

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: P242996

Luminaire Tested: **S121DR-H1025D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242996  
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-H1025D930-X4F0-XX-UDD-A-W  
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3301.6 lumens  
Efficiency: N/A  
Efficacy: 87.6 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

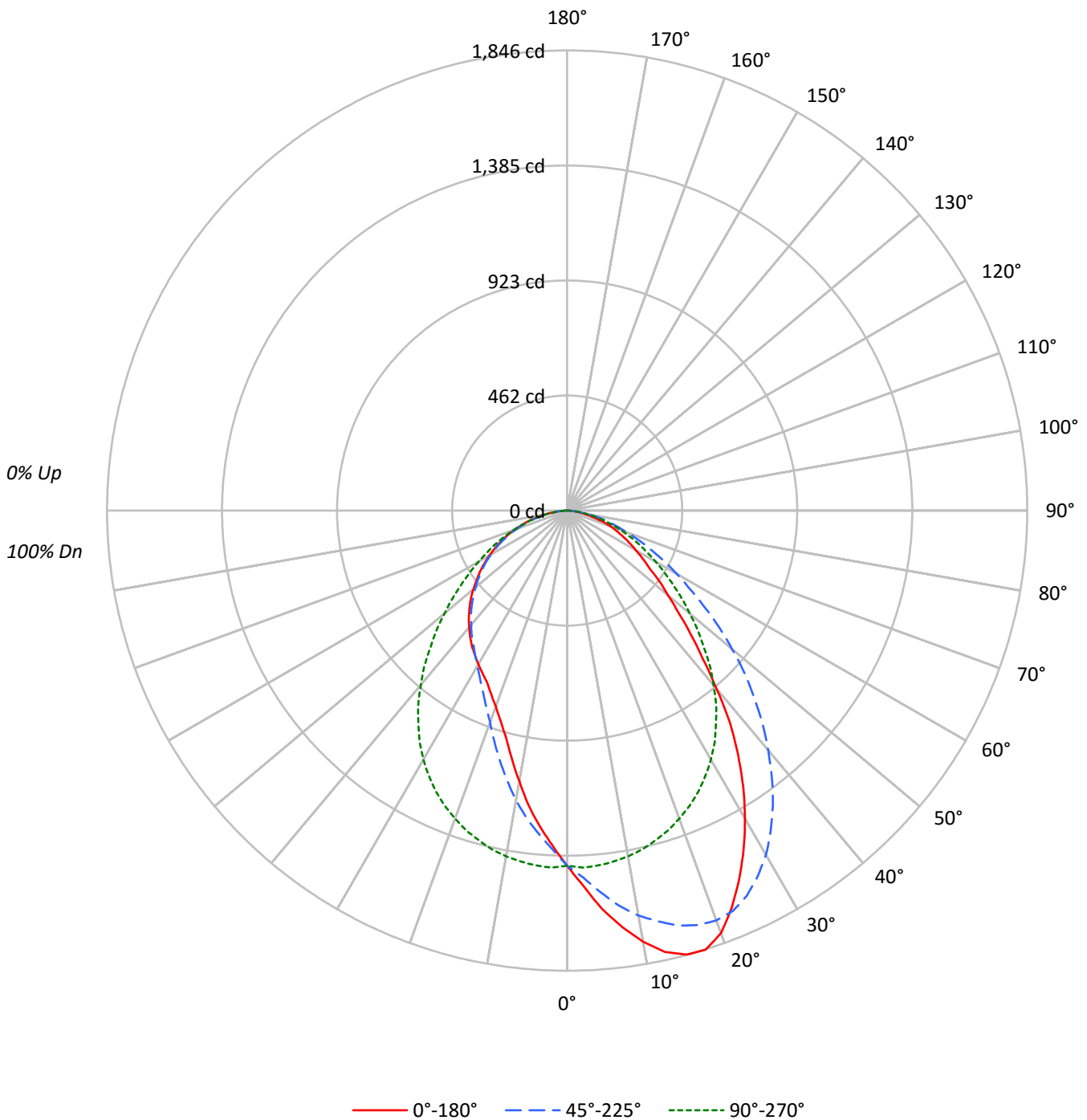
Input Watts (W): 37.7  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P242996

