

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: P242146

Luminaire Tested: **S121DR-S1025D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242146
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-S1025D940-X4F0-XX-UDD-A-W
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3784.3 lumens
Efficiency: N/A
Efficacy: 92.1 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

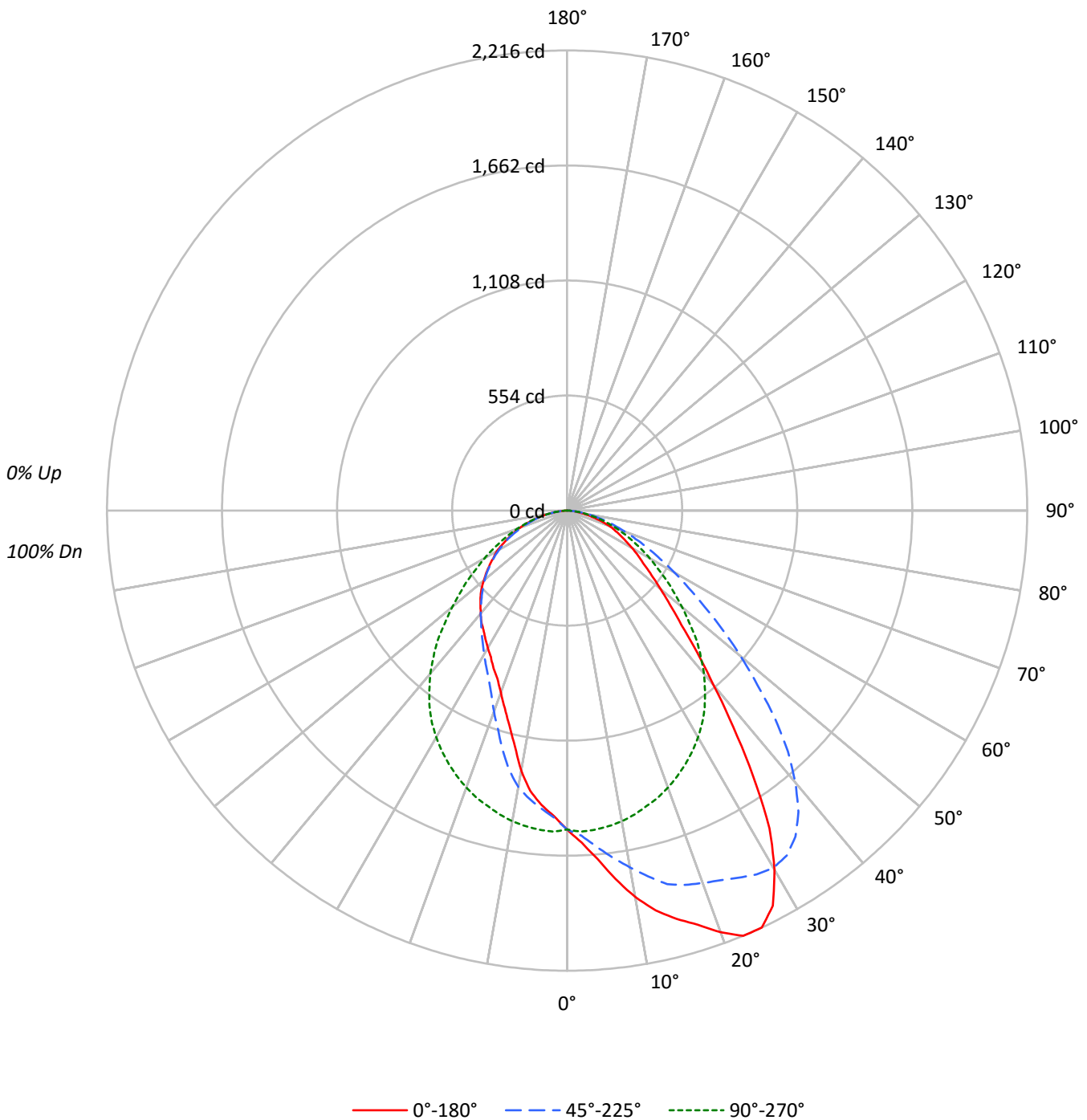
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P242146

CATALOG NUMBER: S121DR-S1025D940-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot





