

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: P242657

Luminaire Tested: **S124DR-S1195D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242657
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-21)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DR-S1195D935-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4250.1 lumens
Efficiency: N/A
Efficacy: 103.4 lumens/watt
Spacing Criteria (0/90/45): 1.3 / 1.22 / 1.41
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

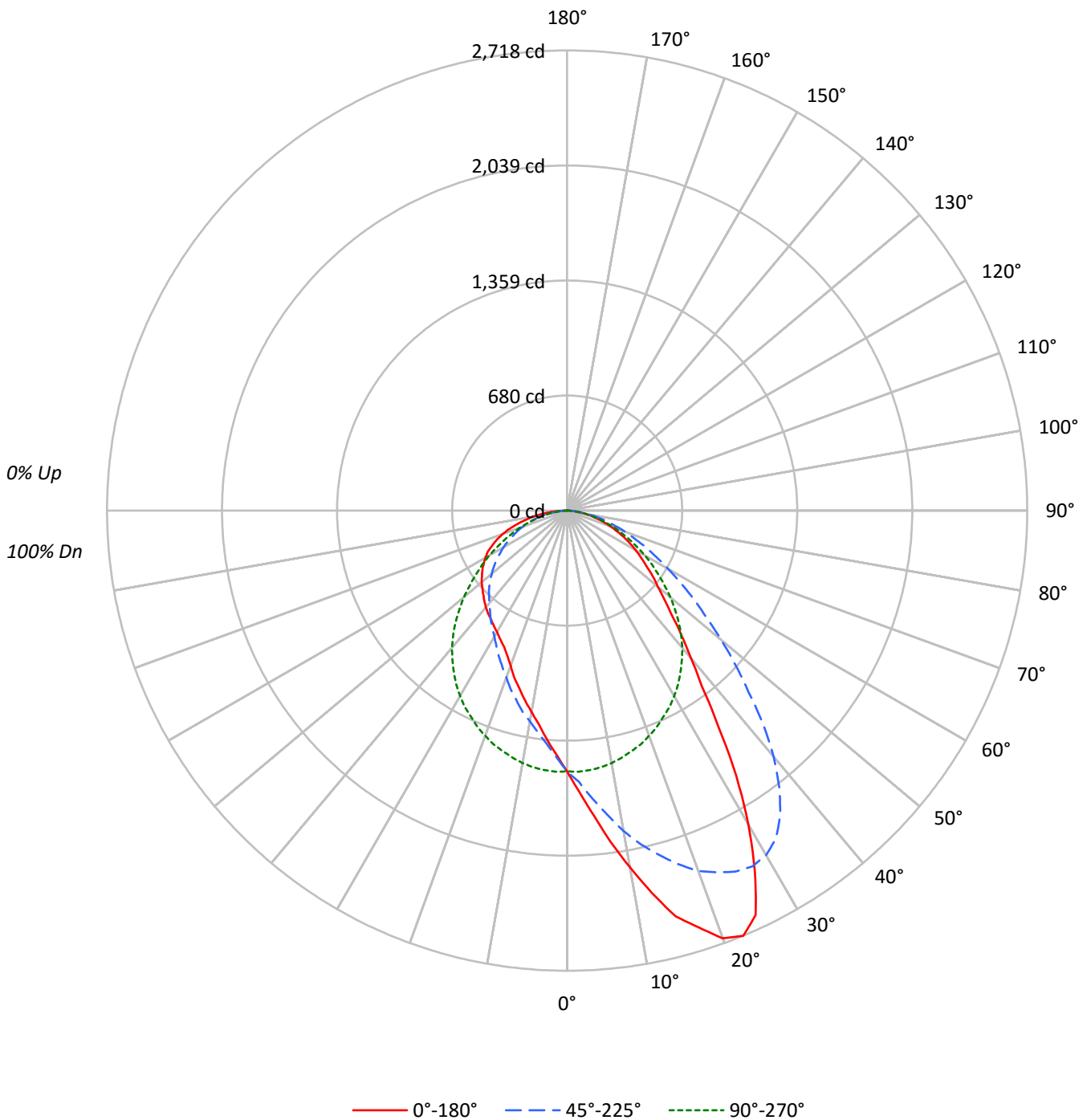
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	95	92	90	91	89	87	85
2	100	92	86	80	98	90	84	79	87	82	78	84	79	76	81	77	74	72
3	92	82	74	68	89	80	73	67	77	71	66	74	69	65	72	67	64	62
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36
8	62	49	41	35	61	49	41	35	47	40	35	46	40	35	45	39	35	33
9	58	45	37	32	57	45	37	32	44	37	32	43	36	32	42	36	31	30
10	55	42	34	29	54	41	34	29	40	34	29	39	33	29	39	33	29	27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	13691	13691	13691
5°	16123	13726	12115
10°	19304	13666	10907
15°	22841	13528	10017
20°	25433	13387	9222
25°	25845	13179	8673
30°	21991	12980	8501
35°	16907	12656	8502
40°	13178	12275	8662
45°	10988	11702	8807
50°	9670	11002	9106
55°	8860	10165	9472
60°	8302	9415	9913
65°	7730	8575	10279
70°	7064	7745	10513
75°	6312	6814	10386
80°	5293	5585	10059
85°	3906	4039	9628



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	149.9	3.5
10°-20°	462.7	10.9
20°-30°	735.0	17.3
30°-40°	816.7	19.2
40°-50°	742.8	17.5
50°-60°	606.9	14.3
60°-70°	433.3	10.2
70°-80°	238.4	5.6
80°-90°	64.4	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°	1347.6	31.7
0°-40°	2164.3	50.9
0°-60°	3514.0	82.7
0°-90°	4250.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4250.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1540	1540	1540	1540	1540	
5°	1807	1707	1538	1383	1358	183
15°	2482	2106	1470	1159	1088	702
25°	2635	2352	1344	953	884	1169
35°	1558	2194	1166	787	784	986
45°	874	1515	931	652	701	687
55°	572	912	656	510	611	516
65°	368	508	408	354	489	364
75°	184	237	198	197	302	195
85°	38	49	40	56	94	47
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°	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2
2.5°	1664.0	1663.4	1657.0	1655.7	1651.2	1645.5	1644.2	1634.0	1613.6	1604.0	1601.5
