

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: P334114

Luminaire Tested: **S124DW-S1195D930-4F0-1E-UDD-A**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P334114
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: S124DW-S1195D930-4F0-1E-UDD-A
Description: DEFINE 4 DIRECT LED LUMINAIRE, ASYMMETRIC DIFFUSER
PENDANT/SURFACE/WALL MOUNT, 1195 LUMENS PER FOOT
Light Source: 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4024.5 lumens
Efficiency: N/A
Efficacy: 97.9 lumens/watt
Spacing Criteria (0/90/45): 1.3 / 1.22 / 1.41
Luminous Opening: Rectangular (W 4' x L: 0.33' x H: 0')
CIE Type: Direct

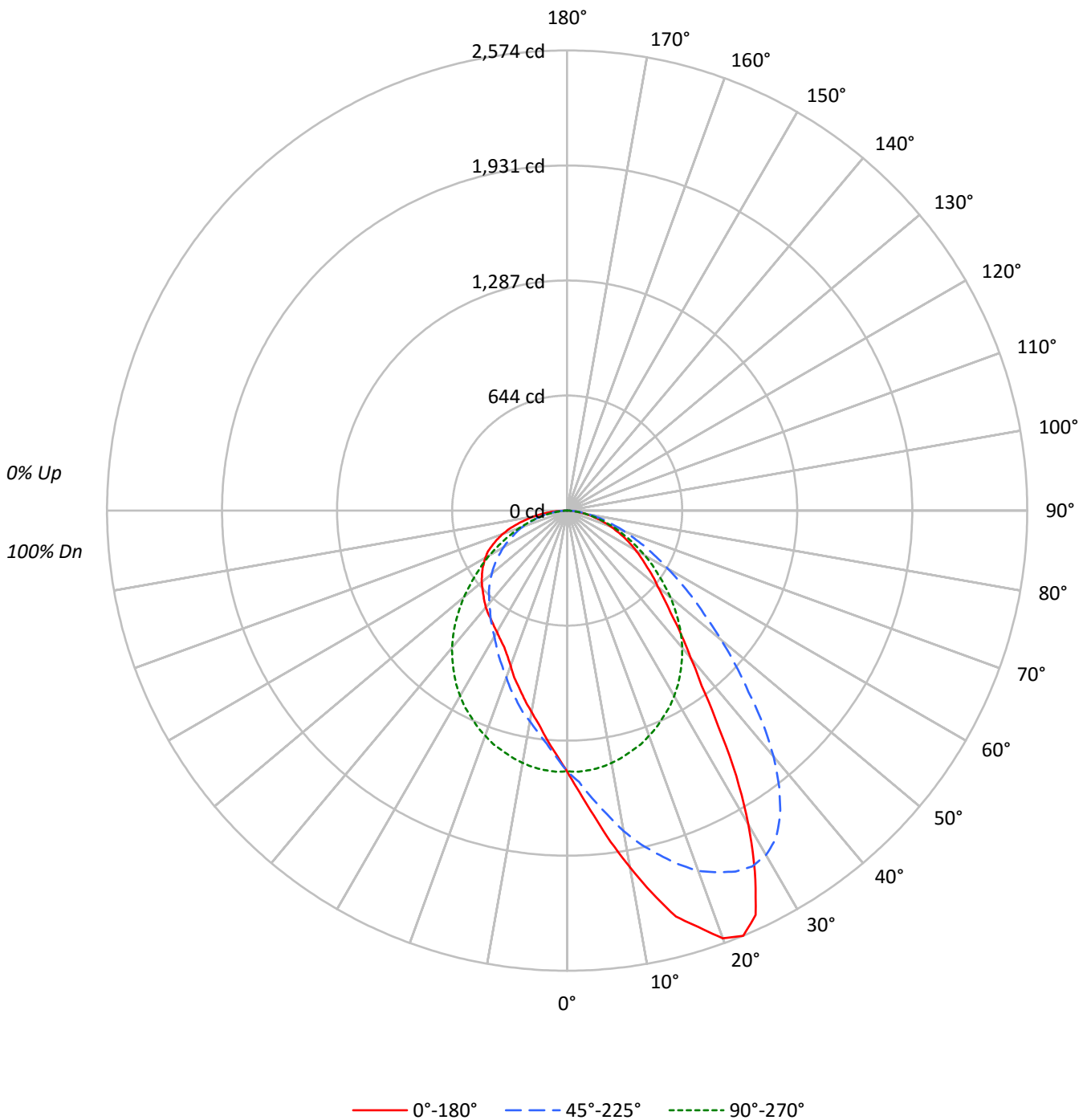
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	11774	11774	11774
5°	13866	11805	10419
10°	16602	11753	9380
15°	19642	11634	8614
20°	21873	11513	7931
25°	22226	11334	7459
30°	18912	11163	7310
35°	14540	10884	7312
40°	11333	10556	7450
45°	9450	10064	7574
50°	8317	9462	7831
55°	7619	8742	8146
60°	7141	8097	8525
65°	6648	7375	8841
70°	6076	6659	9040
75°	5427	5861	8933
80°	4551	4802	8652
85°	3362	3473	8281



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	141.9	3.5
10°-20°	438.1	10.9
20°-30°	696.0	17.3
30°-40°	773.4	19.2
40°-50°	703.3	17.5
50°-60°	574.7	14.3
60°-70°	410.3	10.2
70°-80°	225.7	5.6
80°-90°	61.0	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°	1276.1	31.7
0°-40°	2049.4	50.9
0°-60°	3327.5	82.7
0°-90°	4024.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4024.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1458	1458	1458	1458	1458	
5°	1711	1616	1457	1309	1286	173
15°	2350	1994	1392	1097	1031	664
25°	2495	2228	1272	902	837	1107
35°	1475	2078	1104	745	742	934
45°	828	1434	882	618	663	650
55°	541	863	621	483	579	489
65°	348	481	386	335	463	344
75°	174	224	188	187	286	185
85°	36	46	38	53	89	45
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°	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5
2.5°	1575.7	1575.1	1569.0	1567.8	1563.6	1558.2	1557.0	1547.3	1528.0	1518.9	1516.5
5°	1711.0	1723.1	1707.4	1704.4	1702.6	1682.6	1672.3	1660.3	1632.5	1616.2	1603.5
7.5°	1869.3	1869.9	1863.3	1856.6	1845.1	1828.2	1805.3	1778.7	1746.7	1714.0	1691.1
10°	2025.2	2030.0	2022.2	2021.0	1990.1	1970.8	1932.1	1899.5	1862.1	1820.4	1782.3