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CATALOG NUMBER: S121DR-S1025D940-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	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°	45502	45502	45502
5°	50081	45872	42297
10°	56861	45708	38252
15°	62433	45203	32877
20°	68136	44755	29422
25°	72460	44050	27393
30°	68324	43136	26136
35°	56456	41781	25385
40°	42326	39619	25048
45°	32617	36937	24756
50°	27049	33230	24186
55°	23349	30178	23484
60°	21458	27218	23182
65°	19827	24602	21867
70°	18773	22100	20956
75°	15432	19519	18615
80°	12183	15903	15340
85°	9451	11695	10335



TEST NUMBER: P242146

CATALOG NUMBER: S121DR-S1025D940-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.7	3.9
10°-20°	430.7	11.4
20°-30°	659.6	17.4
30°-40°	752.6	19.9
40°-50°	675.3	17.8
50°-60°	529.8	14.0
60°-70°	360.4	9.5
70°-80°	185.6	4.9
80°-90°	42.7	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°	1238.0	32.7
0°-40°	1990.6	52.6
0°-60°	3195.6	84.4
0°-90°	3784.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3784.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1536	1536	1536	1536	1536	
5°	1684	1624	1542	1439	1422	167
15°	2035	1863	1474	1197	1072	579
25°	2216	1951	1347	894	838	1000
35°	1561	1916	1155	717	702	968
45°	778	1414	882	581	591	617
55°	452	807	584	449	455	412
65°	283	430	351	307	312	282
75°	135	189	170	157	163	146
85°	28	37	34	32	30	33
90°	0	0	0	0	0	



TEST NUMBER: P242146

CATALOG NUMBER: S121DR-S1025D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7
2.5°	1600.5	1600.5	1603.1	1602.5	1599.8	1595.2	1591.2	1586.6	1574.7	1566.8	1574.1
5°	1683.8	1687.1	1690.4	1689.7	1679.8	1671.2	1658.6	1655.3	1634.2	1624.3	1621.0
7.5°	1789.5	1788.8	1790.1	1778.9	1770.3	1761.7	1745.2	1724.7	1699.6	1685.7	1672.5
10°	1889.9	1895.9	1893.2	1879.4	1866.1	1856.9	1830.5	1805.3	1774.3	1744.5	1728.0
12.5°	1971.9	1968.6	1979.8	1966.6	1950.7	1933.5	1907.8	1885.3	1845.0	1804.7	1771.0
15°	2035.3	2032.0	2033.3	2023.4	2006.9	1991.7	1965.3	1941.5	1903.1	1862.8	1827.1
17.5°	2090.8	2094.1	2088.2	2076.3	2053.8	2036.0	2002.9	1970.5	1930.2	1889.9	1854.9
20°	2160.9	2164.2	2152.9	2135.7	2113.9	2083.5	2049.2	2002.9	1958.0	1908.4	1864.8
22.5°	2216.4	2214.4	2210.4	2193.9	2170.8	2142.4	2092.8	2041.9	1988.4	1926.9	1870.8
25°	2216.4	2219.0	2221.0	2212.4	2197.2	2173.4	2139.7	2086.2	2026.1	1950.7	1872.1
27.5°	2145.0	2156.9	2165.5	2165.5	2162.2	2161.5	2141.7	2108.0	2051.8	1975.8	1888.6
30°	1997.0	2012.8	2026.1	2046.5	2071.0	2086.8	2092.8	2079.6	2050.5	1986.4	1895.9
32.5°	1814.6	1813.3	1840.4	1873.4	1921.6	1955.3	1989.0	2008.9	2007.5	1969.2	1893.9
35°	1560.8	1579.3	1611.7	1658.0	1720.1	1775.6	1849.0	1887.3	1917.7	1916.4	1868.1
37.5°	1313.7	1316.3	1352.7	1416.1	1471.0	1556.9	1652.7	1732.7	1806.0	1829.8	1813.9
40°	1094.3	1112.8	1137.3	1190.1	1245.0	1320.3	1441.9	1548.9	1639.5	1709.5	1728.7
42.5°	925.1	935.0	958.8	1005.1	1054.0	1143.9	1233.1	1347.4	1461.7	1573.4	1630.9
45°	778.4	787.7	809.5	841.9	887.5	958.2	1050.0	1161.0	1283.3	1414.1	1496.1
47.5°	671.4	674.7	691.2	715.7	758.6	810.2	884.2	991.9	1115.5	1243.0	1363.3
50°	586.8	592.1	603.3	622.5	654.2	702.4	761.3	842.5	956.9	1089.0	1211.3
52.5°	512.8	516.8	530.0	540.5	565.0	606.0	656.8	730.9	827.3	946.3	1072.5
55°	452.0	456.0	462.6	474.5	493.6	521.4	565.0	623.8	706.4	806.9	925.1
57.5°	405.7	407.7	409.0	417.0	432.2	454.6	491.6	537.9	602.0	693.9	798.9
60°	362.1	361.5	366.8	372.7	381.9	395.8	422.9	464.6	522.0	596.7	694.5
62.5°	318.5	321.8	325.1	329.7	335.7	343.6	365.4	396.5	442.1	506.2	586.8
65°	282.8	283.5	286.1	286.8	294.1	302.0	318.5	339.7	377.3	429.5	496.3
67.5°	248.5	249.1	248.5	250.4	253.8	260.4	269.0	286.1	315.2	357.5	415.7
70°	216.7	214.8	212.1	215.4	218.7	222.0	228.0	241.2	263.0	294.7	343.0
72.5°	174.5	175.8	177.1	178.4	179.1	183.7	189.0	198.2	215.4	239.9	276.9
75°	134.8	134.8	136.8	138.1	144.1	145.4	151.3	157.9	171.8	189.0	218.1
77.5°	99.1	98.5	101.8	102.4	105.7	109.7	113.0	119.6	130.2	144.7	163.9
80°	71.4	72.0	71.4	71.4	73.4	76.0	80.6	83.9	91.2	100.4	114.3
82.5°	47.6	47.6	48.2	48.2	50.2	50.2	52.9	55.5	60.1	66.1	76.0
85°	27.8	27.8	27.1	27.1	27.8	27.8	30.4	32.4	33.0	37.0	40.3
87.5°	11.9	11.9	11.2	11.9	11.2	11.9	11.2	12.6	13.2	13.9	15.2
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: P242146

