

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: P243001

Luminaire Tested: **S121DR-H1025D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243001
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-H1025D935-X4F0-XX-UDD-A-W
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3486.6 lumens
Efficiency: N/A
Efficacy: 92.5 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

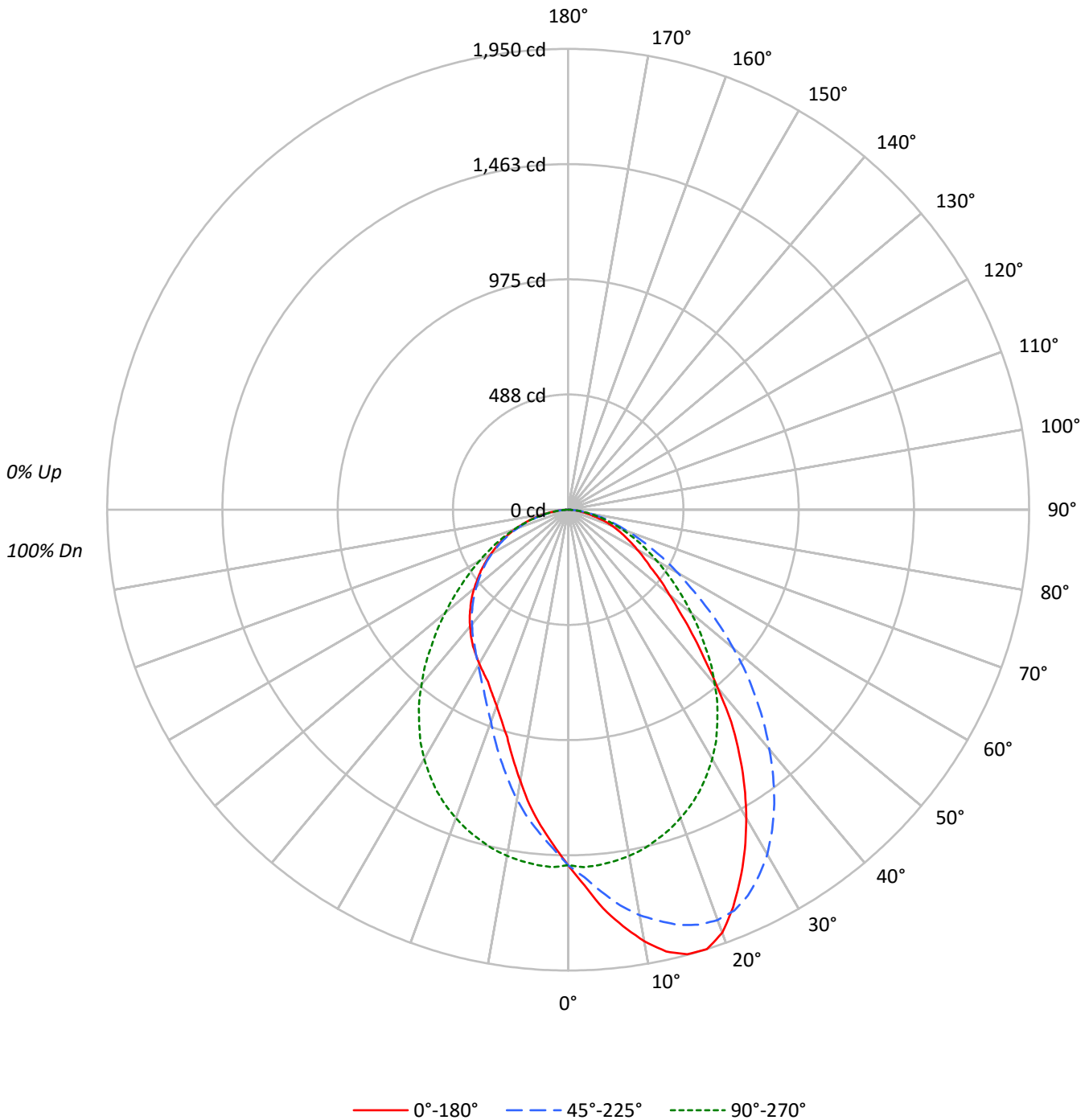
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	44572	44572	44572
5°	50364	44888	39879
10°	55790	44751	35057
15°	59742	44362	30577
20°	60073	43784	27842
25°	56346	42962	26252
30°	51549	41669	25735
35°	45652	39759	25410
40°	38041	37290	24971
45°	31008	34310	24513
50°	25740	31267	23896
55°	22022	28345	23277
60°	19953	25659	22536
65°	18425	23354	21741
70°	16997	21034	20462
75°	13726	18649	18855
80°	10954	15084	16125
85°	8227	11117	13191



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	143.7	4.1
10°-20°	411.7	11.8
20°-30°	599.5	17.2
30°-40°	668.3	19.2
40°-50°	617.9	17.7
50°-60°	492.2	14.1
60°-70°	336.9	9.7
70°-80°	174.9	5.0
80°-90°	41.4	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°	1154.9	33.1
0°-40°	1823.2	52.3
0°-60°	2933.3	84.1
0°-90°	3486.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3486.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1504	1504	1504	1504	1504	
5°	1693	1623	1509	1375	1341	166
15°	1948	1820	1446	1098	997	546
25°	1724	1800	1314	845	803	790
35°	1262	1520	1099	692	702	783
45°	740	1120	819	572	585	576
55°	426	707	549	440	451	390
65°	263	391	333	302	310	261
75°	120	176	163	154	165	132
85°	24	33	33	34	39	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°	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3
2.5°	1591.5	1591.5	1587.3	1589.1	1586.7	1582.4	1575.8	1568.5	1559.4	1555.8	1554.0
5°	1693.3	1695.7	1692.6	1686.6	1685.4	1680.5	1666.0	1657.5	1638.1	1623.0	1618.2
7.5°	1778.0	1782.3	1782.3	1771.4	1766.5	1754.4	1744.1	1730.2	1706.0	1689.0	1675.1
10°	1854.3	1856.2	1849.5	1843.4	1833.8	1824.1	1806.5	1788.9	1762.9	1742.3	1719.3
12.5°	1914.9	1918.5	1913.7	1904.0	1892.5	1879.8	1858.0	1835.6	1810.1	1782.3	1757.4
15°	1947.6	1953.1	1953.7	1945.8	1937.3	1922.2	1906.4	1882.2	1854.3	1819.8	1779.2
