

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: P242662

Luminaire Tested: **S124DR-S1195D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242662
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-S1195D940-X4F0-XX-UDD-A-W
Description: DEFINE 4 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: 4401.7 lumens
Efficiency: N/A
Efficacy: 107.1 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

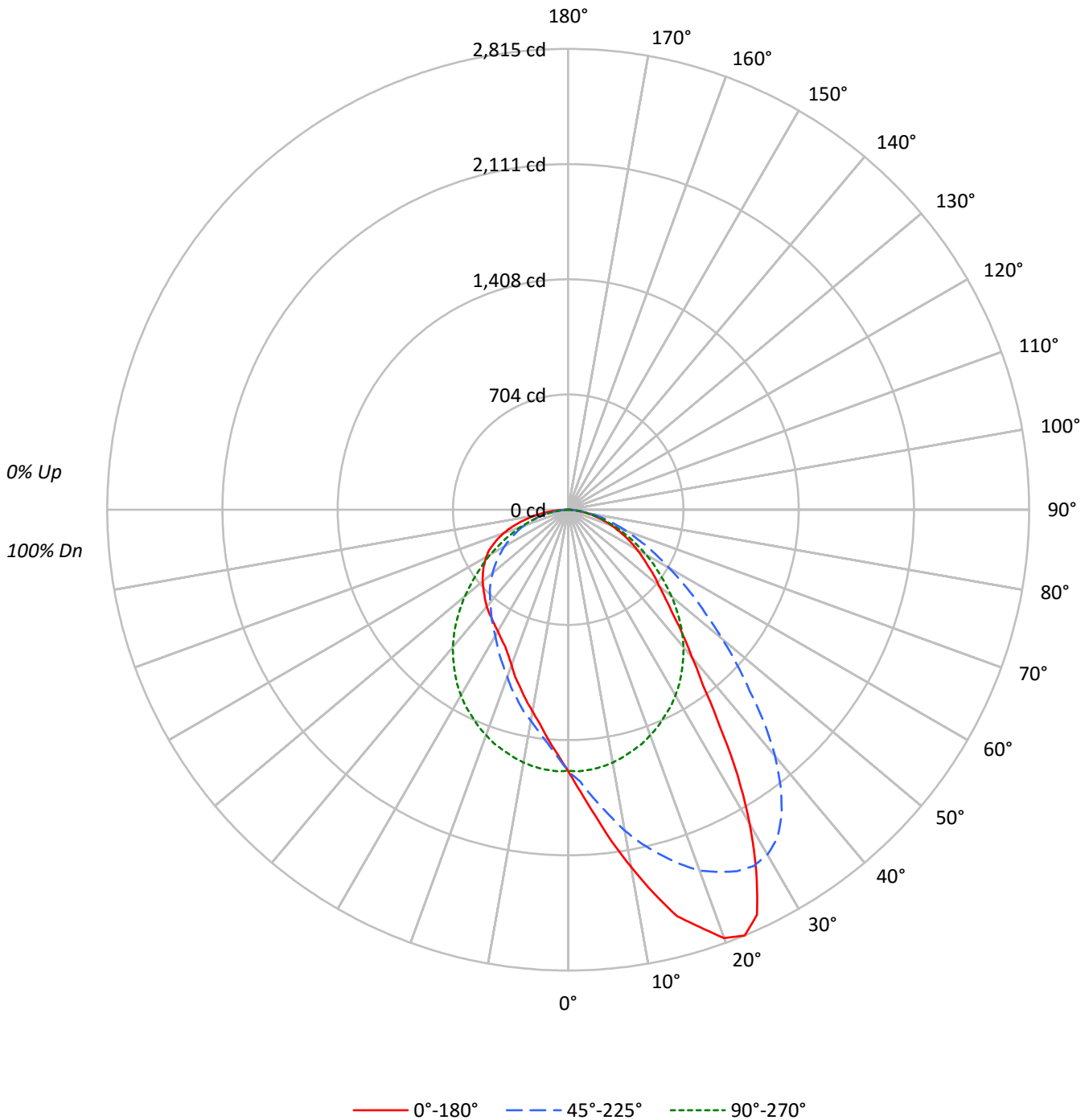
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	109	105	101	97	107	103	99	96	98	95	93	95	92	90	91	89	87	85					85			
2	100	92	86	80	98	90	84	79	87	82	78	84	79	76	81	77	74	72					72			
3	92	82	74	68	89	80	73	67	77	71	66	74	69	65	72	67	64	62					62			
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53					53			
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46					46			
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41					41			
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36					36			
8	62	49	41	35	61	49	41	35	47	40	35	46	40	35	45	39	35	33					33			
9	58	45	37	32	57	45	37	32	44	37	32	43	36	32	42	36	31	30					30			
10	55	42	34	29	54	41	34	29	40	34	29	39	33	29	39	33	29	27					27			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	14180	14180	14180
5°	16698	14216	12547
10°	19993	14154	11296
15°	23655	14011	10374
20°	26341	13864	9551
25°	26767	13649	8983
30°	22776	13443	8803
35°	17511	13107	8806
40°	13648	12713	8971
45°	11380	12120	9121
50°	10015	11395	9430
55°	9176	10527	9810
60°	8599	9751	10267
65°	8005	8880	10647
70°	7316	8020	10887
75°	6536	7058	10757
80°	5477	5784	10417
85°	4039	4182	9975



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	155.2	3.5
10°-20°	479.2	10.9
20°-30°	761.2	17.3
30°-40°	845.8	19.2
40°-50°	769.3	17.5
50°-60°	628.6	14.3
60°-70°	448.7	10.2
70°-80°	246.9	5.6
80°-90°	66.7	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°	1395.7	31.7
0°-40°	2241.5	50.9
0°-60°	3639.4	82.7
0°-90°	4401.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4401.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1595	1595	1595	1595	1595	
5°	1871	1768	1593	1432	1406	189
15°	2570	2181	1522	1200	1127	727
25°	2729	2436	1392	987	916	1211
35°	1614	2272	1208	815	812	1021
45°	905	1569	964	675	726	711
55°	592	944	679	528	633	534
65°	381	526	422	367	506	377
75°	190	245	206	204	313	202
85°	40	51	41	58	98	49