CATALOG NUMBER: S121DR-S1025D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7
2.5°	1572.1	1570.1	1569.4	1562.2	1554.9	1546.3	1545.0	1547.6	1536.4	1522.5	1521.9
5°	1613.0	1605.8	1595.2	1581.3	1569.4	1553.6	1545.6	1542.3	1525.2	1505.3	1501.4
7.5°	1658.6	1640.8	1621.6	1600.5	1579.3	1556.2	1541.7	1533.1	1509.3	1484.8	1474.9
10°	1702.3	1679.1	1650.0	1617.7	1587.9	1556.2	1534.4	1519.2	1490.1	1459.7	1444.5
12.5°	1752.5	1714.1	1673.2	1632.9	1596.5	1555.6	1522.5	1499.4	1465.7	1433.3	1410.8
15°	1788.8	1733.3	1701.6	1644.1	1598.5	1548.9	1508.6	1473.6	1436.6	1400.9	1378.5
17.5°	1817.2	1773.6	1718.1	1654.7	1593.2	1539.7	1489.5	1450.5	1401.6	1362.6	1338.1
20°	1826.5	1782.2	1725.4	1656.0	1594.5	1525.8	1466.3	1419.4	1367.2	1319.6	1285.9
22.5°	1823.2	1773.0	1714.8	1646.7	1584.6	1503.3	1441.2	1385.1	1326.9	1276.0	1229.8
25°	1815.9	1757.8	1693.7	1629.6	1560.2	1480.2	1408.9	1347.4	1277.4	1221.8	1166.3
27.5°	1811.9	1736.0	1663.9	1594.5	1528.5	1451.1	1374.5	1305.8	1228.5	1161.0	1089.7
30°	1810.6	1720.1	1629.6	1548.9	1488.1	1409.5	1333.5	1260.8	1170.3	1094.3	1021.6
32.5°	1808.0	1706.9	1600.5	1504.0	1434.6	1363.9	1283.3	1211.3	1108.8	1029.5	951.6
35°	1790.1	1683.8	1566.8	1457.1	1375.8	1302.5	1230.4	1155.1	1048.7	963.5	888.8
37.5°	1751.8	1658.6	1533.7	1410.2	1313.0	1238.4	1171.6	1089.7	986.6	893.4	824.0
40°	1695.0	1619.0	1498.1	1363.9	1249.6	1167.7	1096.9	1024.3	917.9	828.7	765.9
42.5°	1621.0	1562.2	1448.5	1309.7	1188.1	1096.3	1024.3	952.2	854.4	768.5	712.4
45°	1523.8	1487.5	1387.7	1250.9	1128.7	1022.3	944.3	881.5	791.0	712.4	660.8
47.5°	1416.1	1400.3	1317.0	1185.5	1056.6	953.6	862.4	796.3	725.6	658.8	613.2
50°	1285.9	1298.5	1233.1	1112.1	987.3	881.5	792.3	720.9	659.5	607.9	567.6
52.5°	1164.4	1194.1	1141.2	1026.2	914.6	804.9	715.0	649.6	601.3	559.0	524.0
55°	1028.9	1071.8	1040.1	941.0	830.0	732.8	643.0	584.2	542.5	510.1	480.4
57.5°	898.7	959.5	936.4	847.2	752.7	658.2	573.6	515.4	485.7	461.9	436.8
60°	783.1	838.6	835.3	759.3	664.8	580.9	511.5	459.3	432.8	417.0	395.2
62.5°	679.3	735.5	730.2	661.5	586.8	508.8	450.0	402.4	383.3	366.1	352.2
65°	573.6	621.8	624.5	573.6	501.6	438.8	388.6	350.9	333.7	323.1	313.2
67.5°	477.8	524.7	529.3	489.0	425.6	371.4	333.7	302.0	286.8	277.5	270.3
70°	393.8	432.2	440.8	407.1	353.5	311.2	279.5	255.1	245.2	235.9	233.3
72.5°	319.2	350.2	356.2	325.1	285.5	253.8	229.3	210.8	203.5	194.3	192.3
75°	253.8	275.6	276.2	255.7	226.0	201.5	181.7	170.5	162.6	156.0	154.6
77.5°	184.4	203.5	209.5	194.3	169.8	149.3	138.1	129.5	124.2	120.9	120.3
80°	133.5	146.0	148.7	135.5	120.9	108.4	100.4	93.2	89.9	86.6	85.2
82.5°	83.3	94.5	95.2	85.9	78.6	70.0	63.4	60.8	58.8	56.8	56.8
85°	44.9	50.9	50.2	46.3	43.0	38.3	35.7	34.4	33.0	31.7	31.7
87.5°	17.2	19.2	19.2	19.8	17.2	15.2	13.9	14.5	13.9	13.9	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: P242146

