

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: P242976

Luminaire Tested: **S121DR-H1025D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242976
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-57)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121DR-H1025D927-X4F0-XX-UDD-A-W
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3208.0 lumens
Efficiency: N/A
Efficacy: 85.1 lumens/watt
Spacing Criteria (0/90/45): 1.13 / 1.2 / 1.28
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

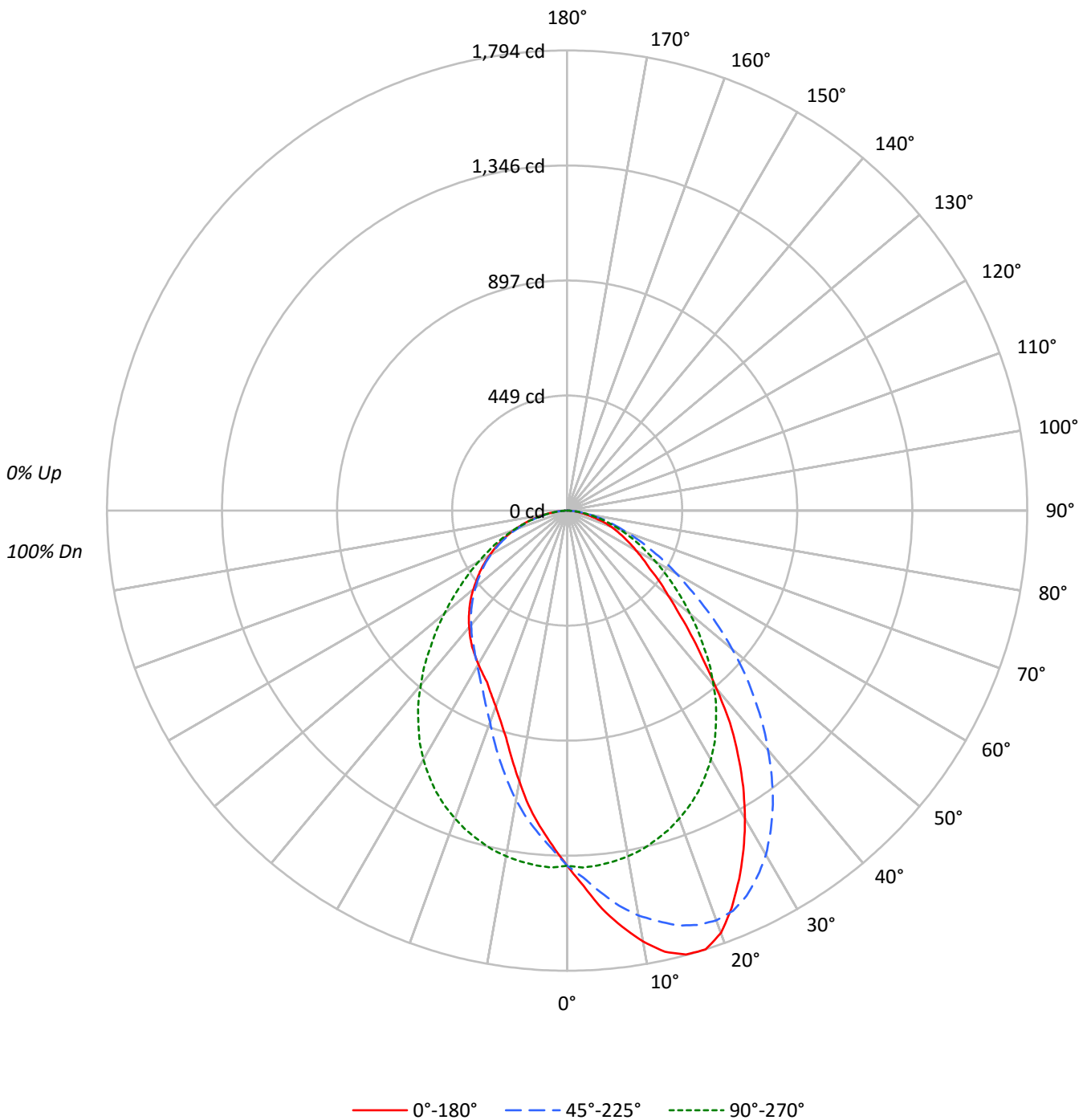
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P242976

