

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: P243522

Luminaire Tested: **S124DR-H1195D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243522
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-60)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DR-H1195D940-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4405.8 lumens
Efficiency: N/A
Efficacy: 116.9 lumens/watt
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

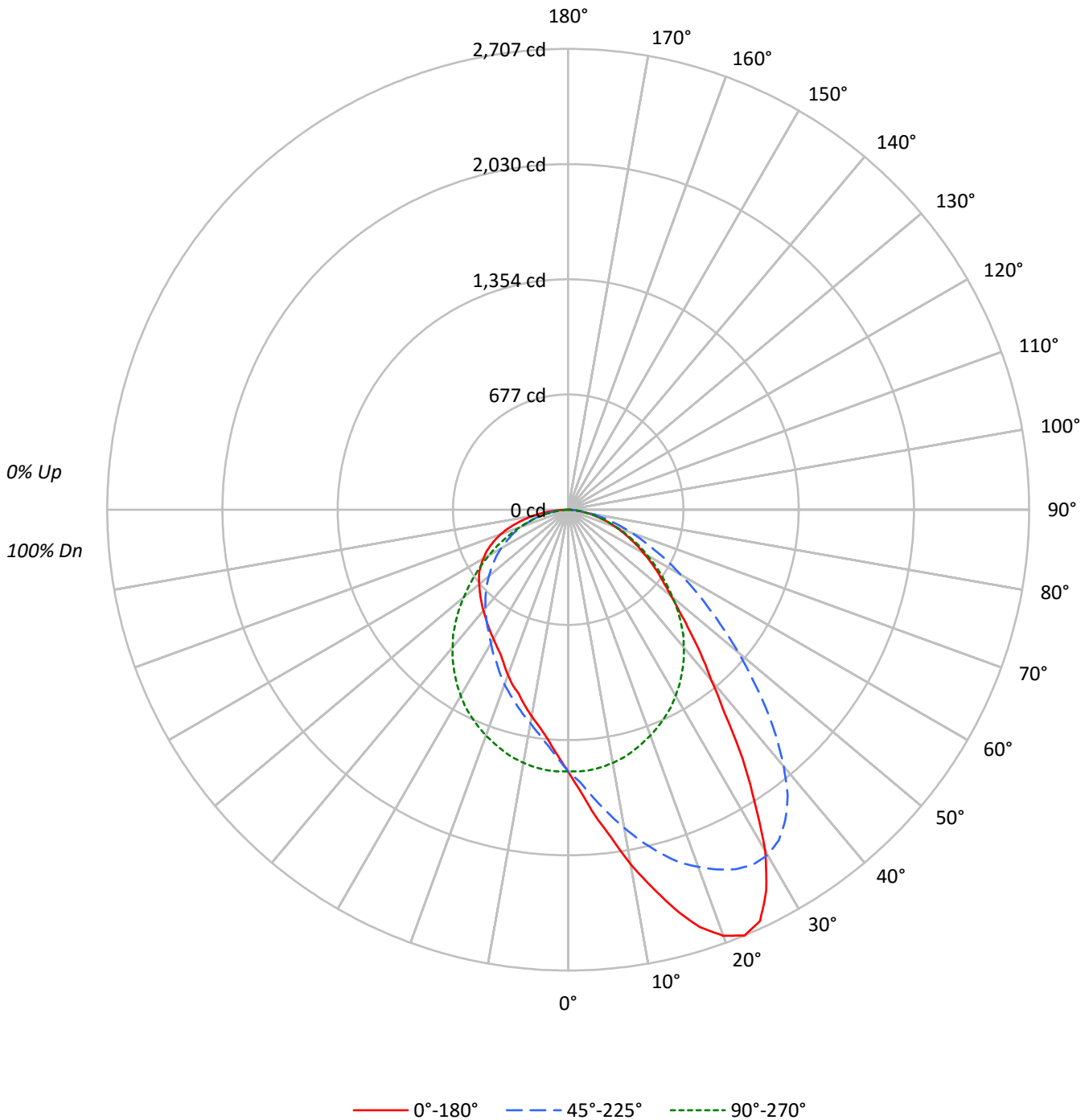
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P243522

CATALOG NUMBER: S124DR-H1195D940-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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	105	101	97	107	103	99	96	98	95	93	94	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63	61
4	84	73	64	58	82	71	63	57	69	62	56	66	60	56	64	59	55	53
5	78	65	56	50	75	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41
7	67	53	45	39	65	53	45	39	51	44	38	50	43	38	48	42	38	36
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	44	39	34	32
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	54	41	34	29	53	41	34	28	40	33	28	39	33	28	38	32	28	26