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°	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2
2.5°	1723.4	1722.7	1716.1	1714.8	1710.1	1704.2	1702.9	1692.3	1671.2	1661.2	1658.6
5°	1871.4	1884.6	1867.4	1864.1	1862.1	1840.3	1829.1	1815.9	1785.5	1767.6	1753.8
7.5°	2044.5	2045.2	2037.9	2030.6	2018.1	1999.6	1974.5	1945.4	1910.4	1874.7	1849.6
10°	2215.0	2220.3	2211.7	2210.4	2176.7	2155.5	2113.2	2077.5	2036.6	1991.0	1949.3
12.5°	2394.7	2384.2	2380.8	2345.8	2346.5	2303.5	2252.7	2215.6	2146.9	2092.7	2033.9
15°	2570.5	2556.0	2546.7	2507.7	2488.6	2435.0	2382.8	2342.5	2259.9	2181.3	2121.8
17.5°	2672.3	2690.1	2666.3	2650.5	2598.3	2563.2	2511.0	2428.4	2367.0	2269.2	2201.1
20°	2784.6	2785.9	2774.0	2757.5	2718.5	2670.9	2612.8	2520.3	2443.0	2345.8	2242.7
22.5°	2815.0	2815.0	2811.7	2796.5	2769.4	2733.1	2674.2	2600.9	2503.1	2395.4	2292.3
25°	2729.1	2726.4	2732.4	2749.6	2738.3	2726.4	2692.7	2635.3	2548.0	2436.4	2325.3
27.5°	2485.9	2503.1	2538.8	2581.1	2611.5	2638.6	2636.6	2612.1	2550.0	2453.5	2335.3
30°	2219.0	2241.4	2266.5	2308.8	2390.8	2437.7	2489.2	2528.2	2506.4	2433.1	2324.7
32.5°	1925.6	1926.9	1967.2	2016.8	2090.1	2191.2	2280.4	2369.6	2407.9	2378.2	2292.3
35°	1613.7	1622.9	1663.2	1710.8	1802.7	1913.0	2035.9	2145.6	2236.1	2272.5	2226.2
37.5°	1352.0	1381.1	1411.5	1465.6	1549.6	1649.3	1781.5	1918.3	2051.1	2131.7	2140.3
40°	1176.2	1192.7	1213.2	1252.2	1320.9	1418.7	1528.4	1691.0	1834.4	1963.9	2006.2
42.5°	1037.5	1045.4	1056.0	1090.3	1138.6	1235.7	1333.5	1471.6	1615.6	1776.9	1854.9
45°	905.3	915.2	936.3	956.8	996.5	1063.9	1157.1	1274.7	1419.4	1568.7	1699.6
47.5°	806.2	812.8	826.0	848.5	884.1	929.7	1009.0	1108.8	1250.2	1394.9	1535.0
50°	724.2	729.5	739.4	759.3	785.0	824.7	886.8	978.6	1083.7	1229.7	1366.5
52.5°	659.5	660.8	667.4	679.3	698.5	730.2	778.4	850.4	946.3	1072.5	1208.6
55°	592.1	594.7	601.3	611.2	629.1	650.2	689.2	746.0	831.3	944.3	1062.6
57.5°	536.6	539.2	544.5	548.5	564.3	582.2	613.9	654.8	721.6	822.0	929.7
60°	483.7	482.4	489.0	492.3	502.2	516.7	539.9	578.9	635.0	712.3	809.5
62.5°	432.2	430.2	435.5	440.1	444.7	456.6	474.5	502.9	545.8	613.9	694.5
65°	380.6	378.0	381.3	386.6	391.9	398.5	412.3	439.4	475.8	526.0	590.1
67.5°	327.8	331.1	331.1	334.4	337.7	346.9	356.8	378.0	403.7	444.7	501.5
70°	281.5	282.2	284.8	284.8	286.8	294.7	302.6	313.9	339.0	376.0	420.3
72.5°	235.2	238.5	236.6	239.2	240.5	245.2	250.4	261.0	281.5	306.6	342.3