17.5°	1950.0	1952.5	1954.3	1948.2	1942.8	1937.3	1921.6	1901.6	1874.9	1841.0	1803.5
20°	1905.2	1910.7	1916.7	1911.3	1913.7	1913.7	1907.0	1896.7	1874.9	1847.7	1811.3
22.5°	1821.6	1834.4	1842.2	1847.7	1853.1	1861.0	1868.9	1864.0	1855.6	1835.6	1802.9
25°	1723.5	1733.8	1749.0	1753.8	1758.1	1781.1	1795.0	1804.7	1804.7	1800.4	1778.6
27.5°	1619.4	1626.0	1638.8	1655.7	1671.5	1685.4	1714.5	1732.6	1747.2	1747.2	1735.6
30°	1506.7	1516.4	1531.6	1543.1	1562.4	1590.9	1615.1	1636.9	1670.2	1684.8	1682.4
32.5°	1388.0	1397.7	1413.5	1423.2	1451.0	1474.0	1511.6	1545.5	1583.6	1605.4	1618.8
35°	1262.1	1262.7	1289.3	1305.1	1329.3	1357.8	1403.8	1441.9	1483.7	1520.1	1548.5
37.5°	1132.5	1131.9	1150.6	1178.5	1197.9	1237.8	1285.1	1327.5	1385.6	1424.4	1469.2
40°	983.5	996.2	1012.0	1037.4	1070.7	1117.9	1162.8	1217.9	1276.0	1324.4	1372.3
42.5°	850.3	860.6	886.0	914.5	950.2	990.2	1044.7	1105.8	1162.8	1225.7	1279.0
45°	740.0	745.5	760.6	783.6	821.2	866.6	923.5	988.3	1055.6	1119.8	1179.1
47.5°	638.3	654.7	662.5	683.7	711.0	753.4	812.7	870.9	948.4	1019.8	1084.6
50°	558.4	561.4	575.3	591.1	623.2	654.7	699.5	759.4	831.5	912.0	978.0
52.5°	493.0	491.7	503.3	517.2	539.6	572.9	611.7	669.8	731.0	810.9	883.0
55°	426.3	432.4	437.8	451.8	471.8	497.2	529.9	579.0	636.5	707.3	783.0
57.5°	380.3	380.9	383.9	395.5	408.8	428.8	460.3	502.0	553.5	615.3	688.6
60°	336.7	337.3	342.8	346.4	355.5	372.4	396.7	431.2	476.6	536.0	600.1
62.5°	299.2	299.8	302.8	306.4	314.9	321.6	342.2	371.8	408.8	461.5	516.6
65°	262.8	263.4	263.4	268.3	273.7	279.8	294.3	313.1	348.8	390.6	439.7
67.5°	227.7	231.3	230.1	233.8	238.6	241.6	251.9	268.9	293.1	328.2	370.6
70°	196.2	195.6	197.4	199.2	201.1	205.9	212.6	224.1	244.7	269.5	307.0
72.5°	162.3	158.7	161.1	163.5	166.5	170.2	175.6	184.1	199.8	219.8	247.7
75°	119.9	118.1	121.7	122.3	127.8	132.6	138.7	147.2	158.7	175.6	193.8
77.5°	87.2	89.6	90.8	92.1	92.7	98.1	104.8	112.0	118.7	134.4	148.4
80°	64.2	64.2	64.8	66.0	67.2	68.4	72.7	77.5	83.0	92.7	106.6
82.5°	44.8	44.2	44.2	44.8	45.4	46.6	48.4	50.3	55.1	60.0	67.2
85°	24.2	24.8	25.4	24.2	24.8	25.4	26.6	28.5	29.7	33.3	36.3
87.5°	8.5	10.3	9.7	9.7	10.3	10.3	10.3	11.5	11.5	11.5	13.3
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3