CATALOG NUMBER: S121DR-S1025D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7	1535.7
2.5°	1517.2	1514.6	1508.0	1497.4	1491.5	1478.2	1478.9	1481.5	1482.2	1480.2	1479.6
5°	1490.1	1482.2	1471.6	1458.4	1449.2	1439.2	1432.6	1436.6	1434.6	1434.0	1430.7
7.5°	1460.4	1449.8	1436.6	1423.4	1412.8	1399.6	1394.3	1389.7	1384.4	1383.7	1381.1
10°	1430.7	1417.4	1402.2	1383.1	1368.5	1352.0	1336.2	1327.6	1317.7	1310.4	1295.2
12.5°	1395.6	1373.2	1356.0	1336.2	1309.7	1283.3	1265.5	1241.0	1227.8	1214.6	1196.7
15°	1355.3	1326.3	1296.5	1256.9	1233.7	1196.7	1170.3	1152.5	1132.0	1118.8	1103.6
17.5°	1297.8	1267.4	1229.8	1184.8	1143.9	1106.2	1087.0	1063.9	1055.3	1026.2	1023.6
20°	1241.0	1195.4	1148.5	1102.9	1057.3	1030.2	1005.8	990.6	974.7	956.2	950.2
22.5°	1176.9	1117.4	1067.9	1025.6	983.9	954.2	942.3	925.1	909.9	899.4	889.5
25°	1098.9	1044.1	993.9	954.2	916.5	894.1	878.9	866.3	859.7	847.8	843.9
27.5°	1026.9	972.1	931.7	894.7	864.3	844.5	831.3	820.1	811.5	809.5	804.9
30°	953.6	906.6	868.3	836.6	809.5	798.9	786.4	781.1	775.8	773.2	767.9
32.5°	887.5	845.8	812.1	781.7	765.9	756.0	749.4	744.1	740.1	738.8	737.5
35°	827.3	789.0	761.3	739.4	727.6	717.0	713.7	709.1	707.1	706.4	705.7
37.5°	774.5	738.8	717.6	698.5	689.9	680.0	680.6	678.7	677.3	673.4	676.0
40°	720.9	693.2	671.4	656.2	650.2	646.9	645.6	644.3	645.0	645.0	644.3
42.5°	672.0	647.6	633.7	619.2	616.5	613.9	613.9	611.9	612.6	615.9	617.2
45°	627.8	608.6	596.1	584.2	584.2	580.9	583.5	582.8	584.8	586.8	588.1
47.5°	583.5	566.3	557.1	551.1	548.5	548.5	550.5	553.8	555.1	555.7	557.1
50°	539.2	526.7	518.7	515.4	514.8	518.1	520.1	519.4	521.4	524.0	526.0
52.5°	500.2	489.0	483.7	482.4	482.4	485.0	485.7	487.7	489.0	489.0	491.6
55°	459.9	452.0	448.0	447.4	448.0	449.4	452.0	453.3	452.7	454.0	454.0
57.5°	419.6	413.7	411.7	413.7	413.7	416.3	416.3	416.3	415.7	418.3	417.6
60°	381.9	375.3	377.3	376.7	378.6	378.6	380.6	380.6	378.6	381.3	382.6
62.5°	344.3	343.0	340.3	340.3	342.3	343.0	341.0	343.0	343.6	345.6	346.9
65°	304.6	300.0	302.0	301.3	303.3	306.6	304.0	304.0	306.0	308.6	309.9
67.5°	267.0	263.0	265.0	265.6	265.6	267.0	265.0	266.3	269.0	272.3	274.2
70°	228.6	227.3	228.0	227.3	227.3	230.6	231.3	230.6	233.3	236.6	237.2
72.5°	189.7	191.0	189.7	191.0	192.3	190.3	191.0	193.0	195.6	197.6	200.9
75°	154.0	152.0	152.6	156.0	155.3	156.6	156.0	157.9	162.6	161.2	161.9
77.5°	118.9	118.3	118.9	119.6	120.3	122.3	121.6	124.9	125.6	126.2	127.5
80°	84.6	85.2	85.9	87.2	89.2	88.5	89.9	90.5	93.2	90.5	92.5
82.5°	57.5	56.8	58.2	58.2	60.1	61.5	59.5	59.5	59.5	58.8	58.8
85°	31.7	33.7	33.7	33.7	32.4	32.4	33.0	32.4	32.4	32.4	31.7
87.5°	13.9	13.9	13.2	12.6	13.2	12.6	12.6	11.9	11.2	11.2	10.6
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: P242146