CATALOG NUMBER: S121DR-H1025D927-X4F0-XX-UDD-A-W

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	81	98	91	85	80	88	83	79	84	80	77	81	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	72	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	53	45	40	51	45	40	50	44	40					38				
8	63	50	42	37	62	50	42	36	48	41	36	47	41	36	46	40	36					34				
9	59	46	38	33	58	46	38	33	45	38	33	44	37	33	43	37	33					31				
10	56	43	35	30	54	42	35	30	41	35	30	41	34	30	40	34	30					28				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	41010	41010	41010
5°	46336	41298	36691
10°	51331	41174	32253
15°	54966	40816	28132
20°	55271	40284	25616
25°	51844	39529	24153
30°	47430	38336	23676
35°	42002	36580	23377
40°	35000	34312	22975
45°	28532	31565	22556
50°	23679	28768	21988
55°	20265	26077	21417
60°	18359	23609	20735
65°	16953	21489	20002
70°	15637	19353	18825
75°	12627	17161	17355
80°	10084	13889	14828
85°	7581	10233	12137



TEST NUMBER: P242976

CATALOG NUMBER: S121DR-H1025D927-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	132.2	4.1
10°-20°	378.8	11.8
20°-30°	551.6	17.2
30°-40°	614.9	19.2
40°-50°	568.5	17.7
50°-60°	452.9	14.1
60°-70°	310.0	9.7
70°-80°	160.9	5.0
80°-90°	38.1	1.2
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°	1062.6	33.1
0°-40°	1677.5	52.3
0°-60°	2698.9	84.1
0°-90°	3208.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3208.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1384	1384	1384	1384	1384	
5°	1558	1493	1388	1265	1234	153
15°	1792	1674	1331	1010	917	502
25°	1586	1656	1209	777	739	726
35°	1161	1399	1011	636	646	721
45°	681	1030	753	526	538	530
55°	392	651	505	404	415	359
65°	242	359	306	278	285	240
75°	110	162	150	142	152	121
85°	22	31	30	32	36	27
90°	0	0	0	0	0	



TEST NUMBER: P242976

CATALOG NUMBER: S121DR-H1025D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1
2.5°	1464.3	1464.3	1460.4	1462.1	1459.9	1456.0	1449.8	1443.1	1434.8	1431.4	1429.8
5°	1557.9	1560.1	1557.4	1551.8	1550.7	1546.2	1532.8	1525.0	1507.2	1493.3	1488.8
7.5°	1635.9	1639.8	1639.8	1629.8	1625.3	1614.2	1604.7	1591.9	1569.6	1554.0	1541.2
10°	1706.1	1707.8	1701.7	1696.1	1687.2	1678.3	1662.1	1646.0	1622.0	1603.0	1581.9
12.5°	1761.9	1765.2	1760.7	1751.8	1741.2	1729.5	1709.5	1688.9	1665.5	1639.8	1617.0
15°	1791.9	1797.0	1797.5	1790.3	1782.5	1768.5	1754.0	1731.8	1706.1	1674.4	1637.0
17.5°	1794.2	1796.4	1798.1	1792.5	1787.5	1782.5	1768.0	1749.6	1725.1	1693.9	1659.3
20°	1752.9	1758.0	1763.5	1758.5	1760.7	1760.7	1754.6	1745.1	1725.1	1700.0	1666.6
22.5°	1676.0	1687.7	1695.0	1700.0	1705.0	1712.3	1719.5	1715.0	1707.2	1688.9	1658.8
25°	1585.8	1595.2	1609.2	1613.6	1617.5	1638.7	1651.5	1660.4	1660.4	1656.5	1636.5
27.5°	1489.9	1496.1	1507.8	1523.4	1537.9	1550.7	1577.4	1594.1	1607.5	1607.5	1596.9
30°	1386.3	1395.2	1409.1	1419.7	1437.6	1463.8	1486.0	1506.1	1536.7	1550.1	1547.9
32.5°	1277.1	1286.0	1300.5	1309.4	1335.0	1356.2	1390.8	1422.0	1457.1	1477.1	1489.4
35°	1161.2	1161.8	1186.3	1200.8	1223.0	1249.2	1291.6	1326.7	1365.1	1398.6	1424.7
37.5°	1042.0	1041.4	1058.7	1084.3	1102.1	1138.9	1182.4	1221.4	1274.9	1310.5	1351.8
40°	904.9	916.6	931.1	954.5	985.1	1028.6	1069.8	1120.5	1174.0	1218.6	1262.6
42.5°	782.3	791.8	815.2	841.4	874.2	911.0	961.2	1017.4	1069.8	1127.8	1176.8
45°	680.9	685.9	699.8	721.0	755.6	797.3	849.7	909.3	971.2	1030.3	1084.9
47.5°	587.3	602.3	609.6	629.1	654.1	693.2	747.8	801.2	872.6	938.3	997.9
50°	513.7	516.5	529.3	543.8	573.4	602.3	643.6	698.7	765.0	839.1	899.9
52.5°	453.6	452.4	463.0	475.8	496.5	527.1	562.8	616.3	672.5	746.1	812.4
55°	392.3	397.8	402.9	415.7	434.1	457.5	487.5	532.7	585.6	650.8	720.5
57.5°	349.9	350.5	353.3	363.8	376.1	394.5	423.5	461.9	509.3	566.1	633.5
60°	309.8	310.4	315.4	318.7	327.1	342.7	365.0	396.7	438.5	493.1	552.2
62.5°	275.3	275.8	278.6	281.9	289.7	295.9	314.8	342.1	376.1	424.6	475.3
65°	241.8	242.4	242.4	246.8	251.9	257.4	270.8	288.1	320.9	359.4	404.5
67.5°	209.5	212.8	211.7	215.1	219.5	222.3	231.8	247.4	269.7	302.0	341.0
70°	180.5	180.0	181.6	183.3	185.0	189.4	195.6	206.2	225.1	248.0	282.5
72.5°	149.3	146.0	148.2	150.4	153.2	156.6	161.6	169.4	183.9	202.3	227.9
75°	110.3	108.7	112.0	112.6	117.6	122.0	127.6	135.4	146.0	161.6	178.3
77.5°	80.2	82.5	83.6	84.7	85.3	90.3	96.4	103.1	109.2	123.7	136.5
80°	59.1	59.1	59.6	60.7	61.8	63.0	66.9	71.3	76.3	85.3	98.1
82.5°	41.2	40.7	40.7	41.2	41.8	42.9	44.6	46.2	50.7	55.2	61.8
85°	22.3	22.8	23.4	22.3	22.8	23.4	24.5	26.2	27.3	30.6	33.4
87.5°	7.8	9.5	8.9	8.9	9.5	9.5	9.5	10.6	10.6	10.6	12.3
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: P242976