12.5°	2189.5	2179.9	2176.8	2144.8	2145.4	2106.1	2059.6	2025.8	1963.0	1913.4	1859.6
15°	2350.2	2336.9	2328.5	2292.8	2275.3	2226.4	2178.6	2141.8	2066.3	1994.4	1940.0
17.5°	2443.3	2459.6	2437.8	2423.3	2375.6	2343.6	2295.9	2220.3	2164.1	2074.7	2012.5
20°	2546.0	2547.2	2536.3	2521.2	2485.6	2442.1	2388.9	2304.3	2233.6	2144.8	2050.6
22.5°	2573.8	2573.8	2570.8	2556.9	2532.1	2498.9	2445.1	2378.0	2288.6	2190.1	2095.9
25°	2495.2	2492.8	2498.3	2514.0	2503.7	2492.8	2462.0	2409.4	2329.7	2227.6	2126.1
27.5°	2272.9	2288.6	2321.2	2359.9	2387.7	2412.5	2410.6	2388.3	2331.5	2243.3	2135.1
30°	2028.8	2049.4	2072.3	2111.0	2185.9	2228.8	2275.9	2311.6	2291.6	2224.6	2125.5
32.5°	1760.6	1761.8	1798.6	1843.9	1911.0	2003.4	2085.0	2166.6	2201.6	2174.4	2095.9
35°	1475.4	1483.8	1520.7	1564.2	1648.2	1749.1	1861.5	1961.7	2044.5	2077.7	2035.5
37.5°	1236.1	1262.7	1290.5	1340.1	1416.8	1508.0	1628.8	1753.9	1875.4	1949.1	1956.9
40°	1075.4	1090.5	1109.3	1144.9	1207.7	1297.2	1397.4	1546.1	1677.2	1795.6	1834.3
42.5°	948.6	955.8	965.5	996.9	1041.0	1129.8	1219.2	1345.5	1477.2	1624.6	1695.9
45°	827.7	836.8	856.1	874.8	911.1	972.7	1057.9	1165.4	1297.8	1434.3	1553.9
47.5°	737.1	743.1	755.2	775.8	808.4	850.1	922.6	1013.8	1143.1	1275.4	1403.5
50°	662.2	667.0	676.1	694.2	717.8	754.0	810.8	894.8	990.8	1124.4	1249.4
52.5°	603.0	604.2	610.2	621.1	638.6	667.6	711.7	777.6	865.2	980.6	1105.0
55°	541.3	543.8	549.8	558.9	575.2	594.5	630.2	682.1	760.0	863.4	971.5
57.5°	490.6	493.0	497.8	501.5	516.0	532.3	561.3	598.7	659.8	751.6	850.1
60°	442.3	441.0	447.1	450.1	459.2	472.5	493.6	529.3	580.6	651.3	740.1
62.5°	395.1	393.3	398.1	402.4	406.6	417.5	433.8	459.8	499.0	561.3	635.0
65°	348.0	345.6	348.6	353.4	358.3	364.3	377.0	401.8	435.0	480.9	539.5
67.5°	299.7	302.7	302.7	305.7	308.7	317.2	326.3	345.6	369.1	406.6	458.6
70°	257.4	258.0	260.4	260.4	262.2	269.5	276.7	287.0	309.9	343.8	384.3
72.5°	215.1	218.1	216.3	218.7	219.9	224.1	229.0	238.6	257.4	280.3	313.0
75°	174.0	175.8	175.8	176.4	178.2	180.0	184.3	191.5	205.4	224.1	247.7
77.5°	134.1	134.1	135.3	137.8	137.8	140.8	144.4	149.8	157.7	171.6	186.7
80°	97.9	99.1	98.5	99.7	99.7	102.1	103.3	110.6	113.6	122.0	133.5
82.5°	65.3	66.5	66.5	68.3	69.5	69.5	71.3	73.1	76.1	83.4	86.4
85°	36.3	37.5	36.3	37.5	39.3	39.9	41.7	42.3	44.7	46.5	50.8