CATALOG NUMBER: S121DR-H1025D930-X4F0-XX-UDD-A-W

### Luminous Intensity Polar Plot





TEST NUMBER: P242996

CATALOG NUMBER: S121DR-H1025D930-X4F0-XX-UDD-A-W

**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°	42208	42208	42208
5°	47690	42503	37762
10°	52829	42374	33195
15°	56571	42006	28954
20°	56886	41460	26363
25°	53358	40683	24860
30°	48816	39455	24367
35°	43228	37647	24061
40°	36022	35310	23644
45°	29365	32487	23214
50°	24371	29607	22628
55°	20854	26836	22042
60°	18892	24296	21339
65°	17450	22113	20584
70°	16096	19925	19371
75°	12994	17664	17859
80°	10374	14282	15271
85°	7785	10539	12477



TEST NUMBER: P242996

CATALOG NUMBER: S121DR-H1025D930-X4F0-XX-UDD-A-W

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	136.1	4.1
10°-20°	389.9	11.8
20°-30°	567.7	17.2
30°-40°	632.8	19.2
40°-50°	585.1	17.7
50°-60°	466.1	14.1
60°-70°	319.0	9.7
70°-80°	165.6	5.0
80°-90°	39.2	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°	1093.6	33.1
0°-40°	1726.4	52.3
0°-60°	2777.6	84.1
0°-90°	3301.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3301.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1424	1424	1424	1424	1424	
5°	1603	1537	1429	1302	1270	157
15°	1844	1723	1369	1040	944	517
25°	1632	1705	1244	800	760	748
35°	1195	1439	1041	655	665	742
45°	701	1060	775	541	554	546
55°	404	670	520	416	427	369
65°	249	370	315	286	294	247
75°	114	166	154	146	156	125
85°	23	32	31	33	37	28
90°	0	0	0	0	0	



TEST NUMBER: P242996

CATALOG NUMBER: S121DR-H1025D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5
2.5°	1507.0	1507.0	1503.0	1504.7	1502.5	1498.4	1492.1	1485.2	1476.6	1473.2	1471.5
5°	1603.4	1605.7	1602.8	1597.1	1595.9	1591.3	1577.6	1569.5	1551.2	1536.9	1532.3
7.5°	1683.7	1687.7	1687.7	1677.4	1672.8	1661.3	1651.5	1638.4	1615.4	1599.4	1586.2
10°	1755.9	1757.6	1751.3	1745.6	1736.4	1727.2	1710.6	1694.0	1669.3	1649.8	1628.0
12.5°	1813.3	1816.7	1812.1	1802.9	1792.0	1780.0	1759.4	1738.1	1714.1	1687.7	1664.2
15°	1844.2	1849.4	1850.0	1842.5	1834.5	1820.1	1805.2	1782.3	1755.9	1723.2	1684.8
17.5°	1846.5	1848.8	1850.5	1844.8	1839.6	1834.5	1819.6	1800.6	1775.4	1743.3	1707.7
20°	1804.1	1809.2	1815.0	1809.8	1812.1	1812.1	1805.8	1796.1	1775.4	1749.6	1715.2
22.5°	1725.0	1737.0	1744.4	1749.6	1754.8	1762.2	1769.7	1765.1	1757.1	1738.1	1707.2
25°	1632.1	1641.8	1656.1	1660.7	1664.7	1686.5	1699.7	1708.9	1708.9	1704.9	1684.2
27.5°	1533.4	1539.7	1551.8	1567.8	1582.7	1595.9	1623.5	1640.7	1654.4	1654.4	1643.5
30°	1426.8	1435.9	1450.3	1461.2	1479.5	1506.5	1529.4	1550.0	1581.6	1595.4	1593.1
32.5°	1314.4	1323.5	1338.4	1347.6	1374.0	1395.8	1431.3	1463.5	1499.6	1520.2	1532.8
35°	1195.1	1195.7	1220.9	1235.8	1258.7	1285.7	1329.3	1365.4	1405.0	1439.4	1466.3
37.5°	1072.4	1071.8	1089.6	1115.9	1134.3	1172.1	1216.9	1257.0	1312.1	1348.8	1391.2
40°	931.3	943.3	958.2	982.3	1013.9	1058.6	1101.0	1153.2	1208.3	1254.1	1299.4
42.5°	805.1	814.9	839.0	865.9	899.8	937.6	989.2	1047.1	1101.0	1160.7	1211.1
45°	700.8	705.9	720.3	742.1	777.6	820.6	874.5	935.9	999.5	1060.3	1116.5
47.5°	604.4	619.9	627.4	647.4	673.2	713.4	769.6	824.6	898.0	965.7	1027.1
50°	528.7	531.6	544.8	559.7	590.1	619.9	662.3	719.1	787.4	863.6	926.1
52.5°	466.8	465.6	476.5	489.7	510.9	542.5	579.2	634.2	692.2	767.9	836.1
55°	403.7	409.4	414.6	427.8	446.7	470.8	501.8	548.2	602.7	669.8	741.5
57.5°	360.1	360.7	363.6	374.5	387.1	406.0	435.8	475.4	524.1	582.6	652.0
60°	318.8	319.4	324.6	328.0	336.6	352.7	375.6	408.3	451.3	507.5	568.3
62.5°	283.3	283.9	286.7	290.2	298.2	304.5	324.0	352.1	387.1	437.0	489.2
65°	248.9	249.5	249.5	254.0	259.2	264.9	278.7	296.5	330.3	369.9	416.3
67.5°	215.6	219.1	217.9	221.4	225.9	228.8	238.6	254.6	277.6	310.8	351.0
70°	185.8	185.2	186.9	188.7	190.4	195.0	201.3	212.2	231.7	255.2	290.7
72.5°	153.7	150.2	152.5	154.8	157.7	161.1	166.3	174.3	189.2	208.2	234.5
75°	113.5	111.8	115.3	115.8	121.0	125.6	131.3	139.3	150.2	166.3	183.5
77.5°	82.6	84.9	86.0	87.2	87.7	92.9	99.2	106.1	112.4	127.3	140.5
80°	60.8	60.8	61.4	62.5	63.7	64.8	68.8	73.4	78.6	87.7	100.9
82.5°	42.4	41.9	41.9	42.4	43.0	44.2	45.9	47.6	52.2	56.8	63.7
85°	22.9	23.5	24.1	22.9	23.5	24.1	25.2	27.0	28.1	31.5	34.4
87.5°	8.0	9.7	9.2	9.2	9.7	9.7	9.7	10.9	10.9	10.9	12.6
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: P242996

