

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: P242116

Luminaire Tested: **S121DR-S1025D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242116
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-S1025D927-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: 3361.9 lumens
Efficiency: N/A
Efficacy: 81.8 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

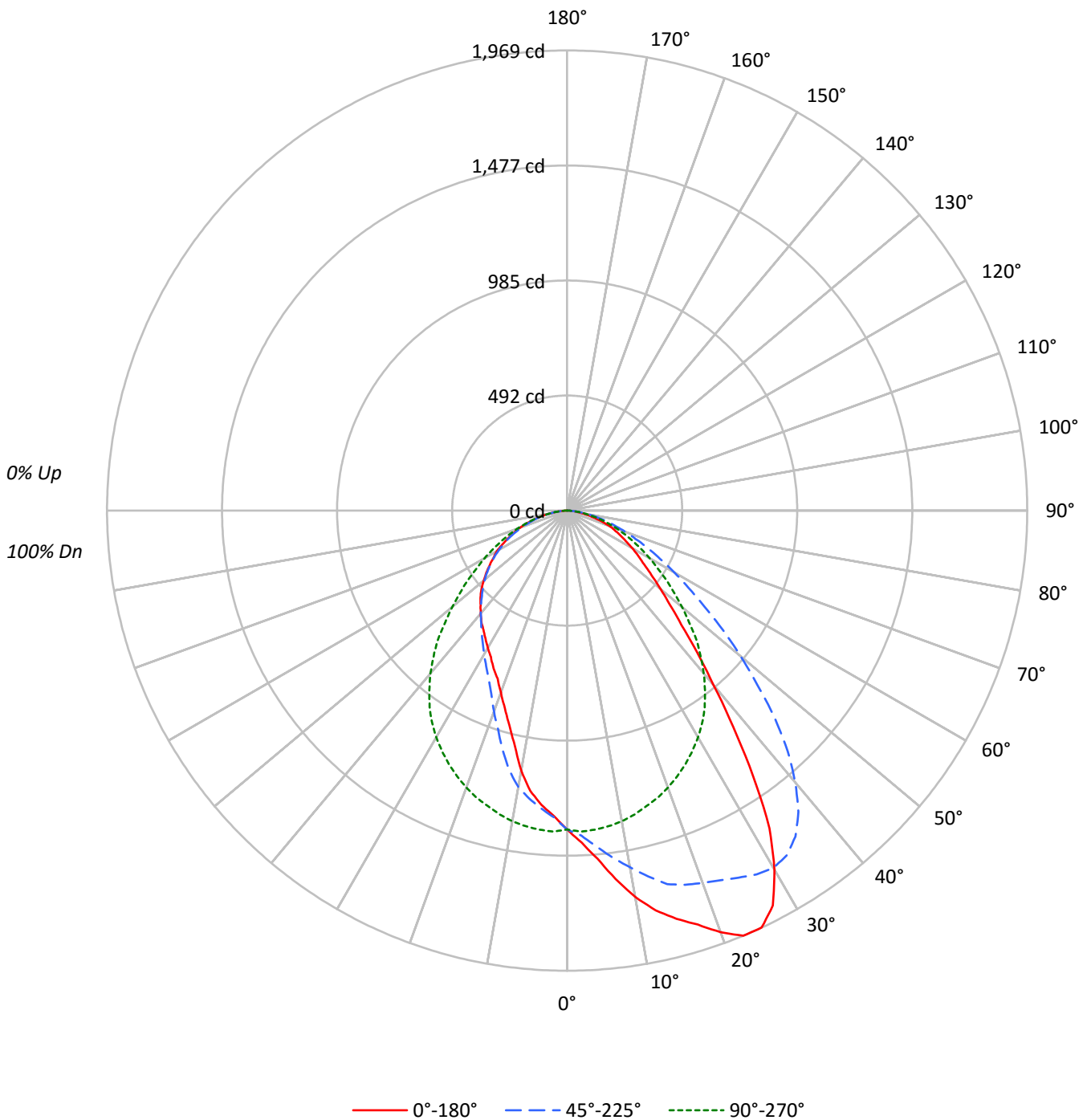
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	40424	40424	40424
5°	44489	40754	37574
10°	50516	40605	33983
15°	55463	40157	29209
20°	60531	39761	26136
25°	64372	39133	24336
30°	60698	38322	23217
35°	50155	37119	22553
40°	37604	35194	22252
45°	28980	32814	21991
50°	24030	29524	21485
55°	20741	26810	20865
60°	19064	24178	20593
65°	17619	21853	19427
70°	16685	19631	18617
75°	13715	17344	16531
80°	10818	14128	13616
85°	8397	10369	9179



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	131.2	3.9
10°-20°	382.7	11.4
20°-30°	585.9	17.4
30°-40°	668.6	19.9
40°-50°	599.9	17.8
50°-60°	470.6	14.0
60°-70°	320.1	9.5
70°-80°	164.9	4.9
80°-90°	38.0	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°	1099.8	32.7
0°-40°	1768.4	52.6
0°-60°	2838.9	84.4
0°-90°	3361.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3361.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1364	1364	1364	1364	1364	
5°	1496	1443	1370	1279	1263	149
15°	1808	1655	1309	1063	952	515
25°	1969	1733	1197	794	744	888
35°	1387	1702	1026	637	624	860
45°	692	1256	783	516	525	548
55°	402	717	519	399	404	366
65°	251	382	312	272	277	250
75°	120	168	152	139	144	129
85°	25	33	30	29	27	30
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°	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3
2.5°	1421.8	1421.8	1424.2	1423.6	1421.3	1417.2	1413.6	1409.5	1399.0	1391.9	1398.4
5°	1495.8	1498.8	1501.7	1501.1	1492.3	1484.7	1473.5	1470.6	1451.8	1443.0	1440.0
7.5°	1589.7	1589.2	1590.3	1580.4	1572.7	1565.1	1550.4	1532.2	1509.9	1497.6	1485.8
10°	1679.0	1684.3	1681.9	1669.6	1657.8	1649.6	1626.1	1603.8	1576.2	1549.8	1535.2
12.5°	1751.8	1748.8	1758.8	1747.1	1733.0	1717.7	1694.8	1674.9	1639.1	1603.2	1573.3
15°	1808.1	1805.2	1806.4	1797.6	1782.9	1769.4	1745.9	1724.8	1690.7	1654.9	1623.2