5°	1806.9	1819.7	1803.1	1799.9	1798.0	1776.9	1766.1	1753.3	1724.0	1706.8	1693.4
7.5°	1974.1	1974.7	1967.7	1960.7	1948.6	1930.7	1906.5	1878.4	1844.6	1810.1	1785.9
10°	2138.7	2143.8	2135.5	2134.2	2101.7	2081.3	2040.4	2006.0	1966.4	1922.4	1882.2
12.5°	2312.3	2302.0	2298.9	2265.0	2265.7	2224.2	2175.1	2139.3	2073.0	2020.7	1963.9
15°	2482.0	2467.9	2459.0	2421.4	2402.9	2351.2	2300.8	2261.8	2182.1	2106.2	2048.7
17.5°	2580.2	2597.5	2574.5	2559.2	2508.8	2475.0	2424.5	2344.8	2285.5	2191.0	2125.3
20°	2688.7	2690.0	2678.5	2662.5	2624.9	2579.0	2522.8	2433.5	2358.8	2265.0	2165.5
22.5°	2718.0	2718.0	2714.9	2700.2	2674.0	2638.9	2582.1	2511.3	2416.9	2312.9	2213.4
25°	2635.1	2632.5	2638.3	2654.9	2644.0	2632.5	2600.0	2544.5	2460.3	2352.4	2245.3
27.5°	2400.3	2416.9	2451.3	2492.2	2521.5	2547.7	2545.8	2522.2	2462.2	2369.0	2254.8
30°	2142.5	2164.2	2188.5	2229.3	2308.4	2353.7	2403.5	2441.1	2420.1	2349.3	2244.6
32.5°	1859.2	1860.5	1899.4	1947.3	2018.1	2115.7	2201.9	2288.0	2325.0	2296.3	2213.4
35°	1558.1	1567.0	1605.9	1651.9	1740.6	1847.1	1965.8	2071.7	2159.1	2194.2	2149.6
37.5°	1305.4	1333.5	1362.8	1415.2	1496.2	1592.5	1720.2	1852.2	1980.5	2058.3	2066.6
40°	1135.7	1151.7	1171.4	1209.1	1275.4	1369.9	1475.8	1632.7	1771.2	1896.2	1937.1
42.5°	1001.7	1009.4	1019.6	1052.8	1099.3	1193.1	1287.6	1420.9	1560.0	1715.7	1791.0
45°	874.1	883.7	904.1	923.9	962.2	1027.2	1117.2	1230.8	1370.5	1514.7	1641.0
47.5°	778.4	784.8	797.5	819.2	853.7	897.7	974.3	1070.6	1207.2	1346.9	1482.2
50°	699.3	704.4	714.0	733.1	758.0	796.3	856.2	944.9	1046.4	1187.4	1319.5
52.5°	636.8	638.0	644.4	655.9	674.4	705.0	751.6	821.2	913.7	1035.5	1167.0
55°	571.7	574.2	580.6	590.2	607.4	627.8	665.5	720.3	802.7	911.8	1026.0
57.5°	518.1	520.6	525.7	529.6	544.9	562.1	592.7	632.3	696.7	793.7	897.7
60°	467.0	465.8	472.1	475.3	484.9	498.9	521.3	558.9	613.2	687.8	781.6
62.5°	417.3	415.4	420.5	424.9	429.4	440.9	458.1	485.5	527.0	592.7	670.6
65°	367.5	365.0	368.1	373.3	378.4	384.7	398.1	424.3	459.4	507.9	569.8
67.5°	316.5	319.7	319.7	322.8	326.0	335.0	344.5	365.0	389.8	429.4	484.3
70°	271.8	272.4	275.0	275.0	276.9	284.6	292.2	303.1	327.3	363.0	405.8
72.5°	227.1	230.3	228.4	231.0	232.2	236.7	241.8	252.0	271.8	296.0	330.5
75°	183.8	185.7	185.7	186.3	188.2	190.1	194.6	202.3	216.9	236.7	261.6
77.5°	141.6	141.6	142.9	145.5	145.5	148.7	152.5	158.2	166.5	181.2	197.2