CATALOG NUMBER: S121DR-H1025D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1
2.5°	1428.1	1426.4	1422.0	1413.0	1406.9	1395.8	1393.5	1393.0	1383.0	1367.9	1366.8
5°	1481.0	1468.2	1457.6	1442.0	1426.4	1407.5	1396.3	1388.5	1370.7	1348.4	1338.4
7.5°	1529.5	1511.1	1489.4	1464.9	1442.0	1415.3	1395.8	1380.2	1354.0	1325.6	1308.3
10°	1568.5	1545.7	1518.4	1485.5	1454.3	1419.2	1391.9	1368.5	1333.9	1298.8	1275.4
12.5°	1595.2	1569.6	1538.4	1500.0	1462.1	1422.0	1382.4	1352.9	1309.4	1268.7	1238.6
15°	1625.3	1583.0	1550.7	1507.2	1462.6	1414.7	1372.9	1330.6	1280.4	1234.7	1195.7
17.5°	1632.6	1593.6	1555.1	1507.2	1461.0	1402.5	1354.0	1307.2	1251.5	1195.2	1157.3
20°	1639.3	1594.7	1547.3	1495.5	1447.0	1386.9	1332.3	1277.6	1213.0	1152.3	1104.9
22.5°	1634.3	1590.8	1537.9	1479.4	1427.0	1365.1	1306.1	1245.9	1173.5	1109.9	1056.4
25°	1619.8	1579.6	1525.0	1461.0	1398.0	1335.0	1273.2	1209.1	1130.5	1057.0	997.9
27.5°	1590.2	1554.6	1502.2	1434.2	1367.9	1298.3	1233.6	1166.8	1082.6	1007.4	944.4
30°	1550.7	1522.3	1469.3	1401.3	1329.5	1254.8	1188.5	1120.5	1033.0	951.1	884.3
32.5°	1496.1	1476.0	1430.3	1364.0	1286.6	1207.4	1139.5	1070.4	976.8	898.8	830.8
35°	1434.8	1425.3	1384.6	1318.3	1238.1	1155.1	1082.1	1011.3	924.9	842.5	777.3
37.5°	1362.9	1369.6	1332.8	1267.1	1184.0	1099.3	1022.5	953.9	866.4	787.3	723.2
40°	1291.6	1301.6	1273.7	1212.5	1126.1	1038.6	960.6	887.1	805.7	736.1	672.5
42.5°	1212.5	1232.5	1210.8	1151.2	1067.0	974.5	893.2	824.6	747.2	683.1	627.4
45°	1128.3	1154.0	1145.0	1084.3	1001.3	910.5	824.6	753.3	690.9	634.1	583.4
47.5°	1043.1	1072.6	1068.7	1018.0	938.3	845.3	760.6	690.4	633.0	587.3	544.9
50°	955.6	985.7	986.2	941.1	867.0	778.4	687.6	624.1	578.4	538.3	503.7
52.5°	870.3	900.4	901.0	865.9	791.8	705.4	621.8	563.9	524.9	493.7	464.7
55°	781.2	816.3	819.6	785.6	719.9	636.9	560.0	504.8	470.3	450.2	425.1
57.5°	690.9	728.8	735.5	708.2	644.7	567.2	502.6	449.7	421.8	407.9	388.9
60°	606.8	644.1	654.7	623.5	571.1	504.8	443.0	398.4	376.1	365.0	351.6
62.5°	529.3	566.7	572.2	545.5	493.7	438.0	391.2	350.5	332.1	323.7	313.1
65°	453.6	487.0	494.2	470.3	423.5	377.2	336.0	306.5	290.3	283.1	276.4
67.5°	383.9	415.1	420.1	398.4	359.4	319.8	289.7	264.1	253.0	243.5	240.7
70°	318.2	346.6	351.0	329.3	298.7	266.3	241.3	223.4	212.8	207.3	203.4
72.5°	257.4	279.7	283.6	270.2	246.3	217.9	198.4	183.3	176.6	171.6	169.9
75°	201.1	222.9	223.4	211.7	192.2	172.7	157.7	149.9	142.1	137.1	136.0
77.5°	154.3	166.6	168.3	162.1	143.2	130.9	119.2	113.7	110.9	105.9	105.9
80°	110.3	117.6	120.4	111.4	102.5	91.9	85.8	81.4	79.1	75.8	75.8
82.5°	68.5	74.7	78.0	71.3	66.9	61.3	56.8	54.0	52.4	50.7	50.1
85°	37.3	41.8	41.8	39.6	35.7	32.9	31.2	30.1	29.5	29.0	28.4
87.5°	13.4	16.7	15.0	15.6	13.9	13.4	12.8	12.8	13.4	12.3	12.3
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: P242976