17.5°	1857.4	1860.4	1855.1	1844.5	1824.6	1808.7	1779.4	1750.6	1714.8	1679.0	1647.9
20°	1919.7	1922.6	1912.6	1897.4	1878.0	1851.0	1820.5	1779.4	1739.4	1695.4	1656.7
22.5°	1969.0	1967.2	1963.7	1949.0	1928.5	1903.2	1859.2	1814.0	1766.5	1711.9	1662.0
25°	1969.0	1971.3	1973.1	1965.5	1952.0	1930.8	1900.9	1853.3	1799.9	1733.0	1663.1
27.5°	1905.6	1916.2	1923.8	1923.8	1920.8	1920.3	1902.6	1872.7	1822.8	1755.3	1677.8
30°	1774.1	1788.2	1799.9	1818.1	1839.8	1853.9	1859.2	1847.5	1821.6	1764.7	1684.3
32.5°	1612.1	1610.9	1635.0	1664.3	1707.2	1737.1	1767.0	1784.6	1783.5	1749.4	1682.5
35°	1386.6	1403.1	1431.8	1472.9	1528.1	1577.4	1642.6	1676.6	1703.6	1702.5	1659.6
37.5°	1167.1	1169.4	1201.7	1258.1	1306.8	1383.1	1468.2	1539.3	1604.4	1625.6	1611.5
40°	972.2	988.6	1010.3	1057.3	1106.0	1172.9	1281.0	1376.1	1456.5	1518.7	1535.7
42.5°	821.9	830.7	851.8	892.9	936.4	1016.2	1095.4	1197.0	1298.6	1397.8	1448.9
45°	691.6	699.8	719.1	747.9	788.4	851.2	932.8	1031.5	1140.1	1256.3	1329.1
47.5°	596.4	599.4	614.1	635.8	673.9	719.7	785.5	881.2	991.0	1104.3	1211.1
50°	521.3	526.0	536.0	553.0	581.2	624.0	676.3	748.5	850.1	967.5	1076.1
52.5°	455.6	459.1	470.8	480.2	501.9	538.3	583.5	649.3	735.0	840.7	952.8
55°	401.5	405.1	410.9	421.5	438.5	463.2	501.9	554.2	627.6	716.8	821.9
57.5°	360.5	362.2	363.4	370.4	383.9	403.9	436.8	477.9	534.8	616.4	709.8
60°	321.7	321.1	325.8	331.1	339.3	351.6	375.7	412.7	463.8	530.1	617.0
62.5°	283.0	285.9	288.8	292.9	298.2	305.3	324.6	352.2	392.7	449.7	521.3
65°	251.3	251.8	254.2	254.8	261.2	268.3	283.0	301.7	335.2	381.6	440.9
67.5°	220.7	221.3	220.7	222.5	225.4	231.3	238.9	254.2	280.0	317.6	369.3
70°	192.6	190.8	188.4	191.4	194.3	197.3	202.5	214.3	233.6	261.8	304.7
72.5°	155.0	156.2	157.3	158.5	159.1	163.2	167.9	176.1	191.4	213.1	246.0
75°	119.8	119.8	121.5	122.7	128.0	129.2	134.4	140.3	152.6	167.9	193.7
77.5°	88.1	87.5	90.4	91.0	93.9	97.5	100.4	106.3	115.6	128.6	145.6
80°	63.4	64.0	63.4	63.4	65.2	67.5	71.6	74.6	81.0	89.2	101.6
82.5°	42.3	42.3	42.9	42.9	44.6	44.6	47.0	49.3	53.4	58.7	67.5
85°	24.7	24.7	24.1	24.1	24.7	24.7	27.0	28.8	29.4	32.9	35.8
87.5°	10.6	10.6	10.0	10.6	10.0	10.6	10.0	11.2	11.7	12.3	13.5
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°	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3