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	13658	13658	13658
5°	16072	13693	12087
10°	19099	13631	11129
15°	22369	13511	10308
20°	25189	13354	9776
25°	26142	13176	9202
30°	23740	12951	9000
35°	19369	12644	8943
40°	15166	12248	8980
45°	12693	11755	9145
50°	10893	11066	9419
55°	9952	10321	9875
60°	9120	9556	10235
65°	8363	8746	10632
70°	7693	7888	10952
75°	6848	6934	10942
80°	5713	5682	10914
85°	4345	4284	10229



TEST NUMBER: P243522

CATALOG NUMBER: S124DR-H1195D940-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	149.6	3.4
10°-20°	463.2	10.5
20°-30°	744.1	16.9
30°-40°	850.7	19.3
40°-50°	783.0	17.8
50°-60°	640.5	14.5
60°-70°	456.5	10.4
70°-80°	250.8	5.7
80°-90°	67.4	1.5
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°	1356.9	30.8
0°-40°	2207.6	50.1
0°-60°	3631.1	82.4
0°-90°	4405.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4405.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1536	1536	1536	1536	1536	
5°	1801	1698	1535	1387	1355	181
15°	2431	2088	1468	1182	1120	693
25°	2665	2330	1343	993	938	1196
35°	1785	2224	1165	829	824	1109
45°	1010	1639	935	683	728	788
55°	642	1007	666	532	637	576
65°	398	558	416	373	506	397
75°	199	258	202	206	319	213
85°	43	53	42	58	100	51
90°	0	0	0	0	0	



TEST NUMBER: P243522

CATALOG NUMBER: S124DR-H1195D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5
2.5°	1654.4	1649.4	1646.9	1643.8	1643.1	1640.0	1633.7	1624.9	1613.7	1601.7	1601.7
5°	1801.2	1799.9	1790.5	1791.1	1779.2	1766.1	1756.0	1743.5	1719.0	1698.3	1683.9
7.5°	1941.7	1954.8	1951.7	1941.7	1924.1	1905.3	1885.2	1867.6	1822.5	1797.4	1776.7
10°	2116.0	2121.0	2112.2	2097.8	2082.1	2045.8	2019.4	1989.9	1941.0	1898.4	1860.7
12.5°	2269.0	2280.9	2265.3	2251.5	2214.5	2187.5	2161.2	2102.2	2050.8	1996.8	1942.3
15°	2430.8	2418.3	2426.4	2392.6	2366.2	2340.5	2273.4	2213.2	2154.9	2088.4	2031.3
17.5°	2571.3	2571.3	2556.3	2534.3	2506.7	2458.4	2391.3	2324.8	2260.2	2173.1	2092.2
20°	2662.9	2669.8	2652.2	2629.0	2595.8	2545.6	2492.3	2420.2	2334.2	2232.6	2141.1
22.5°	2706.8	2708.0	2701.8	2682.3	2655.3	2612.7	2558.1	2487.9	2397.0	2287.8	2191.9
25°	2665.4	2672.3	2670.4	2669.1	2655.3	2630.9	2587.0	2521.8	2439.0	2329.9	2226.4
27.5°	2519.9	2536.8	2551.2	2557.5	2572.6	2573.8	2560.6	2521.1	2453.4	2350.6	2235.2
30°	2312.9	2304.1	2343.0	2362.5	2413.9	2444.6	2466.6	2464.1	2425.2	2341.8	2232.0
32.5°	2037.0	2060.8	2088.4	2134.2	2195.0	2266.5	2320.4	2360.6	2356.8	2302.3	2210.7
35°	1784.9	1784.9	1820.0	1876.4	1941.0	2026.9	2117.3	2191.9	2237.7	2223.9	2159.3
37.5°	1511.4	1528.4	1568.5	1612.4	1691.4	1774.2	1893.4	1992.5	2088.4	2117.3	2084.0
40°	1307.0	1314.5	1357.1	1394.2	1475.1	1561.0	1660.7	1787.4	1897.8	1968.6	1973.0
42.5°	1155.2	1154.6	1172.1	1205.4	1270.6	1347.1	1455.0	1579.2	1708.4	1808.7	1855.7
45°	1009.7	1008.5	1026.6	1060.5	1106.9	1174.6	1268.1	1392.3	1524.6	1638.7	1712.7
47.5°	886.8	898.1	906.2	932.6	970.8	1028.5	1108.8	1207.9	1335.2	1463.1	1562.9
50°	787.7	792.7	810.3	822.8	865.5	905.6	970.2	1059.3	1168.4	1302.6	1410.5
52.5°	708.7	711.8	722.5	738.8	763.2	798.4	849.8	931.9	1030.4	1147.1	1258.7
55°	642.2	640.3	647.2	657.9	679.2	708.7	746.3	809.0	894.9	1007.2	1110.1
57.5°	577.0	577.0	583.2	590.8	602.7	627.1	664.2	713.7	782.7	882.4	973.3
60°	513.0	517.4	519.9	527.4	537.5	555.7	583.2	622.1	680.5	762.0	852.3
62.5°	456.6	456.6	461.0	463.5	476.6	489.8	509.9	543.1	588.9	661.6	731.9
65°	397.6	401.4	401.4	406.4	417.7	427.7	443.4	468.5	506.1	558.2	624.0
67.5°	347.4	347.4	350.6	353.1	359.4	366.3	380.1	399.5	431.5	472.9	532.4
70°	296.0	297.9	296.6	299.8	303.5	310.4	320.5	336.8	360.0	395.7	439.6
72.5°	249.6	247.1	248.4	251.5	253.4	257.8	264.0	276.6	295.4	324.2	356.2
75°	199.4	198.2	202.6	201.3	204.5	208.2	213.9	223.3	237.7	257.8	282.2
77.5°	155.5	153.7	155.5	156.8	158.0	161.2	165.6	171.2	181.2	194.4	216.4
80°	111.6	111.0	112.3	113.5	114.1	119.2	120.4	126.1	130.4	140.5	151.1
82.5°	74.0	75.3	75.9	77.1	76.5	79.0	80.3	84.0	87.8	92.8	101.0
85°	42.6	40.8	42.6	42.6	42.6	45.8	45.2	47.7	50.2	52.7	58.3
87.5°	15.1	15.1	15.7	16.3	16.3	18.2	17.6	18.8	21.3	21.3	23.2
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: P243522