2.5°	1552.2	1550.3	1545.5	1535.8	1529.1	1517.0	1514.6	1514.0	1503.1	1486.7	1485.5
5°	1609.7	1595.8	1584.2	1567.3	1550.3	1529.7	1517.6	1509.2	1489.8	1465.5	1454.6
7.5°	1662.4	1642.4	1618.8	1592.1	1567.3	1538.2	1517.0	1500.1	1471.6	1440.7	1421.9
10°	1704.8	1679.9	1650.3	1614.5	1580.6	1542.5	1512.8	1487.4	1449.8	1411.7	1386.2
12.5°	1733.8	1706.0	1672.1	1630.3	1589.1	1545.5	1502.5	1470.4	1423.2	1378.9	1346.2
15°	1766.5	1720.5	1685.4	1638.1	1589.7	1537.6	1492.2	1446.2	1391.7	1342.0	1299.6
17.5°	1774.4	1732.0	1690.2	1638.1	1587.9	1524.3	1471.6	1420.7	1360.2	1299.0	1257.8
20°	1781.7	1733.2	1681.7	1625.4	1572.7	1507.3	1448.0	1388.6	1318.4	1252.4	1200.9
22.5°	1776.2	1729.0	1671.5	1607.9	1550.9	1483.7	1419.5	1354.1	1275.4	1206.4	1148.2
25°	1760.5	1716.9	1657.5	1587.9	1519.4	1451.0	1383.8	1314.1	1228.8	1148.8	1084.6
27.5°	1728.4	1689.6	1632.7	1558.8	1486.7	1411.0	1340.8	1268.1	1176.7	1094.9	1026.5
30°	1685.4	1654.5	1597.0	1523.1	1445.0	1363.8	1291.7	1217.9	1122.8	1033.8	961.1
32.5°	1626.0	1604.2	1554.6	1482.5	1398.3	1312.3	1238.5	1163.4	1061.6	976.8	902.9
35°	1559.4	1549.1	1504.9	1432.8	1345.6	1255.4	1176.1	1099.2	1005.3	915.7	844.8
37.5°	1481.3	1488.6	1448.6	1377.1	1286.9	1194.8	1111.3	1036.8	941.7	855.7	786.1
40°	1403.8	1414.7	1384.4	1317.8	1223.9	1128.8	1044.1	964.1	875.7	800.0	731.0
42.5°	1317.8	1339.6	1316.0	1251.2	1159.7	1059.2	970.8	896.3	812.1	742.5	681.9
45°	1226.3	1254.2	1244.5	1178.5	1088.3	989.5	896.3	818.8	750.9	689.2	634.1
47.5°	1133.7	1165.8	1161.5	1106.4	1019.8	918.7	826.6	750.3	688.0	638.3	592.3
50°	1038.6	1071.3	1071.9	1022.9	942.3	846.0	747.3	678.3	628.6	585.0	547.5
52.5°	945.9	978.6	979.3	941.1	860.6	766.7	675.8	612.9	570.5	536.6	505.1
55°	849.0	887.2	890.8	853.9	782.4	692.2	608.6	548.7	511.1	489.3	462.1
57.5°	750.9	792.1	799.4	769.7	700.7	616.5	546.3	488.7	458.4	443.3	422.7
60°	659.5	700.1	711.6	677.7	620.7	548.7	481.5	433.0	408.8	396.7	382.1
62.5°	575.3	615.9	622.0	592.9	536.6	476.0	425.1	380.9	360.9	351.9	340.3
65°	493.0	529.3	537.2	511.1	460.3	410.0	365.2	333.1	315.5	307.6	300.4
67.5°	417.3	451.2	456.6	433.0	390.6	347.6	314.9	287.1	274.9	264.6	261.6
70°	345.8	376.7	381.5	357.9	324.6	289.5	262.2	242.8	231.3	225.3	221.0