2.5°	1396.6	1394.8	1394.3	1387.8	1381.3	1373.7	1372.5	1374.9	1364.9	1352.6	1352.0
5°	1433.0	1426.5	1417.2	1404.8	1394.3	1380.2	1373.1	1370.2	1354.9	1337.3	1333.8
7.5°	1473.5	1457.7	1440.6	1421.8	1403.1	1382.5	1369.6	1362.0	1340.8	1319.1	1310.3
10°	1512.3	1491.7	1465.9	1437.1	1410.7	1382.5	1363.1	1349.6	1323.8	1296.8	1283.3
12.5°	1556.9	1522.8	1486.4	1450.6	1418.3	1381.9	1352.6	1332.0	1302.1	1273.3	1253.4
15°	1589.2	1539.8	1511.7	1460.6	1420.1	1376.1	1340.2	1309.1	1276.3	1244.6	1224.6
17.5°	1614.4	1575.7	1526.3	1470.0	1415.4	1367.8	1323.2	1288.6	1245.1	1210.5	1188.8
20°	1622.6	1583.3	1532.8	1471.2	1416.6	1355.5	1302.7	1261.0	1214.6	1172.4	1142.4
22.5°	1619.7	1575.1	1523.4	1462.9	1407.8	1335.6	1280.4	1230.5	1178.8	1133.6	1092.5
25°	1613.2	1561.6	1504.6	1447.7	1386.0	1315.0	1251.6	1197.0	1134.8	1085.5	1036.2
27.5°	1609.7	1542.2	1478.2	1416.6	1357.9	1289.2	1221.1	1160.0	1091.3	1031.5	968.1
30°	1608.5	1528.1	1447.7	1376.1	1322.0	1252.2	1184.7	1120.1	1039.7	972.2	907.6
32.5°	1606.2	1516.4	1421.8	1336.1	1274.5	1211.7	1140.1	1076.1	985.1	914.6	845.4
35°	1590.3	1495.8	1391.9	1294.5	1222.3	1157.1	1093.1	1026.2	931.7	855.9	789.6
37.5°	1556.3	1473.5	1362.6	1252.8	1166.5	1100.1	1040.8	968.1	876.5	793.7	732.1
40°	1505.8	1438.3	1330.9	1211.7	1110.1	1037.3	974.5	909.9	815.4	736.2	680.4
42.5°	1440.0	1387.8	1286.8	1163.5	1055.5	973.9	909.9	845.9	759.1	682.7	632.8
45°	1353.8	1321.5	1232.8	1111.3	1002.7	908.2	838.9	783.1	702.7	632.8	587.1
47.5°	1258.1	1244.0	1170.0	1053.2	938.7	847.1	766.1	707.4	644.6	585.3	544.8
50°	1142.4	1153.6	1095.4	988.0	877.1	783.1	703.9	640.5	585.9	540.1	504.3
52.5°	1034.4	1060.8	1013.8	911.7	812.5	715.0	635.2	577.1	534.2	496.6	465.5
55°	914.0	952.2	924.0	836.0	737.3	651.0	571.2	519.0	482.0	453.2	426.8
57.5°	798.4	852.4	831.9	752.6	668.7	584.7	509.6	457.9	431.5	410.4	388.0
60°	695.7	745.0	742.0	674.5	590.6	516.0	454.4	408.0	384.5	370.4	351.1
62.5°	603.5	653.4	648.7	587.6	521.3	452.0	399.8	357.5	340.5	325.2	312.9
65°	509.6	552.4	554.8	509.6	445.6	389.8	345.2	311.7	296.5	287.1	278.3
67.5°	424.4	466.1	470.2	434.4	378.1	329.9	296.5	268.3	254.8	246.6	240.1
70°	349.9	383.9	391.6	361.6	314.1	276.5	248.3	226.6	217.8	209.6	207.2