CATALOG NUMBER: S124DR-H1195D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5
2.5°	1598.0	1591.1	1586.1	1571.6	1562.9	1554.7	1547.2	1539.0	1530.2	1519.0	1512.1
5°	1668.8	1653.8	1631.8	1611.8	1589.2	1569.1	1552.8	1534.6	1514.6	1493.9	1475.7
7.5°	1747.2	1719.0	1685.1	1648.1	1613.0	1583.5	1552.8	1524.0	1495.7	1468.2	1442.4
10°	1825.6	1776.7	1732.2	1681.4	1635.0	1590.4	1550.3	1510.2	1475.1	1438.7	1406.1
12.5°	1898.4	1839.4	1774.2	1710.9	1648.8	1591.1	1541.5	1492.6	1447.5	1404.2	1365.9
15°	1954.2	1880.2	1803.1	1727.8	1656.3	1596.1	1531.5	1468.2	1421.1	1368.4	1326.4
17.5°	2018.2	1930.4	1853.9	1763.5	1674.5	1577.3	1508.9	1439.9	1383.5	1332.7	1290.7
20°	2060.8	1964.2	1853.9	1751.6	1660.1	1572.9	1490.7	1411.7	1352.1	1293.2	1242.4
22.5°	2094.7	1995.0	1873.3	1766.7	1651.9	1546.5	1457.5	1379.7	1309.5	1253.7	1205.4
25°	2112.2	1990.6	1874.5	1745.4	1630.6	1529.6	1429.3	1343.4	1272.5	1210.4	1169.0
27.5°	2112.9	1988.1	1850.7	1722.8	1599.9	1490.7	1391.6	1307.0	1227.3	1167.8	1118.2
30°	2109.7	1971.8	1826.9	1687.0	1564.7	1453.1	1349.6	1261.8	1189.1	1125.7	1078.7
32.5°	2089.7	1949.2	1791.1	1644.4	1511.4	1399.2	1303.8	1216.7	1138.9	1081.2	1031.7
35°	2044.5	1899.6	1741.0	1589.8	1463.8	1347.1	1253.0	1165.2	1095.6	1032.9	982.1
37.5°	1986.8	1851.3	1690.2	1532.1	1396.0	1285.7	1197.2	1114.4	1041.7	984.0	933.2
40°	1914.1	1786.7	1628.1	1463.8	1327.7	1216.0	1132.6	1055.5	993.4	934.5	884.9
42.5°	1814.3	1716.5	1553.4	1393.5	1251.2	1145.8	1064.9	1000.9	937.0	883.7	834.1
45°	1707.7	1618.7	1473.8	1315.1	1178.4	1069.9	994.0	935.1	880.5	826.6	786.4
47.5°	1589.8	1517.1	1382.9	1228.0	1093.1	997.2	922.5	869.9	819.7	778.3	738.2
50°	1449.3	1411.1	1285.7	1145.2	1014.1	915.6	854.2	800.2	763.2	723.1	685.5
52.5°	1318.9	1288.2	1185.9	1048.0	928.8	842.3	776.4	733.8	697.4	667.9	637.8
55°	1177.2	1161.5	1074.9	955.8	847.9	761.4	704.9	666.0	637.2	609.6	587.6
57.5°	1046.7	1045.5	968.9	866.7	761.4	688.0	634.0	602.1	577.0	557.5	538.7
60°	913.1	923.8	861.1	767.6	684.2	615.2	566.3	537.5	520.5	502.3	486.7
62.5°	792.1	808.4	751.3	677.9	595.8	539.3	501.7	479.8	461.0	447.8	435.9
65°	676.1	696.8	650.4	584.5	521.8	468.5	436.5	415.8	401.4	393.8	385.7
67.5°	573.8	585.1	553.8	502.3	450.3	403.9	377.5	359.4	346.8	343.7	334.3
70°	471.6	484.8	462.8	415.8	375.7	341.8	318.0	303.5	296.0	291.6	285.4
72.5°	389.5	395.1	373.2	340.5	308.6	280.3	262.8	252.1	243.3	241.5	238.3
75°	304.8	312.9	295.4	270.3	244.0	223.9	210.7	201.9	197.6	194.4	194.4
77.5°	230.2	237.1	227.0	205.1	189.4	171.8	163.1	154.9	153.0	149.9	151.1
80°	163.7	166.8	161.2	146.1	132.3	122.9	115.4	111.0	110.4	107.9	110.4
82.5°	108.5	109.1	102.9	96.0	85.3	80.3	75.3	73.4	72.7	72.7	71.5
85°	60.2	61.5	57.1	52.7	48.9	44.5	43.3	42.0	40.8	42.6	43.9
87.5°	23.2	23.8	23.2	21.3	20.1	18.8	18.2	19.4	17.6	18.8	19.4
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: P243522

