

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: P242218

Luminaire Tested: **S121RDR-S880D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242218
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-S880D927-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED 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: 2434.5 lumens
Efficiency: N/A
Efficacy: 70.0 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

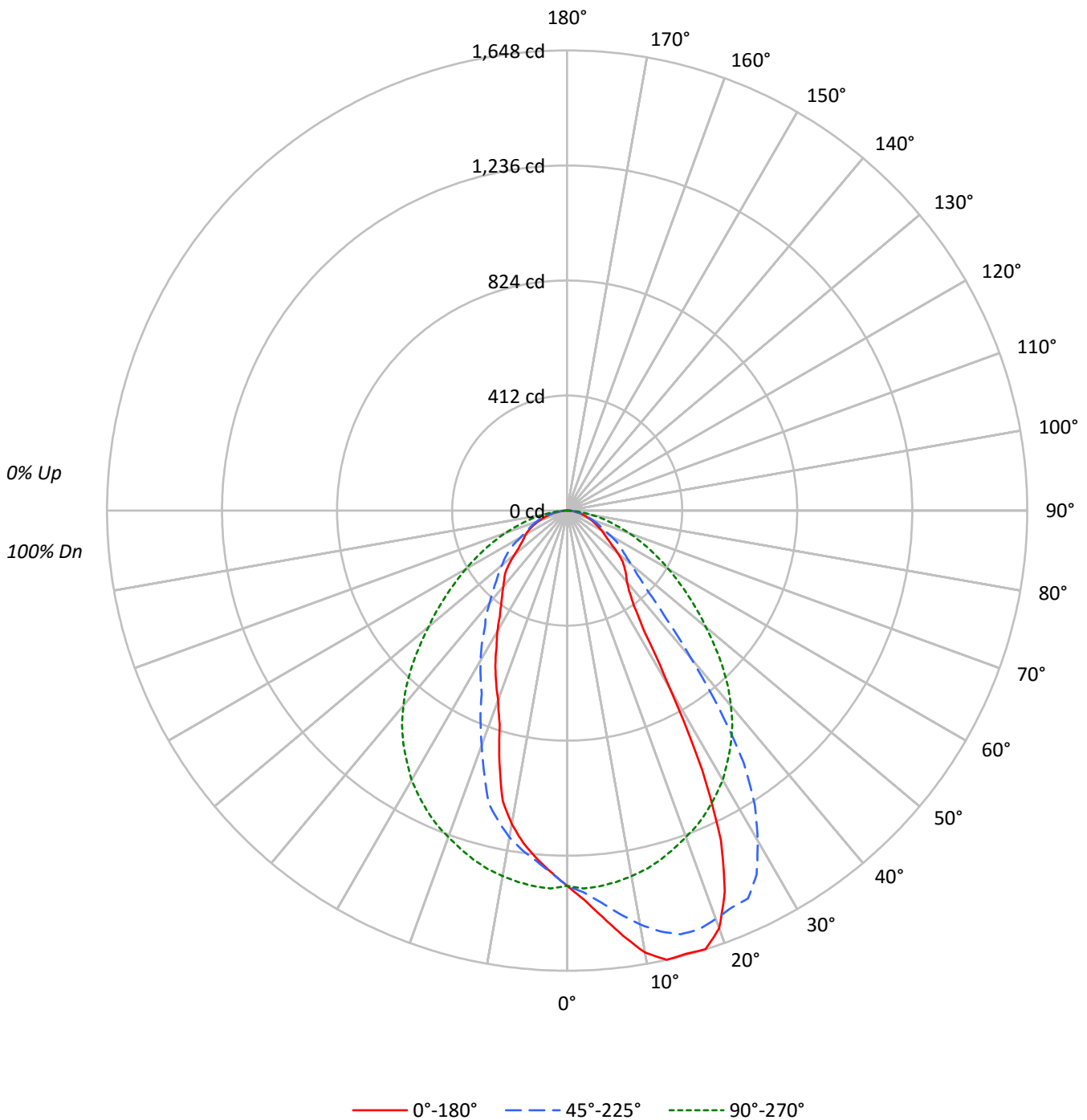
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	39813	39813	39813
5°	43451	40159	37199
10°	48362	40000	34287
15°	50420	39699	28696
20°	50204	39231	22778
25°	42576	38793	19884
30°	25061	38124	17076
35°	15054	36963	14910
40°	12896	35287	13754
45°	12194	32894	13082
50°	10897	29875	11316
55°	9081	27270	10228
60°	8444	24847	10175
65°	7789	22631	9843
70°	7355	20393	9278
75°	6938	18042	8449
80°	6211	15084	7405
85°	5847	11865	5847



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	128.8	5.3
10°-20°	367.0	15.1
20°-30°	501.3	20.6
30°-40°	467.0	19.2
40°-50°	386.1	15.9
50°-60°	284.7	11.7
60°-70°	182.0	7.5
70°-80°	93.6	3.8
80°-90°	24.1	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°	997.0	41.0
0°-40°	1464.0	60.1
0°-60°	2134.8	87.7
0°-90°	2434.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2434.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1344	1344	1344	1344	1344	
5°	1461	1409	1350	1260	1251	144
15°	1644	1571	1294	1086	936	463
25°	1302	1533	1187	724	608	565
35°	416	1101	1022	514	412	283
45°	291	411	785	360	312	223
55°	176	235	528	257	198	162
65°	111	128	323	150	140	111
75°	61	66	158	83	74	63
85°	17	18	35	20	17	19
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°	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7
2.5°	1395.2	1394.2	1395.7	1394.7	1393.7	1391.2	1389.1	1383.1	1374.0	1368.9	1374.0
5°	1460.9	1464.9	1463.4	1461.4	1456.8	1452.8	1443.7	1438.1	1422.0	1409.3	1412.9
7.5°	1535.6	1540.7	1534.1	1529.6	1527.0	1515.4	1505.3	1489.7	1472.0	1457.8	1449.8
10°	1607.4	1608.9	1606.9	1602.8	1594.2	1581.6	1567.0	1549.3	1527.0	1505.3	1490.7
12.5°	1647.8	1650.3	1653.3	1646.3	1639.7	1629.6	1614.4	1596.8	1569.5	1544.2	1527.5