72.5°	283.5	311.1	316.4	288.8	253.6	225.4	203.7	187.3	180.8	172.6	170.8
75°	225.4	244.8	245.4	227.2	200.8	179.1	161.4	151.5	144.4	138.5	137.4
77.5°	163.8	180.8	186.1	172.6	150.9	132.7	122.7	115.1	110.4	107.4	106.8
80°	118.6	129.7	132.1	120.3	107.4	96.3	89.2	82.8	79.8	76.9	75.7
82.5°	74.0	83.9	84.5	76.3	69.9	62.2	56.4	54.0	52.2	50.5	50.5
85°	39.9	45.2	44.6	41.1	38.2	34.0	31.7	30.5	29.4	28.2	28.2
87.5°	15.3	17.0	17.0	17.6	15.3	13.5	12.3	12.9	12.3	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



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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3	1364.3
2.5°	1347.9	1345.5	1339.7	1330.3	1325.0	1313.2	1313.8	1316.2	1316.8	1315.0	1314.4
5°	1323.8	1316.8	1307.4	1295.6	1287.4	1278.6	1272.7	1276.3	1274.5	1273.9	1271.0
7.5°	1297.4	1288.0	1276.3	1264.5	1255.1	1243.4	1238.7	1234.6	1229.9	1229.3	1226.9
10°	1271.0	1259.2	1245.7	1228.7	1215.8	1201.1	1187.0	1179.4	1170.6	1164.1	1150.6
12.5°	1239.9	1219.9	1204.6	1187.0	1163.5	1140.1	1124.2	1102.5	1090.7	1079.0	1063.2
15°	1204.1	1178.2	1151.8	1116.6	1096.0	1063.2	1039.7	1023.8	1005.6	993.9	980.4
17.5°	1153.0	1126.0	1092.5	1052.6	1016.2	982.7	965.7	945.2	937.5	911.7	909.3
20°	1102.5	1062.0	1020.3	979.8	939.3	915.2	893.5	880.0	865.9	849.5	844.2
22.5°	1045.5	992.7	948.7	911.1	874.1	847.7	837.1	821.9	808.4	799.0	790.2
25°	976.3	927.5	882.9	847.7	814.2	794.3	780.8	769.6	763.8	753.2	749.7
27.5°	912.3	863.6	827.7	794.9	767.9	750.3	738.5	728.5	720.9	719.1	715.0
30°	847.1	805.4	771.4	743.2	719.1	709.8	698.6	693.9	689.2	686.9	682.2
32.5°	788.4	751.4	721.5	694.5	680.4	671.6	665.7	661.0	657.5	656.3	655.2
35°	735.0	700.9	676.3	656.9	646.3	637.0	634.0	629.9	628.1	627.6	627.0
37.5°	688.0	656.3	637.5	620.5	612.9	604.1	604.7	602.9	601.7	598.2	600.6
40°	640.5	615.8	596.4	582.9	577.7	574.7	573.6	572.4	573.0	573.0	572.4
42.5°	597.0	575.3	563.0	550.1	547.7	545.4	545.4	543.6	544.2	547.1	548.3
45°	557.7	540.7	529.5	519.0	519.0	516.0	518.4	517.8	519.5	521.3	522.5
47.5°	518.4	503.1	494.9	489.6	487.3	487.3	489.0	492.0	493.1	493.7	494.9
50°	479.0	467.9	460.8	457.9	457.3	460.3	462.0	461.4	463.2	465.5	467.3
52.5°	444.4	434.4	429.7	428.6	428.6	430.9	431.5	433.2	434.4	434.4	436.8