CATALOG NUMBER: S124DR-H1195D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5	1536.5
2.5°	1501.4	1496.4	1488.9	1476.3	1467.5	1458.1	1454.4	1455.6	1451.8	1446.8	1448.1
5°	1461.9	1447.5	1434.9	1417.4	1401.0	1387.3	1382.9	1377.2	1372.2	1369.1	1365.9
7.5°	1419.9	1399.8	1381.0	1363.4	1344.6	1327.0	1320.1	1315.1	1312.6	1303.8	1300.1
10°	1379.7	1356.5	1333.9	1313.2	1293.8	1274.4	1267.5	1261.2	1252.4	1248.7	1244.3
12.5°	1337.1	1313.9	1289.4	1264.3	1244.9	1229.2	1217.3	1212.9	1204.1	1200.4	1197.9
15°	1295.7	1267.5	1248.0	1228.6	1199.1	1181.5	1176.5	1160.9	1155.8	1148.3	1143.3
17.5°	1254.3	1228.0	1199.1	1176.5	1158.3	1136.4	1124.5	1117.6	1108.2	1101.3	1091.9
20°	1213.5	1182.8	1160.2	1132.0	1111.9	1091.9	1076.8	1070.5	1062.4	1053.0	1039.8
22.5°	1174.0	1140.2	1118.2	1091.9	1066.8	1043.6	1031.0	1022.3	1005.9	1004.1	992.1
25°	1127.6	1097.5	1068.7	1041.1	1016.6	993.4	985.3	971.5	965.8	954.5	952.6
27.5°	1083.7	1051.7	1020.4	990.3	968.9	952.6	938.2	929.4	923.8	915.0	915.6
30°	1037.9	1002.8	973.3	945.7	922.5	906.9	897.4	893.1	884.9	883.7	879.3
32.5°	989.0	957.0	926.3	901.8	878.0	864.2	859.8	855.4	850.4	851.0	849.8
35°	940.1	911.9	879.3	856.7	837.2	829.1	822.2	820.9	819.1	820.3	820.3
37.5°	892.4	861.7	834.7	814.0	802.8	791.5	788.3	787.7	788.3	789.6	792.7
40°	846.0	817.8	791.5	774.5	762.0	757.0	752.6	754.5	757.0	761.4	765.1
42.5°	799.6	772.6	750.7	733.8	721.8	719.3	720.0	723.7	724.4	730.6	737.5
45°	750.7	727.5	706.8	693.6	686.1	683.0	684.2	688.0	692.4	701.2	709.9
47.5°	705.5	684.8	666.7	653.5	647.8	646.6	649.1	654.1	664.2	672.9	683.0
50°	659.8	640.9	624.0	612.1	611.5	607.1	612.7	619.0	630.9	642.8	657.9
52.5°	614.6	596.4	582.0	572.6	570.1	570.1	577.0	588.3	598.9	614.6	628.4
55°	567.6	551.3	537.5	534.3	530.6	532.4	540.0	551.3	566.3	583.9	598.9
57.5°	519.3	505.5	495.4	491.1	489.2	495.4	504.2	516.1	535.6	553.1	569.5
60°	473.5	461.6	450.9	449.7	448.4	456.6	467.2	479.8	499.2	516.8	536.8
62.5°	424.6	415.2	408.3	406.4	406.4	414.5	426.5	442.8	461.0	479.8	501.1
65°	375.0	366.9	365.0	362.5	368.1	373.2	385.1	400.7	420.2	440.9	463.5
67.5°	329.3	324.2	320.5	320.5	324.9	334.3	344.9	360.6	380.7	402.6	422.7
70°	283.5	278.5	275.3	278.5	281.0	292.3	303.5	318.6	337.4	358.7	380.1
72.5°	235.8	236.4	237.1	236.4	238.9	249.6	260.9	275.3	293.5	314.2	333.6
75°	193.8	190.7	191.3	192.5	200.7	206.3	217.6	231.4	250.9	269.7	286.0
77.5°	150.5	149.3	152.4	152.4	159.9	166.8	176.2	190.0	207.0	223.9	237.1
80°	110.4	111.0	113.5	114.1	120.4	127.9	138.0	147.4	162.4	174.3	186.9
82.5°	74.6	75.9	79.0	83.4	85.9	90.3	99.1	109.1	119.8	132.3	139.9
85°	43.3	45.2	47.7	50.8	53.3	57.7	64.0	72.1	79.6	86.5	92.8
87.5°	21.3	21.3	23.2	24.5	26.3	28.8	33.2	36.4	41.4	46.4	48.9
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: P243522