80°	103.4	104.6	104.0	105.3	105.3	107.8	109.1	116.8	120.0	128.9	141.0
82.5°	68.9	70.2	70.2	72.1	73.4	73.4	75.3	77.2	80.4	88.0	91.2
85°	38.3	39.6	38.3	39.6	41.5	42.1	44.0	44.7	47.2	49.1	53.6
87.5°	14.0	16.0	16.0	16.6	17.9	18.5	19.1	18.5	21.1	21.7	24.2
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°	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2
2.5°	1602.1	1593.2	1586.8	1581.7	1567.7	1559.4	1553.0	1544.1	1533.8	1523.0	1509.6
5°	1680.0	1658.3	1642.3	1618.1	1595.1	1576.0	1556.2	1538.3	1516.6	1493.0	1475.8
7.5°	1759.7	1729.7	1689.5	1658.3	1620.6	1588.1	1559.4	1529.4	1497.5	1466.8	1438.1
10°	1835.0	1793.5	1747.6	1693.4	1642.3	1597.0	1554.9	1514.1	1474.5	1434.9	1401.1
12.5°	1916.0	1861.8	1788.4	1722.7	1664.0	1599.6	1546.6	1494.3	1444.5	1402.4	1361.6
15°	1986.9	1912.2	1833.7	1748.9	1673.6	1602.8	1533.2	1470.0	1416.4	1361.6	1323.3
17.5°	2031.5	1939.0	1854.8	1766.1	1679.3	1590.6	1518.5	1447.7	1381.4	1327.8	1279.9
20°	2075.5	1983.7	1872.0	1783.3	1674.9	1583.0	1496.2	1415.2	1345.0	1286.9	1237.2
22.5°	2113.8	2004.1	1892.4	1768.6	1660.8	1561.9	1464.9	1383.3	1311.2	1249.3	1202.1
25°	2122.8	2000.9	1879.7	1763.5	1641.0	1525.5	1439.4	1343.7	1267.1	1202.7	1151.7
27.5°	2125.9	1997.1	1862.4	1736.1	1609.8	1504.5	1392.2	1308.6	1229.5	1161.2	1112.7
30°	2118.9	1983.0	1835.6	1695.9	1568.9	1452.2	1357.7	1264.6	1183.6	1115.9	1064.9
32.5°	2096.6	1953.7	1801.2	1651.2	1518.5	1405.0	1306.7	1219.3	1140.8	1074.5	1020.2
35°	2049.4	1909.6	1748.2	1594.5	1459.8	1344.3	1256.3	1166.3	1087.2	1024.1	972.4
37.5°	1986.2	1856.1	1692.1	1531.9	1402.4	1285.0	1196.3	1113.4	1041.9	976.8	923.2
40°	1898.2	1787.1	1622.5	1467.5	1324.6	1214.2	1132.5	1057.9	987.0	926.4	876.0
42.5°	1796.7	1703.6	1554.9	1388.4	1251.8	1140.8	1061.7	996.6	930.9	876.0	825.6
45°	1672.3	1608.5	1465.6	1313.7	1170.2	1065.5	989.6	930.9	874.8	819.9	777.8
47.5°	1533.8	1498.1	1373.7	1228.2	1090.4	985.8	920.1	863.9	812.9	765.0	727.4
50°	1394.1	1378.8	1274.8	1135.7	1005.5	908.6	842.2	795.6	753.5	712.7	677.6
52.5°	1256.3	1259.5	1168.2	1043.8	925.8	833.3	767.6	724.8	689.7	658.5	627.8
55°	1115.3	1133.2	1059.8	946.2	838.4	754.2	694.8	655.9	630.4	602.9	579.3
57.5°	985.8	1015.8	952.0	848.0	756.7	676.3	624.0	594.0	565.9	548.1	529.6
60°	859.4	887.5	840.3	756.1	671.2	604.9	555.7	529.6	506.0	494.5	482.4