72.5°	279.8	304.0	308.2	293.7	267.7	236.8	215.6	199.2	192.0	186.5	184.7
75°	218.6	242.2	242.8	230.1	208.9	187.7	171.4	162.9	154.4	149.0	147.8
77.5°	167.8	181.1	182.9	176.2	155.6	142.3	129.6	123.5	120.5	115.1	115.1
80°	119.9	127.8	130.8	121.1	111.4	99.9	93.3	88.4	86.0	82.4	82.4
82.5°	74.5	81.2	84.8	77.5	72.7	66.6	61.8	58.7	56.9	55.1	54.5
85°	40.6	45.4	45.4	43.0	38.8	35.7	33.9	32.7	32.1	31.5	30.9
87.5°	14.5	18.2	16.4	17.0	15.1	14.5	13.9	13.9	14.5	13.3	13.3
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°	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3	1504.3
2.5°	1477.7	1474.6	1465.5	1457.1	1450.4	1435.9	1432.8	1434.1	1434.1	1434.7	1428.0
5°	1441.9	1429.2	1414.7	1401.4	1391.1	1374.7	1365.6	1363.2	1361.4	1357.8	1351.1
7.5°	1401.4	1386.8	1366.2	1354.1	1332.3	1314.1	1301.4	1293.0	1287.5	1279.6	1268.7
10°	1360.2	1339.0	1316.0	1291.7	1269.9	1245.7	1225.7	1216.0	1204.5	1196.7	1184.6
12.5°	1319.0	1289.3	1257.8	1230.0	1200.3	1171.8	1151.2	1137.9	1117.3	1105.8	1093.1
15°	1265.1	1228.8	1202.1	1153.7	1139.1	1098.0	1073.1	1062.8	1042.8	1039.2	1019.2
17.5°	1214.2	1172.4	1133.1	1092.5	1053.7	1025.3	1004.1	990.8	975.0	965.3	952.0
20°	1150.6	1107.0	1059.8	1017.4	984.7	954.4	941.1	924.1	915.1	905.4	895.7
22.5°	1090.1	1036.8	989.5	955.0	921.7	896.9	882.4	870.9	863.0	853.3	846.6
25°	1025.3	975.6	932.0	896.3	864.2	844.8	832.7	826.0	821.2	813.9	809.7
27.5°	963.5	913.2	870.2	843.0	817.0	800.0	793.9	787.9	781.8	779.4	778.8
30°	897.5	851.5	816.3	792.7	769.1	760.0	757.0	750.9	752.2	752.8	750.9
32.5°	841.8	797.0	770.3	750.3	732.2	725.5	724.9	722.5	723.1	726.1	724.9
35°	784.3	750.9	724.3	707.9	696.4	691.6	692.2	692.8	696.4	697.0	699.5
37.5°	735.2	703.1	685.5	669.8	664.3	664.3	664.9	665.6	668.6	672.2	673.4
40°	686.7	660.7	645.6	635.3	632.2	632.2	634.7	637.7	639.5	643.1	643.8
42.5°	643.1	621.3	609.8	599.5	600.8	603.8	604.4	606.2	611.0	611.7	612.9
45°	600.1	583.8	572.3	569.3	569.3	571.7	574.7	575.9	579.6	580.2	581.4
47.5°	563.2	546.3	537.8	534.7	536.6	539.6	543.8	545.6	548.7	548.1	551.1
50°	522.0	508.1	501.4	500.2	501.4	506.9	508.7	512.9	516.0	517.8	519.0
52.5°	482.7	471.8	468.7	468.1	470.6	474.2	476.6	480.8	484.5	484.5	483.9