87.5°	13.3	15.1	15.1	15.7	16.9	17.5	18.1	17.5	19.9	20.5	23.0
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°	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5
2.5°	1517.1	1508.6	1502.6	1497.7	1484.5	1476.6	1470.6	1462.1	1452.4	1442.2	1429.5
5°	1590.8	1570.2	1555.1	1532.2	1510.4	1492.3	1473.6	1456.7	1436.1	1413.8	1397.4
7.5°	1666.3	1637.9	1599.8	1570.2	1534.6	1503.8	1476.6	1448.2	1418.0	1389.0	1361.8
10°	1737.6	1698.3	1654.8	1603.5	1555.1	1512.2	1472.4	1433.7	1396.2	1358.8	1326.8
12.5°	1814.3	1763.0	1693.5	1631.3	1575.7	1514.7	1464.5	1415.0	1367.8	1328.0	1289.3
15°	1881.4	1810.7	1736.4	1656.0	1584.7	1517.7	1451.8	1392.0	1341.3	1289.3	1253.1
17.5°	1923.7	1836.1	1756.3	1672.3	1590.2	1506.2	1437.9	1370.9	1308.0	1257.3	1212.0
20°	1965.4	1878.4	1772.6	1688.7	1586.0	1499.0	1416.8	1340.1	1273.6	1218.6	1171.5
22.5°	2001.6	1897.7	1792.0	1674.8	1572.7	1479.0	1387.2	1309.8	1241.6	1183.0	1138.3
25°	2010.1	1894.7	1779.9	1669.9	1553.9	1444.6	1363.0	1272.4	1199.9	1138.9	1090.5
27.5°	2013.1	1891.1	1763.6	1644.0	1524.3	1424.6	1318.3	1239.2	1164.2	1099.6	1053.7
30°	2006.5	1877.8	1738.2	1605.9	1485.7	1375.1	1285.7	1197.5	1120.7	1056.7	1008.4
32.5°	1985.3	1850.0	1705.6	1563.6	1437.9	1330.4	1237.3	1154.6	1080.3	1017.4	966.1
35°	1940.6	1808.3	1655.4	1509.8	1382.3	1273.0	1189.6	1104.4	1029.5	969.7	920.8
37.5°	1880.8	1757.5	1602.3	1450.6	1328.0	1216.8	1132.8	1054.3	986.6	925.0	874.2
40°	1797.4	1692.3	1536.4	1389.6	1254.3	1149.7	1072.4	1001.7	934.7	877.3	829.5
42.5°	1701.3	1613.1	1472.4	1314.7	1185.4	1080.3	1005.3	943.7	881.5	829.5	781.8
45°	1583.5	1523.1	1387.8	1244.0	1108.1	1009.0	937.1	881.5	828.3	776.4	736.5
47.5°	1452.4	1418.6	1300.8	1163.0	1032.5	933.4	871.2	818.0	769.7	724.4	688.8
50°	1320.1	1305.6	1207.1	1075.4	952.2	860.3	797.5	753.4	713.5	674.9	641.6
52.5°	1189.6	1192.6	1106.2	988.4	876.7	789.0	726.8	686.3	653.1	623.5	594.5
55°	1056.1	1073.0	1003.5	896.0	793.9	714.1	657.9	621.1	596.9	570.9	548.6
57.5°	933.4	961.8	901.4	802.9	716.5	640.4	590.9	562.5	535.9	519.0	501.5
60°	813.8	840.4	795.7	715.9	635.6	572.8	526.2	501.5	479.1	468.2	456.8
62.5°	707.5	730.4	700.2	627.7	560.7	500.9	463.4	439.8	426.5	414.5	407.8
65°	607.2	627.1	598.7	545.0	485.2	436.8	404.8	386.1	371.6	366.7	358.3
67.5°	508.1	526.2	511.1	464.0	413.3	375.2	349.8	329.9	321.4	316.6	311.1
