5°	1159.8	1157.8	1152.7	1144.6	1140.1	1130.0	1130.5	1132.5	1133.0	1131.5	1131.0
5°	1139.1	1133.0	1124.9	1114.8	1107.7	1100.2	1095.1	1098.2	1096.6	1096.1	1093.6
7.5°	1116.3	1108.3	1098.2	1088.0	1080.0	1069.9	1065.8	1062.3	1058.2	1057.7	1055.7
10°	1093.6	1083.5	1071.9	1057.2	1046.1	1033.5	1021.4	1014.8	1007.2	1001.7	990.1
12.5°	1066.8	1049.7	1036.5	1021.4	1001.2	981.0	967.3	948.6	938.5	928.4	914.8
15°	1036.0	1013.8	991.1	960.8	943.1	914.8	894.6	880.9	865.3	855.2	843.6
17.5°	992.1	968.8	940.0	905.7	874.4	845.6	830.9	813.3	806.7	784.5	782.4
20°	948.6	913.8	877.9	843.1	808.2	787.5	768.8	757.2	745.1	730.9	726.4
22.5°	899.6	854.2	816.3	784.0	752.1	729.4	720.3	707.2	695.6	687.5	679.9
25°	840.0	798.1	759.7	729.4	700.6	683.4	671.8	662.2	657.2	648.1	645.1
27.5°	785.0	743.0	712.2	683.9	660.7	645.6	635.5	626.9	620.3	618.8	615.2
30°	728.9	693.0	663.7	639.5	618.8	610.7	601.1	597.1	593.0	591.0	587.0
32.5°	678.4	646.6	620.8	597.6	585.4	577.9	572.8	568.8	565.7	564.7	563.7
35°	632.4	603.1	581.9	565.2	556.1	548.1	545.5	542.0	540.5	540.0	539.5
37.5°	592.0	564.7	548.6	533.9	527.4	519.8	520.3	518.8	517.8	514.7	516.7
40°	551.1	529.9	513.2	501.6	497.0	494.5	493.5	492.5	493.0	493.0	492.5
42.5°	513.7	495.0	484.4	473.3	471.3	469.3	469.3	467.7	468.3	470.8	471.8
45°	479.9	465.2	455.6	446.5	446.5	444.0	446.0	445.5	447.0	448.6	449.6
47.5°	446.0	432.9	425.8	421.3	419.3	419.3	420.8	423.3	424.3	424.8	425.8
50°	412.2	402.6	396.5	394.0	393.5	396.0	397.5	397.0	398.5	400.6	402.1
52.5°	382.4	373.8	369.8	368.7	368.7	370.8	371.3	372.8	373.8	373.8	375.8
55°	351.6	345.5	342.5	342.0	342.5	343.5	345.5	346.5	346.0	347.0	347.0
57.5°	320.8	316.2	314.7	316.2	316.2	318.2	318.2	318.2	317.7	319.7	319.2
60°	292.0	286.9	288.4	287.9	289.4	289.4	291.0	291.0	289.4	291.5	292.5
62.5°	263.2	262.2	260.1	260.1	261.7	262.2	260.6	262.2	262.7	264.2	265.2
65°	232.9	229.3	230.8	230.3	231.9	234.4	232.4	232.4	233.9	235.9	236.9
67.5°	204.1	201.0	202.6	203.1	203.1	204.1	202.6	203.6	205.6	208.1	209.6
70°	174.8	173.8	174.3	173.8	173.8	176.3	176.8	176.3	178.3	180.8	181.3
72.5°	145.0	146.0	145.0	146.0	147.0	145.5	146.0	147.5	149.5	151.0	153.6
75°	117.7	116.2	116.7	119.2	118.7	119.7	119.2	120.7	124.3	123.3	123.8
77.5°	90.9	90.4	90.9	91.4	91.9	93.4	92.9	95.5	96.0	96.5	97.5
80°	64.7	65.2	65.7	66.7	68.2	67.7	68.7	69.2	71.2	69.2	70.7
82.5°	43.9	43.4	44.5	44.5	46.0	47.0	45.5	45.5	45.5	45.0	45.0
85°	24.2	25.8	25.8	25.8	24.8	24.8	25.3	24.8	24.8	24.8	24.2
87.5°	10.6	10.6	10.1	9.6	10.1	9.6	9.6	9.1	8.6	8.6	8.1
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: P242115

CATALOG NUMBER: S121DR-S880D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1173.9	1173.9	1173.9	1173.9
2.5°	1128.0	1130.5	1127.4	1125.4
5°	1091.1	1091.1	1088.0	1087.0
7.5°	1049.7	1050.2	1044.6	1040.6
10°	987.5	984.5	976.4	971.9
12.5°	904.7	909.2	897.1	888.0
15°	832.5	819.8	824.9	819.3
17.5°	771.8	767.8	762.2	762.7
20°	718.8	715.8	712.7	713.2
22.5°	676.9	674.3	673.3	669.8
25°	642.0	643.0	640.5	640.5
27.5°	613.2	611.7	610.2	608.2
30°	585.9	586.5	584.9	583.9
32.5°	561.7	562.2	561.2	559.7
35°	538.0	537.5	538.0	536.4
37.5°	516.2	515.7	516.2	518.3
40°	494.0	494.5	493.0	495.0
42.5°	472.3	472.8	472.8	471.8
45°	448.6	450.1	450.6	451.6
47.5°	425.3	427.8	426.8	427.3
50°	402.1	401.6	401.6	401.1
52.5°	376.3	374.8	374.3	374.8
55°	345.5	347.5	347.5	347.5
57.5°	320.3	320.8	322.3	320.3
60°	294.5	294.5	295.0	299.0
62.5°	265.7	266.2	267.2	267.7
65°	237.9	239.4	238.9	238.4
67.5°	210.6	210.6	211.1	210.1
70°	182.4	182.4	182.4	184.9
72.5°	153.1	153.1	153.6	154.6
75°	125.8	125.8	125.8	124.3
77.5°	96.0	96.5	96.5	97.0
80°	69.7	69.2	69.2	68.7
82.5°	43.9	44.5	43.9	43.4
85°	24.2	24.8	23.2	23.2
87.5°	8.6	8.6	8.1	9.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)