CATALOG NUMBER: S121DR-H1025D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5
2.5°	1469.8	1468.0	1463.5	1454.3	1448.0	1436.5	1434.2	1433.6	1423.3	1407.8	1406.7
5°	1524.2	1511.1	1500.2	1484.1	1468.0	1448.5	1437.1	1429.0	1410.7	1387.8	1377.4
7.5°	1574.1	1555.2	1532.8	1507.6	1484.1	1456.6	1436.5	1420.4	1393.5	1364.2	1346.5
10°	1614.3	1590.8	1562.7	1528.8	1496.7	1460.6	1432.5	1408.4	1372.9	1336.7	1312.6
12.5°	1641.8	1615.4	1583.3	1543.7	1504.7	1463.5	1422.7	1392.3	1347.6	1305.8	1274.8
15°	1672.8	1629.2	1595.9	1551.2	1505.3	1456.0	1413.0	1369.4	1317.8	1270.8	1230.6
17.5°	1680.2	1640.1	1600.5	1551.2	1503.6	1443.4	1393.5	1345.3	1288.0	1230.1	1191.1
20°	1687.1	1641.2	1592.5	1539.2	1489.3	1427.3	1371.1	1314.9	1248.4	1185.9	1137.2
22.5°	1681.9	1637.2	1582.7	1522.5	1468.6	1405.0	1344.2	1282.2	1207.7	1142.3	1087.3
25°	1667.0	1625.7	1569.5	1503.6	1438.8	1374.0	1310.3	1244.4	1163.5	1087.8	1027.1
27.5°	1636.6	1599.9	1546.0	1476.1	1407.8	1336.1	1269.6	1200.8	1114.2	1036.8	972.0
30°	1595.9	1566.7	1512.2	1442.2	1368.3	1291.4	1223.2	1153.2	1063.2	978.9	910.1
32.5°	1539.7	1519.1	1472.1	1403.8	1324.1	1242.7	1172.7	1101.6	1005.3	925.0	855.0
35°	1476.6	1466.9	1425.0	1356.8	1274.2	1188.8	1113.6	1040.8	951.9	867.1	800.0
37.5°	1402.7	1409.6	1371.7	1304.0	1218.6	1131.4	1052.3	981.8	891.7	810.3	744.3
40°	1329.3	1339.6	1310.9	1247.8	1159.0	1068.9	988.6	912.9	829.2	757.5	692.2
42.5°	1247.8	1268.5	1246.1	1184.8	1098.2	1003.0	919.2	848.7	769.0	703.1	645.7
45°	1161.2	1187.6	1178.4	1115.9	1030.5	937.0	848.7	775.3	711.1	652.6	600.4
47.5°	1073.5	1103.9	1099.9	1047.7	965.7	869.9	782.8	710.5	651.4	604.4	560.8
50°	983.5	1014.4	1015.0	968.6	892.3	801.1	707.6	642.3	595.2	554.0	518.4
52.5°	895.7	926.7	927.3	891.1	814.9	726.0	640.0	580.3	540.2	508.1	478.3
55°	804.0	840.1	843.6	808.6	740.9	655.5	576.3	519.5	484.0	463.4	437.5
57.5°	711.1	750.1	757.0	728.9	663.5	583.8	517.3	462.8	434.1	419.8	400.3
60°	624.5	662.9	673.8	641.7	587.8	519.5	455.9	410.0	387.1	375.6	361.8
62.5°	544.8	583.2	588.9	561.4	508.1	450.7	402.6	360.7	341.8	333.2	322.3
65°	466.8	501.2	508.7	484.0	435.8	388.2	345.8	315.4	298.8	291.3	284.4
67.5°	395.1	427.2	432.4	410.0	369.9	329.2	298.2	271.8	260.3	250.6	247.7
70°	327.4	356.7	361.3	338.9	307.4	274.1	248.3	230.0	219.1	213.3	209.3
72.5°	264.9	287.9	291.9	278.1	253.5	224.2	204.1	188.7	181.8	176.6	174.9
75°	207.0	229.4	230.0	217.9	197.8	177.8	162.3	154.3	146.2	141.1	139.9
77.5°	158.8	171.5	173.2	166.9	147.4	134.8	122.7	117.0	114.1	109.0	109.0
80°	113.5	121.0	123.9	114.7	105.5	94.6	88.3	83.7	81.4	78.0	78.0
82.5°	70.5	76.8	80.3	73.4	68.8	63.1	58.5	55.6	53.9	52.2	51.6
85°	38.4	43.0	43.0	40.7	36.7	33.8	32.1	31.0	30.4	29.8	29.2
87.5°	13.8	17.2	15.5	16.1	14.3	13.8	13.2	13.2	13.8	12.6	12.6
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: P242996