70°	421.7	439.8	423.5	383.6	346.8	316.0	292.4	282.1	273.1	271.3	262.8
72.5°	348.6	359.5	343.2	314.2	284.0	259.2	242.3	231.4	227.8	224.1	220.5
75°	272.5	283.4	272.5	248.3	226.0	207.8	192.1	187.9	182.5	180.6	177.6
77.5°	204.2	214.5	206.0	189.7	172.2	157.1	148.0	142.0	141.4	137.8	139.0
80°	147.4	153.5	145.6	135.3	122.0	112.4	106.3	103.3	99.7	98.5	100.9
82.5°	95.5	97.3	94.3	88.2	79.1	73.7	70.1	66.5	66.5	67.1	66.5
85°	55.0	54.4	53.8	47.7	44.7	40.5	38.1	37.5	36.9	38.1	39.3
87.5°	23.0	23.6	23.0	20.5	18.7	16.9	16.3	15.7	16.3	16.9	17.5
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°	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5	1458.5
2.5°	1423.4	1418.0	1410.1	1399.3	1390.2	1380.5	1378.1	1374.5	1381.7	1375.7	1373.9
5°	1383.6	1370.9	1354.6	1335.8	1324.9	1309.2	1306.2	1300.2	1294.1	1293.5	1287.5
7.5°	1341.9	1324.3	1303.8	1284.5	1267.6	1250.6	1239.8	1238.6	1228.9	1224.1	1218.0
10°	1302.0	1279.0	1254.3	1236.1	1215.6	1197.5	1184.8	1177.5	1171.5	1164.8	1158.8
12.5°	1254.9	1230.1	1210.8	1190.8	1165.4	1152.8	1129.8	1115.9	1115.9	1117.7	1099.6
15°	1220.4	1196.3	1164.8	1137.1	1123.8	1097.2	1085.7	1071.2	1062.1	1053.1	1045.8
17.5°	1178.1	1148.5	1124.4	1092.9	1068.2	1048.2	1032.5	1024.7	1010.2	996.9	987.8
20°	1138.9	1106.8	1080.9	1047.0	1019.2	993.3	980.6	968.5	958.2	947.3	937.1
22.5°	1099.0	1065.2	1031.9	999.3	973.9	946.1	934.0	916.5	906.9	902.0	891.8
25°	1056.7	1020.4	984.2	952.8	926.2	902.0	885.7	873.0	862.2	857.3	850.7
27.5°	1010.8	975.1	940.7	904.4	873.6	856.1	842.8	832.5	825.9	818.7	815.6
30°	967.3	929.8	892.4	859.1	831.3	813.8	801.7	795.1	790.3	787.2	784.2
32.5°	923.2	886.3	846.4	816.8	792.7	777.6	769.1	762.5	760.7	760.0	759.4
35°	875.4	838.0	801.7	774.5	751.0	744.9	737.1	733.5	732.3	736.5	738.3
37.5°	829.5	794.5	760.7	733.5	717.8	708.1	705.1	704.5	708.7	712.3	716.5
40°	785.4	751.6	720.2	697.2	682.7	677.3	676.1	679.1	683.9	688.2	693.0
42.5°	742.5	709.3	681.5	660.4	651.3	646.5	647.7	650.7	657.9	663.4	671.2
45°	697.8	670.0	642.2	624.7	616.3	617.5	617.5	622.9	629.5	637.4	645.3
47.5°	656.1	627.7	604.2	589.1	584.8	583.0	586.0	593.3	602.4	611.4	622.3
50°	613.8	587.3	567.3	554.0	549.2	551.0	555.8	562.5	574.0	586.0	597.5
52.5°	570.9	547.4	529.3	517.2	514.2	517.8	522.6	534.1	543.8	557.0	571.5