55°	445.1	435.4	431.8	434.8	437.8	439.7	444.5	446.9	450.6	451.2	450.6
57.5°	407.0	398.5	397.3	398.5	404.5	408.2	411.2	411.2	413.0	413.6	415.4
60°	367.6	362.1	360.9	364.0	370.6	373.0	374.9	375.5	377.9	376.7	380.3
62.5°	330.7	325.2	327.6	330.7	333.1	336.7	337.9	341.0	340.3	341.6	343.4
65°	292.5	289.5	290.1	293.7	296.7	301.6	301.6	301.6	304.6	304.6	305.8
67.5°	255.6	253.7	256.2	259.2	259.8	262.8	262.2	265.9	268.3	269.5	270.7
70°	219.8	218.6	218.6	221.6	224.7	225.9	227.1	229.5	230.1	231.9	235.0
72.5°	185.9	182.3	182.9	187.1	187.1	189.6	192.6	192.6	196.2	196.8	199.8
75°	149.0	147.8	149.0	151.4	154.4	153.8	157.5	156.9	158.1	162.3	162.9
77.5°	116.3	114.5	117.5	118.7	119.3	119.9	121.1	124.1	126.6	128.4	129.0
80°	83.6	83.0	86.0	87.2	86.6	87.8	89.6	92.7	92.7	93.9	95.7
82.5°	56.3	55.1	56.9	58.7	60.0	60.6	60.6	61.8	62.4	63.6	63.6
85°	32.1	32.1	33.3	33.9	35.1	34.5	35.7	35.1	36.3	37.5	36.9
87.5°	13.9	13.9	13.9	13.9	14.5	14.5	15.1	15.1	14.5	15.1	13.9
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: P243001

CATALOG NUMBER: S121DR-H1025D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1504.3	1504.3	1504.3	1504.3
2.5°	1425.6	1426.8	1423.8	1420.7
5°	1350.5	1346.2	1342.0	1340.8
7.5°	1266.3	1266.3	1256.0	1258.4
10°	1176.1	1172.4	1164.6	1165.2
12.5°	1088.3	1085.2	1081.0	1079.2
15°	1008.9	1010.7	1013.8	996.8
17.5°	946.6	941.7	939.3	936.3
20°	890.8	888.4	883.6	883.0
22.5°	847.8	842.4	841.2	841.8
25°	806.7	806.7	806.7	803.0
27.5°	777.6	777.6	775.8	776.4
30°	752.2	753.4	751.5	752.2
32.5°	727.9	728.5	727.3	726.7
35°	700.7	702.5	701.9	702.5
37.5°	674.6	675.8	674.6	674.6
40°	645.0	648.0	647.4	645.6
42.5°	615.3	615.3	617.1	616.5
45°	584.4	583.2	583.2	585.0
47.5°	551.7	554.1	552.9	553.5
50°	521.4	520.8	519.0	518.4
52.5°	485.7	486.9	486.3	483.3
55°	451.2	451.2	450.6	450.6
57.5°	414.2	416.0	415.4	415.4
60°	379.1	380.3	380.9	380.3
62.5°	343.4	344.0	343.4	344.0
65°	308.9	308.9	308.2	310.1
67.5°	271.3	271.9	271.3	272.5
70°	235.6	236.8	237.4	236.2
72.5°	201.7	200.5	201.1	199.8
75°	164.1	164.7	164.1	164.7
77.5°	129.0	129.6	129.0	129.6
80°	95.1	95.1	95.7	94.5
82.5°	64.2	64.2	66.0	64.2
85°	37.5	37.5	36.3	38.8
87.5°	14.5	14.5	14.5	14.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)