CATALOG NUMBER: S121DR-H1025D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1	1384.1
2.5°	1359.6	1356.8	1348.4	1340.6	1334.5	1321.1	1318.3	1319.4	1319.4	1320.0	1313.9
5°	1326.7	1315.0	1301.6	1289.3	1279.9	1264.8	1256.5	1254.2	1252.6	1249.2	1243.1
7.5°	1289.3	1276.0	1257.0	1245.9	1225.8	1209.1	1197.4	1189.6	1184.6	1177.4	1167.3
10°	1251.5	1232.0	1210.8	1188.5	1168.4	1146.1	1127.8	1118.8	1108.3	1101.0	1089.9
12.5°	1213.6	1186.3	1157.3	1131.7	1104.4	1078.2	1059.2	1047.0	1028.0	1017.4	1005.7
15°	1164.0	1130.5	1106.0	1061.5	1048.1	1010.2	987.3	977.9	959.5	956.1	937.8
17.5°	1117.2	1078.7	1042.5	1005.2	969.5	943.3	923.8	911.6	897.1	888.2	875.9
20°	1058.7	1018.6	975.1	936.1	906.0	878.1	865.9	850.3	841.9	833.0	824.1
22.5°	1003.0	953.9	910.5	878.7	848.1	825.2	811.8	801.2	794.0	785.1	779.0
25°	943.3	897.6	857.5	824.6	795.1	777.3	766.1	760.0	755.6	748.9	745.0
27.5°	886.5	840.2	800.7	775.6	751.7	736.1	730.5	724.9	719.3	717.1	716.6
30°	825.8	783.4	751.1	729.4	707.6	699.3	696.5	690.9	692.0	692.6	690.9
32.5°	774.5	733.3	708.8	690.4	673.6	667.5	667.0	664.7	665.3	668.1	667.0
35°	721.6	690.9	666.4	651.4	640.8	636.3	636.9	637.4	640.8	641.3	643.6
37.5°	676.4	646.9	630.7	616.3	611.2	611.2	611.8	612.4	615.1	618.5	619.6
40°	631.9	607.9	594.0	584.5	581.7	581.7	583.9	586.7	588.4	591.7	592.3
42.5°	591.7	571.7	561.1	551.6	552.7	555.5	556.1	557.8	562.2	562.8	563.9
45°	552.2	537.1	526.5	523.8	523.8	526.0	528.8	529.9	533.2	533.8	534.9
47.5°	518.2	502.6	494.8	492.0	493.7	496.5	500.4	502.0	504.8	504.3	507.0
50°	480.3	467.5	461.4	460.2	461.4	466.4	468.0	471.9	474.7	476.4	477.5
52.5°	444.1	434.1	431.3	430.7	432.9	436.3	438.5	442.4	445.8	445.8	445.2
55°	409.5	400.6	397.3	400.1	402.9	404.5	409.0	411.2	414.6	415.1	414.6
57.5°	374.4	366.6	365.5	366.6	372.2	375.5	378.3	378.3	380.0	380.6	382.2
60°	338.2	333.2	332.1	334.9	341.0	343.2	344.9	345.5	347.7	346.6	349.9
62.5°	304.2	299.2	301.4	304.2	306.5	309.8	310.9	313.7	313.1	314.3	315.9
65°	269.1	266.3	266.9	270.2	273.0	277.5	277.5	277.5	280.3	280.3	281.4
67.5°	235.1	233.5	235.7	238.5	239.0	241.8	241.3	244.6	246.8	248.0	249.1
70°	202.3	201.1	201.1	203.9	206.7	207.8	208.9	211.2	211.7	213.4	216.2
72.5°	171.1	167.7	168.3	172.2	172.2	174.4	177.2	177.2	180.5	181.1	183.9
75°	137.1	136.0	137.1	139.3	142.1	141.5	144.9	144.3	145.4	149.3	149.9
77.5°	107.0	105.3	108.1	109.2	109.8	110.3	111.4	114.2	116.5	118.1	118.7
80°	76.9	76.3	79.1	80.2	79.7	80.8	82.5	85.3	85.3	86.4	88.0
82.5°	51.8	50.7	52.4	54.0	55.2	55.7	55.7	56.8	57.4	58.5	58.5
85°	29.5	29.5	30.6	31.2	32.3	31.8	32.9	32.3	33.4	34.5	34.0
87.5°	12.8	12.8	12.8	12.8	13.4	13.4	13.9	13.9	13.4	13.9	12.8
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: P242976