75°	190.3	192.3	192.3	193.0	194.9	196.9	201.5	209.5	224.7	245.2	270.9
77.5°	146.7	146.7	148.0	150.7	150.7	154.0	157.9	163.9	172.5	187.7	204.2
80°	107.0	108.4	107.7	109.0	109.0	111.7	113.0	120.9	124.2	133.5	146.0
82.5°	71.4	72.7	72.7	74.7	76.0	76.0	78.0	80.0	83.3	91.2	94.5
85°	39.6	41.0	39.6	41.0	43.0	43.6	45.6	46.3	48.9	50.9	55.5
87.5°	14.5	16.5	16.5	17.2	18.5	19.2	19.8	19.2	21.8	22.5	25.1
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°	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2
2.5°	1659.3	1650.0	1643.4	1638.1	1623.6	1615.0	1608.4	1599.1	1588.6	1577.3	1563.4
5°	1739.9	1717.4	1700.9	1675.8	1652.0	1632.2	1611.7	1593.2	1570.7	1546.3	1528.4
7.5°	1822.5	1791.4	1749.8	1717.4	1678.4	1644.7	1615.0	1583.9	1550.9	1519.2	1489.4
10°	1900.5	1857.5	1809.9	1753.8	1700.9	1654.0	1610.4	1568.1	1527.1	1486.1	1451.1
12.5°	1984.4	1928.2	1852.2	1784.1	1723.4	1656.6	1601.8	1547.6	1496.0	1452.4	1410.1
15°	2057.7	1980.4	1899.1	1811.2	1733.3	1659.9	1587.9	1522.5	1467.0	1410.1	1370.5
17.5°	2104.0	2008.2	1920.9	1829.1	1739.2	1647.4	1572.7	1499.3	1430.6	1375.1	1325.6
20°	2149.6	2054.4	1938.8	1846.9	1734.6	1639.4	1549.6	1465.6	1393.0	1332.8	1281.3
22.5°	2189.2	2075.6	1959.9	1831.7	1720.1	1617.6	1517.2	1432.6	1357.9	1293.8	1244.9
25°	2198.5	2072.3	1946.7	1826.4	1699.6	1580.0	1490.8	1391.6	1312.3	1245.6	1192.7
27.5°	2201.8	2068.3	1928.9	1798.0	1667.2	1558.2	1441.9	1355.3	1273.4	1202.6	1152.4
30°	2194.5	2053.8	1901.1	1756.4	1624.9	1504.0	1406.2	1309.7	1225.8	1155.7	1102.9
32.5°	2171.4	2023.4	1865.4	1710.1	1572.7	1455.1	1353.3	1262.8	1181.5	1112.8	1056.6
35°	2122.5	1977.8	1810.6	1651.3	1511.9	1392.3	1301.1	1207.9	1126.0	1060.6	1007.1
37.5°	2057.1	1922.3	1752.4	1586.6	1452.4	1330.8	1239.0	1153.1	1079.1	1011.7	956.2
40°	1965.9	1850.9	1680.4	1519.8	1371.8	1257.5	1172.9	1095.6	1022.3	959.5	907.3
42.5°	1860.8	1764.3	1610.4	1437.9	1296.5	1181.5	1099.6	1032.2	964.1	907.3	855.1
45°	1731.9	1665.9	1517.8	1360.6	1211.9	1103.5	1024.9	964.1	906.0	849.1	805.5
47.5°	1588.6	1551.5	1422.7	1272.0	1129.3	1020.9	952.9	894.7	841.9	792.3	753.3
50°	1443.8	1428.0	1320.3	1176.2	1041.4	941.0	872.3	824.0	780.4	738.1	701.8
52.5°	1301.1	1304.4	1209.9	1081.1	958.8	863.0	794.9	750.7	714.3	681.9	650.2
55°	1155.1	1173.6	1097.6	980.0	868.3	781.1	719.6	679.3	652.9	624.5	600.0
57.5°	1020.9	1052.0	985.9	878.2	783.7	700.4	646.3	615.2	586.1	567.6	548.5