CATALOG NUMBER: S124DR-H1195D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1536.5	1536.5	1536.5	1536.5
2.5°	1445.6	1445.0	1442.4	1443.7
5°	1364.0	1357.8	1357.1	1354.6
7.5°	1293.8	1291.9	1291.9	1286.9
10°	1239.9	1234.2	1235.5	1233.0
12.5°	1188.4	1185.3	1181.5	1177.8
15°	1130.7	1130.7	1130.7	1120.1
17.5°	1085.6	1085.0	1081.8	1081.2
20°	1038.6	1036.0	1027.9	1033.5
22.5°	990.9	989.0	982.1	983.4
25°	946.4	944.5	943.2	938.2
27.5°	908.1	908.7	910.0	906.9
30°	879.3	877.4	879.9	876.8
32.5°	852.3	852.3	849.8	850.4
35°	821.6	824.1	824.7	824.1
37.5°	794.6	797.7	800.2	797.7
40°	769.5	772.0	774.5	773.9
42.5°	743.2	747.6	749.4	751.3
45°	718.1	723.7	726.9	727.5
47.5°	692.4	699.3	705.5	704.9
50°	667.3	676.1	681.7	681.1
52.5°	642.2	651.0	657.9	661.0
55°	614.0	625.3	631.5	637.2
57.5°	585.8	598.3	604.6	607.1
60°	554.4	565.7	573.8	575.7
62.5°	519.3	531.2	541.9	544.4
65°	482.9	496.1	504.2	505.5
67.5°	440.9	453.4	461.6	465.3
70°	397.6	407.0	415.8	421.4
72.5°	349.3	360.6	368.8	372.5
75°	299.1	311.7	316.1	318.6
77.5°	247.1	254.6	261.5	262.1
80°	195.0	204.5	207.0	213.2
82.5°	143.6	152.4	150.5	153.0
85°	94.7	97.8	99.7	100.3
87.5°	50.2	52.1	53.3	53.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)