15°	1643.7	1645.8	1651.3	1648.8	1645.8	1641.2	1632.6	1618.0	1598.8	1571.0	1547.3
17.5°	1646.8	1648.3	1650.8	1641.7	1636.7	1631.1	1620.0	1609.9	1593.7	1572.0	1554.3
20°	1592.2	1617.0	1613.9	1626.1	1631.1	1630.6	1620.0	1600.8	1578.6	1556.3	1548.3
22.5°	1475.0	1494.7	1497.2	1515.9	1539.2	1557.9	1581.1	1589.7	1572.5	1539.2	1528.1
25°	1302.3	1316.4	1330.5	1357.3	1382.1	1434.1	1481.6	1517.4	1537.1	1532.6	1510.9
27.5°	1046.7	1031.5	1087.6	1118.4	1187.6	1263.4	1330.0	1395.7	1427.0	1469.0	1490.2
30°	732.5	730.9	773.4	826.9	930.5	1000.2	1125.0	1230.5	1312.9	1364.4	1422.0
32.5°	514.2	521.8	553.1	586.0	643.0	756.7	852.2	997.7	1138.1	1250.7	1321.5
35°	416.2	417.2	424.3	444.0	478.9	542.0	616.3	757.7	948.2	1101.2	1206.8
37.5°	364.7	367.7	369.8	380.9	393.5	420.3	467.3	565.3	722.9	893.6	1077.0
40°	333.4	335.9	337.9	341.5	349.1	361.7	392.5	439.5	530.4	687.5	891.6
42.5°	312.2	311.2	315.7	317.2	321.3	328.3	342.0	367.2	419.8	526.4	702.1
45°	291.0	292.5	292.5	294.5	298.0	302.1	307.6	323.3	350.1	410.7	548.6
47.5°	268.7	268.2	271.3	272.8	276.3	279.8	283.9	292.0	307.6	343.0	422.8
50°	236.4	237.4	243.0	248.0	253.1	257.6	262.7	267.7	277.8	297.0	346.0
52.5°	202.1	202.1	208.1	211.7	218.7	229.8	238.4	246.0	252.6	262.2	291.5
55°	175.8	176.3	178.3	181.3	186.4	192.0	203.1	216.2	227.3	235.4	251.6
57.5°	157.6	158.1	158.6	161.1	163.7	165.7	172.3	182.4	197.0	211.7	221.3
60°	142.5	141.9	141.9	143.5	145.5	148.0	151.5	155.6	163.7	179.3	196.5
62.5°	125.3	126.3	126.3	127.8	129.3	131.8	133.4	137.4	141.9	149.0	166.7
65°	111.1	112.1	111.1	112.6	113.7	115.2	117.7	119.7	123.8	128.3	135.4
67.5°	97.0	97.5	98.5	99.0	100.0	100.5	102.5	105.1	107.6	110.6	116.2
70°	84.9	84.9	84.9	85.9	86.9	86.9	88.4	89.4	91.9	95.0	98.0
72.5°	71.7	72.2	72.2	71.7	73.8	74.3	74.8	75.8	77.8	80.3	82.8
75°	60.6	59.6	59.6	60.1	61.6	61.6	62.1	62.6	64.2	66.2	67.7
77.5°	47.5	47.5	48.0	48.5	49.0	49.0	50.0	50.0	52.0	53.0	54.1
80°	36.4	37.4	37.9	37.4	37.4	37.9	37.9	38.9	39.4	39.9	40.9
82.5°	27.3	27.8	26.8	26.8	27.3	27.3	27.8	27.8	28.3	28.8	28.8
85°	17.2	17.2	17.7	17.2	17.7	17.2	17.2	18.2	17.7	17.7	18.2
87.5°	8.1	8.6	8.1	8.6	8.1	8.6	8.6	8.6	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