55°	526.2	505.7	491.2	482.1	480.9	482.7	488.2	499.7	514.2	530.5	543.8
57.5°	482.1	464.6	450.7	444.1	444.7	445.9	454.3	468.2	482.7	500.3	517.2
60°	437.4	421.7	410.8	406.0	406.6	410.2	421.1	433.8	453.1	470.0	488.2
62.5°	395.1	381.8	371.6	367.3	366.1	375.2	385.5	398.8	418.1	437.4	457.4
65°	349.2	338.3	329.9	327.5	329.3	335.3	348.6	366.1	382.4	402.4	422.9
67.5°	304.5	295.4	289.4	290.6	292.4	300.9	312.4	327.5	345.6	366.1	387.3
70°	262.2	253.8	248.9	249.5	253.1	264.0	273.7	288.8	308.7	329.9	346.8
72.5°	218.7	213.9	209.6	212.7	216.3	222.9	235.6	250.7	267.6	287.0	305.1
75°	174.6	174.6	172.2	174.0	179.4	186.7	195.8	211.5	229.0	244.7	259.2
77.5°	137.1	135.3	136.5	138.4	142.0	151.0	161.3	172.8	186.7	203.0	215.1
80°	99.1	99.7	102.7	106.3	107.5	114.2	125.1	135.3	145.6	158.9	170.4
82.5°	68.3	68.9	70.1	74.9	76.1	83.4	89.4	99.7	108.8	116.6	125.7
85°	40.5	40.5	43.5	45.3	48.3	53.2	57.4	63.4	71.9	77.9	87.0
87.5°	19.3	19.3	21.8	23.0	24.8	27.8	29.0	35.6	38.1	41.1	46.5
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: P334114

CATALOG NUMBER: S124DW-S1195D930-4F0-1E-UDD-A

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1458.5	1458.5	1458.5	1458.5
2.5°	1372.7	1371.5	1367.2	1366.6
5°	1283.9	1280.8	1279.0	1285.7
7.5°	1216.8	1214.4	1208.9	1207.1
10°	1152.8	1150.3	1145.5	1144.3
12.5°	1091.1	1085.7	1085.7	1087.5
15°	1038.0	1035.6	1028.9	1030.7
17.5°	983.6	981.2	972.1	981.2
20°	932.8	928.0	923.8	923.2
22.5°	884.5	880.3	880.9	876.0
25°	845.8	841.6	840.4	837.4
27.5°	814.4	812.0	809.6	810.8
30°	786.0	785.4	784.2	784.2
32.5°	762.5	762.5	763.7	763.7
35°	740.7	742.5	743.7	741.9
37.5°	721.4	722.6	724.4	726.2
40°	698.4	702.7	703.9	706.9
42.5°	676.7	681.5	685.1	685.1
45°	654.3	659.2	663.4	663.4
47.5°	631.4	638.0	642.2	642.8
50°	607.8	616.3	620.5	623.5
52.5°	584.8	593.3	599.3	600.5
55°	557.7	569.7	576.4	578.8
57.5°	533.5	544.4	551.6	553.4
60°	504.5	516.6	526.2	528.0
62.5°	474.9	487.6	496.0	501.5
65°	439.8	452.5	461.0	462.8
67.5°	403.0	416.3	421.7	425.3
70°	363.7	374.0	380.0	383.0
72.5°	319.0	329.9	337.1	337.1
75°	273.1	282.8	286.4	286.4
77.5°	225.4	230.8	235.6	236.8
80°	179.4	182.5	186.1	186.1
82.5°	132.3	134.7	138.4	137.8
85°	85.8	91.2	90.6	89.4
87.5°	48.3	48.9	50.8	52.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)