CATALOG NUMBER: S121DR-S1025D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1535.7	1535.7	1535.7	1535.7
2.5°	1475.6	1478.9	1474.9	1472.3
5°	1427.4	1427.4	1423.4	1422.1
7.5°	1373.2	1373.8	1366.6	1361.3
10°	1291.9	1287.9	1277.4	1271.4
12.5°	1183.5	1189.5	1173.6	1161.7
15°	1089.0	1072.5	1079.1	1071.8
17.5°	1009.7	1004.4	997.2	997.8
20°	940.3	936.4	932.4	933.1
22.5°	885.5	882.2	880.9	876.2
25°	839.9	841.2	837.9	837.9
27.5°	802.2	800.2	798.3	795.6
30°	766.5	767.2	765.2	763.9
32.5°	734.8	735.5	734.2	732.2
35°	703.8	703.1	703.8	701.8
37.5°	675.4	674.7	675.4	678.0
40°	646.3	646.9	645.0	647.6
42.5°	617.9	618.5	618.5	617.2
45°	586.8	588.8	589.4	590.8
47.5°	556.4	559.7	558.4	559.0
50°	526.0	525.3	525.3	524.7
52.5°	492.3	490.3	489.7	490.3
55°	452.0	454.6	454.6	454.6
57.5°	419.0	419.6	421.6	419.0
60°	385.3	385.3	385.9	391.2
62.5°	347.6	348.2	349.6	350.2
65°	311.2	313.2	312.6	311.9
67.5°	275.6	275.6	276.2	274.9
70°	238.6	238.6	238.6	241.9
72.5°	200.2	200.2	200.9	202.2
75°	164.5	164.5	164.5	162.6
77.5°	125.6	126.2	126.2	126.9
80°	91.2	90.5	90.5	89.9
82.5°	57.5	58.2	57.5	56.8
85°	31.7	32.4	30.4	30.4
87.5°	11.2	11.2	10.6	11.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)