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7
2.5°	1372.5	1372.0	1369.4	1363.9	1359.8	1352.3	1352.3	1354.8	1341.7	1332.6	1332.1
5°	1404.3	1399.2	1390.7	1380.0	1370.5	1357.3	1352.3	1350.2	1332.6	1318.9	1314.4
7.5°	1438.1	1425.5	1410.9	1393.7	1377.5	1358.8	1349.2	1341.7	1318.9	1302.3	1292.2
10°	1473.5	1453.3	1430.6	1405.8	1383.6	1358.3	1342.7	1329.5	1303.3	1280.0	1268.4
12.5°	1504.8	1476.5	1447.7	1415.4	1385.1	1353.3	1331.6	1314.4	1283.6	1255.8	1241.6
15°	1519.5	1489.2	1465.4	1421.0	1380.0	1347.7	1319.9	1294.2	1261.3	1230.5	1208.8
17.5°	1532.1	1498.8	1467.4	1425.5	1378.0	1336.1	1302.8	1269.9	1234.6	1202.2	1175.5
20°	1528.6	1500.3	1461.9	1417.4	1372.5	1324.0	1286.1	1244.2	1200.2	1167.4	1139.1
22.5°	1508.4	1485.1	1445.2	1402.8	1359.3	1307.3	1264.4	1218.9	1164.9	1129.0	1097.2
25°	1482.6	1460.4	1421.0	1377.0	1334.1	1283.6	1233.1	1186.6	1128.5	1085.6	1044.6
27.5°	1462.4	1429.0	1389.6	1340.6	1299.2	1251.2	1198.2	1151.2	1088.6	1041.1	993.6
30°	1439.1	1401.3	1352.8	1300.7	1256.8	1212.8	1161.3	1114.3	1045.1	991.1	932.0
32.5°	1372.5	1373.0	1315.4	1257.3	1210.3	1163.3	1117.4	1067.4	998.7	935.0	874.4
35°	1285.6	1319.4	1277.0	1210.3	1152.2	1108.8	1070.9	1021.9	945.6	880.0	811.3
37.5°	1169.4	1229.0	1234.1	1164.9	1100.7	1049.7	1012.3	971.4	894.6	823.9	755.7
40°	1053.2	1132.0	1163.3	1115.4	1045.6	987.0	949.7	912.3	840.1	763.8	700.6
42.5°	910.8	1038.6	1077.5	1063.3	988.6	925.4	886.0	852.2	782.0	707.2	644.6
45°	750.1	922.9	979.5	994.1	931.0	863.3	817.8	785.0	723.4	657.7	592.5
47.5°	602.6	792.6	886.0	901.2	867.8	802.2	750.1	715.8	666.8	610.2	545.6
50°	459.7	654.2	788.0	811.3	803.2	736.5	688.5	648.1	610.7	560.2	499.6
52.5°	365.7	522.8	681.9	725.4	727.9	675.4	624.9	588.0	551.6	511.7	456.6
55°	292.0	404.1	565.3	639.0	646.1	609.7	563.2	527.9	500.6	463.2	416.7
57.5°	246.0	312.7	452.6	552.1	555.2	545.0	500.6	471.3	448.6	416.2	375.3
60°	210.1	248.0	349.1	465.2	480.4	480.4	445.0	419.3	397.5	373.3	334.4
62.5°	181.9	202.6	264.7	369.8	408.7	414.7	392.5	369.8	353.6	329.4	293.5
65°	153.1	168.7	205.1	285.9	339.5	350.6	339.5	322.8	310.2	284.9	256.6
67.5°	125.8	140.9	163.7	216.7	275.3	288.9	286.9	278.3	265.2	246.5	216.7