60°	890.1	919.2	870.3	783.0	695.2	626.4	575.6	548.5	524.0	512.1	499.6
62.5°	773.8	798.9	765.9	686.6	613.2	547.8	506.8	481.1	466.5	453.3	446.0
65°	664.1	685.9	654.8	596.0	530.6	477.8	442.7	422.2	406.4	401.1	391.9
67.5°	555.7	575.6	559.0	507.5	452.0	410.4	382.6	360.8	351.5	346.3	340.3
70°	461.2	481.1	463.2	419.6	379.3	345.6	319.8	308.6	298.7	296.7	287.4
72.5°	381.3	393.2	375.3	343.6	310.6	283.5	265.0	253.1	249.1	245.2	241.2
75°	298.0	309.9	298.0	271.6	247.1	227.3	210.1	205.5	199.6	197.6	194.3
77.5°	223.3	234.6	225.3	207.5	188.3	171.8	161.9	155.3	154.6	150.7	152.0
80°	161.2	167.8	159.3	148.0	133.5	122.9	116.3	113.0	109.0	107.7	110.4
82.5°	104.4	106.4	103.1	96.5	86.6	80.6	76.7	72.7	72.7	73.3	72.7
85°	60.1	59.5	58.8	52.2	48.9	44.3	41.6	41.0	40.3	41.6	43.0
87.5°	25.1	25.8	25.1	22.5	20.5	18.5	17.8	17.2	17.8	18.5	19.2
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2	1595.2
2.5°	1556.8	1550.9	1542.3	1530.4	1520.5	1509.9	1507.3	1503.3	1511.2	1504.6	1502.7
5°	1513.2	1499.3	1481.5	1461.0	1449.1	1431.9	1428.6	1422.0	1415.4	1414.8	1408.2
7.5°	1467.6	1448.5	1426.0	1404.9	1386.4	1367.8	1356.0	1354.6	1344.1	1338.8	1332.2
10°	1424.0	1398.9	1371.8	1352.0	1329.5	1309.7	1295.8	1287.9	1281.3	1274.0	1267.4
12.5°	1372.5	1345.4	1324.2	1302.4	1274.7	1260.8	1235.7	1220.5	1220.5	1222.5	1202.6
15°	1334.8	1308.4	1274.0	1243.6	1229.1	1200.0	1187.5	1171.6	1161.7	1151.8	1143.8
17.5°	1288.6	1256.2	1229.7	1195.4	1168.3	1146.5	1129.3	1120.7	1104.9	1090.3	1080.4
20°	1245.6	1210.6	1182.2	1145.2	1114.8	1086.3	1072.5	1059.3	1048.0	1036.1	1024.9
22.5°	1202.0	1165.0	1128.6	1093.0	1065.2	1034.8	1021.6	1002.4	991.9	986.6	975.3
25°	1155.7	1116.1	1076.4	1042.1	1013.0	986.6	968.7	954.9	943.0	937.7	930.4
27.5°	1105.5	1066.5	1028.9	989.2	955.5	936.3	921.8	910.6	903.3	895.4	892.1
30°	1057.9	1017.0	976.0	939.7	909.3	890.1	876.9	869.6	864.3	861.0	857.7
32.5°	1009.7	969.4	925.8	893.4	867.0	850.4	841.2	833.9	831.9	831.3	830.6
35°	957.5	916.5	876.9	847.1	821.4	814.8	806.2	802.2	800.9	805.5	807.5
37.5°	907.3	868.9	831.9	802.2	785.0	774.5	771.1	770.5	775.1	779.1	783.7
40°	859.0	822.0	787.7	762.6	746.7	740.8	739.4	742.7	748.0	752.6	757.9
42.5°	812.1	775.8	745.4	722.3	712.3	707.1	708.4	711.7	719.6	725.6	734.1
45°	763.2	732.8	702.4	683.3	674.0	675.3	675.3	681.3	688.5	697.1	705.7
47.5°	717.6	686.6	660.8	644.3	639.7	637.7	641.0	648.9	658.8	668.7	680.6