CATALOG NUMBER: S121DR-H1025D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1384.1	1384.1	1384.1	1384.1
2.5°	1311.6	1312.8	1310.0	1307.2
5°	1242.5	1238.6	1234.7	1233.6
7.5°	1165.1	1165.1	1155.6	1157.9
10°	1082.1	1078.7	1071.5	1072.0
12.5°	1001.3	998.5	994.6	992.9
15°	928.3	930.0	932.7	917.1
17.5°	870.9	866.4	864.2	861.4
20°	819.6	817.4	812.9	812.4
22.5°	780.1	775.1	773.9	774.5
25°	742.2	742.2	742.2	738.8
27.5°	715.4	715.4	713.8	714.3
30°	692.0	693.2	691.5	692.0
32.5°	669.7	670.3	669.2	668.6
35°	644.7	646.3	645.8	646.3
37.5°	620.7	621.8	620.7	620.7
40°	593.4	596.2	595.6	594.0
42.5°	566.1	566.1	567.8	567.2
45°	537.7	536.6	536.6	538.3
47.5°	507.6	509.8	508.7	509.3
50°	479.7	479.2	477.5	477.0
52.5°	446.9	448.0	447.4	444.6
55°	415.1	415.1	414.6	414.6
57.5°	381.1	382.8	382.2	382.2
60°	348.8	349.9	350.5	349.9
62.5°	315.9	316.5	315.9	316.5
65°	284.2	284.2	283.6	285.3
67.5°	249.6	250.2	249.6	250.7
70°	216.7	217.9	218.4	217.3
72.5°	185.5	184.4	185.0	183.9
75°	151.0	151.6	151.0	151.6
77.5°	118.7	119.2	118.7	119.2
80°	87.5	87.5	88.0	86.9
82.5°	59.1	59.1	60.7	59.1
85°	34.5	34.5	33.4	35.7
87.5°	13.4	13.4	13.4	13.4
90°	0.0	0.0	0.0	0.0

(END OF REPORT)