62.5°	747.1	771.4	739.5	662.9	592.1	528.9	489.4	464.5	450.5	437.7	430.7
65°	641.2	662.3	632.3	575.5	512.3	461.3	427.5	407.7	392.4	387.3	378.4
67.5°	536.6	555.7	539.8	490.0	436.4	396.2	369.4	348.4	339.4	334.3	328.6
70°	445.4	464.5	447.3	405.2	366.2	333.7	308.8	298.0	288.4	286.5	277.5
72.5°	368.1	379.6	362.4	331.8	299.9	273.7	255.9	244.4	240.5	236.7	232.9
75°	287.8	299.2	287.8	262.2	238.6	219.5	202.9	198.4	192.7	190.8	187.6
77.5°	215.7	226.5	217.6	200.3	181.8	165.9	156.3	149.9	149.3	145.5	146.7
80°	155.7	162.1	153.8	142.9	128.9	118.7	112.3	109.1	105.3	104.0	106.6
82.5°	100.8	102.7	99.5	93.2	83.6	77.8	74.0	70.2	70.2	70.8	70.2
85°	58.1	57.4	56.8	50.4	47.2	42.7	40.2	39.6	38.9	40.2	41.5
87.5°	24.2	24.9	24.2	21.7	19.8	17.9	17.2	16.6	17.2	17.9	18.5
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2
2.5°	1503.2	1497.5	1489.2	1477.7	1468.1	1457.9	1455.4	1451.5	1459.2	1452.8	1450.9
5°	1461.1	1447.7	1430.5	1410.7	1399.2	1382.6	1379.4	1373.1	1366.7	1366.0	1359.7
7.5°	1417.1	1398.6	1376.9	1356.5	1338.6	1320.7	1309.3	1308.0	1297.8	1292.7	1286.3
10°	1375.0	1350.7	1324.6	1305.4	1283.7	1264.6	1251.2	1243.5	1237.2	1230.1	1223.8
12.5°	1325.2	1299.0	1278.6	1257.6	1230.8	1217.4	1193.1	1178.5	1178.5	1180.4	1161.2
15°	1288.8	1263.3	1230.1	1200.8	1186.8	1158.7	1146.6	1131.2	1121.7	1112.1	1104.4
17.5°	1244.2	1212.9	1187.4	1154.2	1128.1	1107.0	1090.4	1082.1	1066.8	1052.8	1043.2
20°	1202.7	1168.9	1141.5	1105.7	1076.4	1048.9	1035.5	1022.8	1011.9	1000.4	989.6
22.5°	1160.6	1124.9	1089.8	1055.3	1028.5	999.2	986.4	967.9	957.7	952.6	941.7
25°	1115.9	1077.6	1039.4	1006.2	978.1	952.6	935.4	922.0	910.5	905.4	898.4
27.5°	1067.4	1029.8	993.4	955.1	922.6	904.1	890.1	879.2	872.2	864.5	861.4
30°	1021.5	981.9	942.4	907.3	877.9	859.4	846.7	839.7	834.6	831.4	828.2
32.5°	974.9	936.0	893.9	862.6	837.1	821.2	812.2	805.2	803.3	802.7	802.0
35°	924.5	885.0	846.7	818.0	793.1	786.7	778.4	774.6	773.3	777.8	779.7
37.5°	876.0	839.0	803.3	774.6	758.0	747.8	744.6	744.0	748.4	752.2	756.7
40°	829.4	793.7	760.5	736.3	721.0	715.2	714.0	717.2	722.3	726.7	731.8
42.5°	784.1	749.1	719.7	697.4	687.8	682.7	684.0	687.2	694.8	700.6	708.9
45°	736.9	707.6	678.2	659.7	650.8	652.1	652.1	657.8	664.8	673.1	681.4
47.5°	692.9	662.9	638.0	622.1	617.6	615.7	618.9	626.6	636.1	645.7	657.2
50°	648.2	620.2	599.1	585.1	580.0	581.9	587.0	594.0	606.1	618.9	631.0