70°	104.1	113.2	129.8	160.6	216.2	236.9	243.0	235.4	223.8	203.6	181.9
72.5°	85.9	92.9	101.0	123.3	161.6	188.9	199.0	195.0	186.4	167.2	149.0
75°	70.2	74.8	80.3	90.9	116.2	147.0	158.6	157.6	149.0	132.9	118.2
77.5°	56.6	58.1	62.1	68.7	81.3	109.1	118.2	121.2	114.7	101.0	89.4
80°	42.4	44.5	46.5	50.0	56.1	72.2	83.9	88.4	82.8	74.8	63.1
82.5°	29.8	30.3	32.3	34.3	37.4	43.9	56.1	61.1	56.1	47.5	43.9
85°	18.7	18.2	18.7	19.2	22.2	23.7	31.3	34.9	33.8	28.8	24.8
87.5°	8.6	8.6	8.1	8.6	8.1	9.6	11.1	16.2	12.1	10.6	9.6
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°	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7	1343.7
2.5°	1328.0	1326.5	1321.5	1314.4	1308.3	1298.2	1298.2	1300.7	1300.2	1301.2	1300.2
5°	1306.8	1299.7	1292.2	1282.6	1273.5	1260.3	1258.8	1259.8	1259.3	1258.8	1255.8
7.5°	1279.5	1271.4	1261.8	1249.7	1239.6	1227.0	1223.5	1222.4	1218.4	1216.9	1212.8
10°	1253.3	1243.7	1231.0	1216.4	1202.7	1188.1	1179.0	1174.0	1167.4	1160.3	1154.2
12.5°	1224.0	1211.3	1195.2	1177.5	1154.8	1138.6	1125.0	1116.4	1107.3	1095.1	1086.6
15°	1192.6	1166.9	1147.7	1118.9	1091.1	1085.6	1064.8	1037.6	1035.5	976.4	955.7
17.5°	1150.7	1129.5	1093.6	1056.3	1018.4	987.6	988.1	914.3	891.6	891.1	854.7
20°	1107.3	1078.0	1036.6	998.7	958.8	895.1	844.6	820.4	783.5	769.3	748.6
22.5°	1056.3	1017.9	969.4	917.8	862.3	810.8	761.2	738.0	719.3	703.7	695.1
25°	995.6	956.7	898.6	834.5	772.4	724.4	697.1	686.5	654.7	643.6	632.9
27.5°	934.5	892.1	816.3	754.7	703.7	670.8	642.5	624.9	609.7	581.4	568.8
30°	876.4	808.2	745.6	689.0	650.6	619.8	599.1	563.2	542.0	528.9	523.3
32.5°	813.3	740.5	684.0	635.0	595.6	568.8	538.0	513.7	504.1	487.0	462.2
35°	748.6	682.4	623.3	583.9	550.1	513.7	494.5	471.3	447.1	433.9	431.9
37.5°	686.0	623.3	580.9	539.5	498.6	477.4	449.1	424.3	415.7	403.6	390.5
40°	629.4	575.9	536.5	489.0	464.2	431.4	409.7	397.0	376.3	371.8	367.7
42.5°	582.9	537.0	492.5	450.1	421.3	395.0	375.8	361.2	354.6	343.5	340.0
45°	536.0	493.5	448.1	414.7	381.9	359.7	346.5	333.9	326.3	323.3	317.2
47.5°	493.5	452.1	410.2	369.3	347.0	332.4	317.7	311.2	306.6	300.1	296.5
50°	453.1	407.1	367.7	342.0	318.2	305.1	295.5	289.4	282.4	275.3	265.2
52.5°	412.2	372.8	334.9	307.6	290.0	281.4	272.3	265.7	251.6	237.9	229.3