55°	408.6	401.5	398.0	397.4	398.0	399.2	401.5	402.7	402.1	403.3	403.3
57.5°	372.8	367.5	365.7	367.5	367.5	369.8	369.8	369.8	369.3	371.6	371.0
60°	339.3	333.4	335.2	334.6	336.4	336.4	338.1	338.1	336.4	338.7	339.9
62.5°	305.9	304.7	302.3	302.3	304.1	304.7	302.9	304.7	305.3	307.0	308.2
65°	270.6	266.5	268.3	267.7	269.5	272.4	270.0	270.0	271.8	274.2	275.3
67.5°	237.2	233.6	235.4	236.0	236.0	237.2	235.4	236.6	238.9	241.9	243.6
70°	203.1	201.9	202.5	201.9	201.9	204.9	205.5	204.9	207.2	210.2	210.8
72.5°	168.5	169.7	168.5	169.7	170.8	169.1	169.7	171.4	173.8	175.5	178.5
75°	136.8	135.0	135.6	138.5	138.0	139.1	138.5	140.3	144.4	143.2	143.8
77.5°	105.7	105.1	105.7	106.3	106.8	108.6	108.0	111.0	111.5	112.1	113.3
80°	75.1	75.7	76.3	77.5	79.3	78.7	79.8	80.4	82.8	80.4	82.2
82.5°	51.1	50.5	51.7	51.7	53.4	54.6	52.8	52.8	52.8	52.2	52.2
85°	28.2	29.9	29.9	29.9	28.8	28.8	29.4	28.8	28.8	28.8	28.2
87.5°	12.3	12.3	11.7	11.2	11.7	11.2	11.2	10.6	10.0	10.0	9.4
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: P242116

CATALOG NUMBER: S121DR-S1025D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1364.3	1364.3	1364.3	1364.3
2.5°	1310.9	1313.8	1310.3	1308.0
5°	1268.0	1268.0	1264.5	1263.3
7.5°	1219.9	1220.5	1214.0	1209.3
10°	1147.7	1144.2	1134.8	1129.5
12.5°	1051.4	1056.7	1042.6	1032.0
15°	967.5	952.8	958.7	952.2
17.5°	897.0	892.3	885.9	886.5
20°	835.4	831.9	828.3	828.9
22.5°	786.7	783.7	782.5	778.4
25°	746.1	747.3	744.4	744.4
27.5°	712.7	710.9	709.2	706.8
30°	681.0	681.6	679.8	678.6
32.5°	652.8	653.4	652.2	650.5
35°	625.2	624.6	625.2	623.5
37.5°	600.0	599.4	600.0	602.3
40°	574.1	574.7	573.0	575.3
42.5°	548.9	549.5	549.5	548.3
45°	521.3	523.1	523.7	524.8
47.5°	494.3	497.2	496.1	496.6
50°	467.3	466.7	466.7	466.1
52.5°	437.4	435.6	435.0	435.6
55°	401.5	403.9	403.9	403.9
57.5°	372.2	372.8	374.5	372.2
60°	342.3	342.3	342.8	347.5
62.5°	308.8	309.4	310.6	311.1
65°	276.5	278.3	277.7	277.1
67.5°	244.8	244.8	245.4	244.2
70°	211.9	211.9	211.9	214.9
72.5°	177.9	177.9	178.5	179.6
75°	146.2	146.2	146.2	144.4
77.5°	111.5	112.1	112.1	112.7
80°	81.0	80.4	80.4	79.8
82.5°	51.1	51.7	51.1	50.5
85°	28.2	28.8	27.0	27.0
87.5°	10.0	10.0	9.4	10.6
90°	0.0	0.0	0.0	0.0

(END OF REPORT)