CATALOG NUMBER: S121DR-H1025D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5	1424.5
2.5°	1399.2	1396.4	1387.8	1379.7	1373.4	1359.7	1356.8	1357.9	1357.9	1358.5	1352.2
5°	1365.4	1353.4	1339.6	1327.0	1317.2	1301.7	1293.1	1290.8	1289.1	1285.7	1279.4
7.5°	1327.0	1313.2	1293.7	1282.2	1261.6	1244.4	1232.4	1224.3	1219.2	1211.7	1201.4
10°	1288.0	1267.9	1246.1	1223.2	1202.5	1179.6	1160.7	1151.5	1140.6	1133.1	1121.7
12.5°	1249.0	1220.9	1191.1	1164.7	1136.6	1109.6	1090.1	1077.5	1058.0	1047.1	1035.1
15°	1197.9	1163.5	1138.3	1092.4	1078.7	1039.7	1016.2	1006.4	987.5	984.0	965.1
17.5°	1149.8	1110.2	1072.9	1034.5	997.8	970.9	950.8	938.2	923.3	914.1	901.5
20°	1089.6	1048.3	1003.5	963.4	932.4	903.8	891.1	875.1	866.5	857.3	848.1
22.5°	1032.2	981.8	937.0	904.3	872.8	849.3	835.5	824.6	817.2	808.0	801.7
25°	970.9	923.8	882.5	848.7	818.3	800.0	788.5	782.2	777.6	770.7	766.7
27.5°	912.4	864.8	824.1	798.2	773.6	757.5	751.8	746.1	740.3	738.0	737.5
30°	849.9	806.3	773.0	750.7	728.3	719.7	716.8	711.1	712.2	712.8	711.1
32.5°	797.1	754.7	729.4	710.5	693.3	687.0	686.4	684.1	684.7	687.6	686.4
35°	742.6	711.1	685.9	670.4	659.5	654.9	655.5	656.0	659.5	660.0	662.3
37.5°	696.2	665.8	649.2	634.2	629.1	629.1	629.7	630.2	633.1	636.5	637.7
40°	650.3	625.6	611.3	601.6	598.7	598.7	601.0	603.8	605.6	609.0	609.6
42.5°	609.0	588.4	577.5	567.7	568.9	571.7	572.3	574.0	578.6	579.2	580.3
45°	568.3	552.8	541.9	539.0	539.0	541.3	544.2	545.4	548.8	549.4	550.5
47.5°	533.3	517.3	509.2	506.4	508.1	510.9	515.0	516.7	519.5	519.0	521.8
50°	494.3	481.1	474.8	473.7	474.8	480.0	481.7	485.7	488.6	490.3	491.5
52.5°	457.0	446.7	443.9	443.3	445.6	449.0	451.3	455.3	458.8	458.8	458.2
55°	421.5	412.3	408.9	411.7	414.6	416.3	420.9	423.2	426.7	427.2	426.7
57.5°	385.4	377.3	376.2	377.3	383.1	386.5	389.4	389.4	391.1	391.7	393.4
60°	348.1	342.9	341.8	344.6	351.0	353.2	355.0	355.5	357.8	356.7	360.1
62.5°	313.1	307.9	310.2	313.1	315.4	318.8	320.0	322.9	322.3	323.4	325.1
65°	277.0	274.1	274.7	278.1	281.0	285.6	285.6	285.6	288.4	288.4	289.6
67.5°	242.0	240.3	242.6	245.4	246.0	248.9	248.3	251.7	254.0	255.2	256.3
70°	208.2	207.0	207.0	209.9	212.8	213.9	215.0	217.3	217.9	219.6	222.5
72.5°	176.1	172.6	173.2	177.2	177.2	179.5	182.4	182.4	185.8	186.4	189.2
75°	141.1	139.9	141.1	143.4	146.2	145.7	149.1	148.5	149.7	153.7	154.3
77.5°	110.1	108.4	111.3	112.4	113.0	113.5	114.7	117.6	119.9	121.6	122.1
80°	79.1	78.6	81.4	82.6	82.0	83.2	84.9	87.7	87.7	88.9	90.6
82.5°	53.3	52.2	53.9	55.6	56.8	57.3	57.3	58.5	59.1	60.2	60.2
85°	30.4	30.4	31.5	32.1	33.3	32.7	33.8	33.3	34.4	35.6	35.0
87.5°	13.2	13.2	13.2	13.2	13.8	13.8	14.3	14.3	13.8	14.3	13.2
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: P242996