52.5°	602.9	578.1	558.9	546.2	543.0	546.8	551.9	564.0	574.2	588.3	603.6
55°	555.7	534.0	518.7	509.2	507.9	509.8	515.5	527.7	543.0	560.2	574.2
57.5°	509.2	490.7	476.0	469.0	469.6	470.9	479.8	494.5	509.8	528.3	546.2
60°	461.9	445.4	433.9	428.8	429.4	433.2	444.7	458.1	478.5	496.4	515.5
62.5°	417.3	403.2	392.4	387.9	386.7	396.2	407.1	421.1	441.5	461.9	483.0
65°	368.8	357.3	348.4	345.8	347.7	354.1	368.1	386.7	403.9	424.9	446.6
67.5°	321.6	312.0	305.6	306.9	308.8	317.7	329.9	345.8	365.0	386.7	409.0
70°	276.9	268.0	262.9	263.5	267.3	278.8	289.0	305.0	326.0	348.4	366.2
72.5°	231.0	225.9	221.4	224.6	228.4	235.4	248.8	264.8	282.7	303.1	322.2
75°	184.4	184.4	181.8	183.8	189.5	197.2	206.7	223.3	241.8	258.4	273.7
77.5°	144.8	142.9	144.2	146.1	149.9	159.5	170.4	182.5	197.2	214.4	227.1
80°	104.6	105.3	108.5	112.3	113.6	120.6	132.1	142.9	153.8	167.8	179.9
82.5°	72.1	72.7	74.0	79.1	80.4	88.0	94.4	105.3	114.8	123.1	132.7
85°	42.7	42.7	45.9	47.9	51.0	56.1	60.6	67.0	75.9	82.3	91.9
87.5°	20.4	20.4	23.0	24.2	26.2	29.3	30.6	37.6	40.2	43.4	49.1
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: P242657

CATALOG NUMBER: S124DR-S1195D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1540.2	1540.2	1540.2	1540.2
2.5°	1449.6	1448.3	1443.9	1443.2
5°	1355.8	1352.6	1350.7	1357.7
7.5°	1285.0	1282.5	1276.7	1274.8
10°	1217.4	1214.8	1209.7	1208.4
12.5°	1152.3	1146.6	1146.6	1148.5
15°	1096.1	1093.6	1086.6	1088.5
17.5°	1038.7	1036.2	1026.6	1036.2
20°	985.1	980.0	975.6	974.9
22.5°	934.1	929.6	930.3	925.2
25°	893.3	888.8	887.5	884.3
27.5°	860.1	857.5	855.0	856.2
30°	830.1	829.4	828.2	828.2
32.5°	805.2	805.2	806.5	806.5
35°	782.2	784.1	785.4	783.5
37.5°	761.8	763.1	765.0	766.9
40°	737.6	742.0	743.3	746.5
42.5°	714.6	719.7	723.5	723.5
45°	691.0	696.1	700.6	700.6
47.5°	666.7	673.8	678.2	678.9
50°	641.9	650.8	655.3	658.5
52.5°	617.6	626.6	632.9	634.2
55°	588.9	601.7	608.7	611.2
57.5°	563.4	574.9	582.5	584.4
60°	532.8	545.5	555.7	557.6
62.5°	501.5	514.9	523.8	529.6
65°	464.5	477.9	486.8	488.7
67.5°	425.6	439.6	445.4	449.2
70°	384.1	394.9	401.3	404.5
72.5°	336.9	348.4	356.0	356.0
75°	288.4	298.6	302.4	302.4
77.5°	238.0	243.7	248.8	250.1
80°	189.5	192.7	196.5	196.5
82.5°	139.7	142.3	146.1	145.5
85°	90.6	96.3	95.7	94.4
87.5°	51.0	51.7	53.6	54.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)