50°	671.4	642.3	620.5	606.0	600.7	602.6	607.9	615.2	627.8	641.0	653.5
52.5°	624.5	598.7	578.9	565.6	562.3	566.3	571.6	584.1	594.7	609.3	625.1
55°	575.6	553.1	537.2	527.3	526.0	528.0	533.9	546.5	562.3	580.2	594.7
57.5°	527.3	508.2	493.0	485.7	486.3	487.7	496.9	512.1	528.0	547.1	565.6
60°	478.4	461.2	449.3	444.1	444.7	448.7	460.6	474.5	495.6	514.1	533.9
62.5°	432.2	417.6	406.4	401.8	400.4	410.4	421.6	436.1	457.3	478.4	500.2
65°	381.9	370.0	360.8	358.2	360.1	366.7	381.3	400.4	418.3	440.1	462.6
67.5°	333.0	323.1	316.5	317.8	319.8	329.1	341.6	358.2	378.0	400.4	423.6
70°	286.8	277.5	272.2	272.9	276.9	288.8	299.3	315.9	337.7	360.8	379.3
72.5°	239.2	233.9	229.3	232.6	236.6	243.8	257.7	274.2	292.7	313.9	333.7
75°	191.0	191.0	188.3	190.3	196.3	204.2	214.1	231.3	250.4	267.6	283.5
77.5°	150.0	148.0	149.3	151.3	155.3	165.2	176.4	189.0	204.2	222.0	235.2
80°	108.4	109.0	112.3	116.3	117.6	124.9	136.8	148.0	159.3	173.8	186.3
82.5°	74.7	75.3	76.7	81.9	83.3	91.2	97.8	109.0	118.9	127.5	137.4
85°	44.3	44.3	47.6	49.6	52.9	58.2	62.8	69.4	78.6	85.2	95.2
87.5°	21.1	21.1	23.8	25.1	27.1	30.4	31.7	39.0	41.6	44.9	50.9
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: P242662

CATALOG NUMBER: S124DR-S1195D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1595.2	1595.2	1595.2	1595.2
2.5°	1501.3	1500.0	1495.4	1494.7
5°	1404.2	1400.9	1398.9	1406.2
7.5°	1330.8	1328.2	1322.3	1320.3
10°	1260.8	1258.2	1252.9	1251.5
12.5°	1193.4	1187.5	1187.5	1189.4
15°	1135.2	1132.6	1125.3	1127.3
17.5°	1075.8	1073.1	1063.2	1073.1
20°	1020.3	1015.0	1010.4	1009.7
22.5°	967.4	962.8	963.4	958.2
25°	925.1	920.5	919.2	915.9
27.5°	890.8	888.1	885.5	886.8
30°	859.7	859.0	857.7	857.7
32.5°	833.9	833.9	835.2	835.2
35°	810.1	812.1	813.4	811.5
37.5°	789.0	790.3	792.3	794.3
40°	763.9	768.5	769.8	773.1
42.5°	740.1	745.4	749.3	749.3
45°	715.6	720.9	725.6	725.6
47.5°	690.5	697.8	702.4	703.1
50°	664.8	674.0	678.6	681.9
52.5°	639.7	648.9	655.5	656.8
55°	609.9	623.1	630.4	633.0
57.5°	583.5	595.4	603.3	605.3
60°	551.8	565.0	575.6	577.5
62.5°	519.4	533.3	542.5	548.5
65°	481.1	494.9	504.2	506.2
67.5°	440.8	455.3	461.2	465.2
70°	397.8	409.0	415.6	418.9
72.5°	348.9	360.8	368.7	368.7
75°	298.7	309.3	313.2	313.2
77.5°	246.5	252.4	257.7	259.0
80°	196.3	199.6	203.5	203.5
82.5°	144.7	147.4	151.3	150.7
85°	93.8	99.8	99.1	97.8
87.5°	52.9	53.5	55.5	56.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)