CATALOG NUMBER: S121DR-H1025D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1424.5	1424.5	1424.5	1424.5
2.5°	1349.9	1351.1	1348.2	1345.3
5°	1278.8	1274.8	1270.8	1269.6
7.5°	1199.1	1199.1	1189.3	1191.6
10°	1113.6	1110.2	1102.8	1103.3
12.5°	1030.5	1027.6	1023.6	1021.9
15°	955.4	957.1	960.0	943.9
17.5°	896.3	891.7	889.4	886.6
20°	843.6	841.3	836.7	836.1
22.5°	802.8	797.7	796.5	797.1
25°	763.8	763.8	763.8	760.4
27.5°	736.3	736.3	734.6	735.2
30°	712.2	713.4	711.7	712.2
32.5°	689.3	689.9	688.7	688.1
35°	663.5	665.2	664.6	665.2
37.5°	638.8	640.0	638.8	638.8
40°	610.7	613.6	613.0	611.3
42.5°	582.6	582.6	584.4	583.8
45°	553.4	552.2	552.2	554.0
47.5°	522.4	524.7	523.6	524.1
50°	493.7	493.2	491.5	490.9
52.5°	459.9	461.1	460.5	457.6
55°	427.2	427.2	426.7	426.7
57.5°	392.2	394.0	393.4	393.4
60°	359.0	360.1	360.7	360.1
62.5°	325.1	325.7	325.1	325.7
65°	292.5	292.5	291.9	293.6
67.5°	256.9	257.5	256.9	258.1
70°	223.1	224.2	224.8	223.6
72.5°	191.0	189.8	190.4	189.2
75°	155.4	156.0	155.4	156.0
77.5°	122.1	122.7	122.1	122.7
80°	90.0	90.0	90.6	89.5
82.5°	60.8	60.8	62.5	60.8
85°	35.6	35.6	34.4	36.7
87.5°	13.8	13.8	13.8	13.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)