55°	370.8	330.4	299.5	278.8	266.2	257.1	246.5	227.3	214.2	206.6	202.6
57.5°	333.4	297.0	269.7	252.6	243.5	228.3	209.6	197.5	190.9	187.9	185.9
60°	293.5	262.2	239.4	226.3	212.2	192.0	181.9	175.8	173.8	172.8	171.2
62.5°	259.1	231.4	213.7	199.0	178.8	168.2	162.7	159.6	159.6	158.1	157.1
65°	222.8	201.0	185.9	164.7	154.1	149.5	147.5	146.0	144.5	144.0	141.9
67.5°	193.0	173.8	154.1	143.0	136.4	133.9	131.8	131.3	129.3	127.8	126.3
70°	162.7	144.0	127.8	122.7	119.2	118.2	116.2	114.2	112.6	110.6	109.6
72.5°	132.3	114.7	109.1	106.6	103.0	101.5	99.0	97.5	95.0	94.0	92.9
75°	101.0	94.0	90.9	88.9	86.4	82.8	81.8	80.3	79.3	77.8	76.3
77.5°	80.3	76.3	72.7	70.2	68.2	65.7	63.6	63.1	62.1	60.6	60.1
80°	60.1	57.1	55.6	53.0	50.5	49.0	48.0	47.5	46.0	45.5	45.0
82.5°	41.4	38.9	37.9	34.9	33.8	33.8	33.3	32.3	31.3	30.8	30.3
85°	23.2	22.2	20.7	21.2	19.7	19.7	19.2	18.7	18.2	17.7	17.2
87.5°	9.1	8.6	8.1	7.6	7.6	6.1	6.1	6.1	6.6	6.1	5.6
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: P242218

CATALOG NUMBER: S121RDR-S880D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1343.7	1343.7	1343.7	1343.7
2.5°	1301.8	1302.8	1299.2	1297.2
5°	1255.8	1254.3	1252.2	1250.7
7.5°	1208.8	1207.3	1207.3	1201.2
10°	1151.7	1147.7	1144.7	1139.6
12.5°	1079.0	1072.9	1070.9	1064.8
15°	941.6	929.0	920.4	935.5
17.5°	846.1	813.3	815.8	803.2
20°	748.1	735.0	741.5	722.4
22.5°	684.5	676.4	668.8	664.8
25°	625.4	615.8	604.1	608.2
27.5°	551.1	551.1	543.5	546.6
30°	513.2	509.2	496.6	499.1
32.5°	454.1	449.1	447.6	448.6
35°	425.8	417.8	415.2	412.2
37.5°	386.4	383.4	383.9	381.9
40°	360.2	357.6	354.6	355.6
42.5°	337.4	335.9	332.9	333.4
45°	315.2	313.7	312.2	312.2
47.5°	290.5	287.4	284.9	281.9
50°	258.1	252.1	247.5	245.5
52.5°	223.3	220.2	217.2	217.2
55°	201.0	199.5	198.5	198.0
57.5°	185.4	184.4	184.4	182.9
60°	171.2	171.2	170.7	171.7
62.5°	157.6	156.1	156.6	156.6
65°	141.9	141.4	140.9	140.4
67.5°	125.3	124.8	125.3	124.3
70°	108.6	108.6	108.1	107.1
72.5°	91.4	92.4	91.4	90.9
75°	75.3	74.8	75.3	73.8
77.5°	60.1	58.1	59.1	59.6
80°	44.5	44.5	43.9	43.4
82.5°	29.8	30.3	29.3	29.3
85°	17.2	17.2	16.2	17.2
87.5°	5.1	5.1	5.1	6.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)