

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: P334118

Luminaire Tested: **S124DW-S1020D935-4F0-1E-UDD-A**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P334118
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-S1020D935-4F0-1E-UDD-A
Description: DEFINE 4 DIRECT LED LUMINAIRE, ASYMMETRIC DIFFUSER
PENDANT/SURFACE/WALL MOUNT, 1020 LUMENS PER FOOT
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3657.0 lumens
Efficiency: N/A
Efficacy: 105.1 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

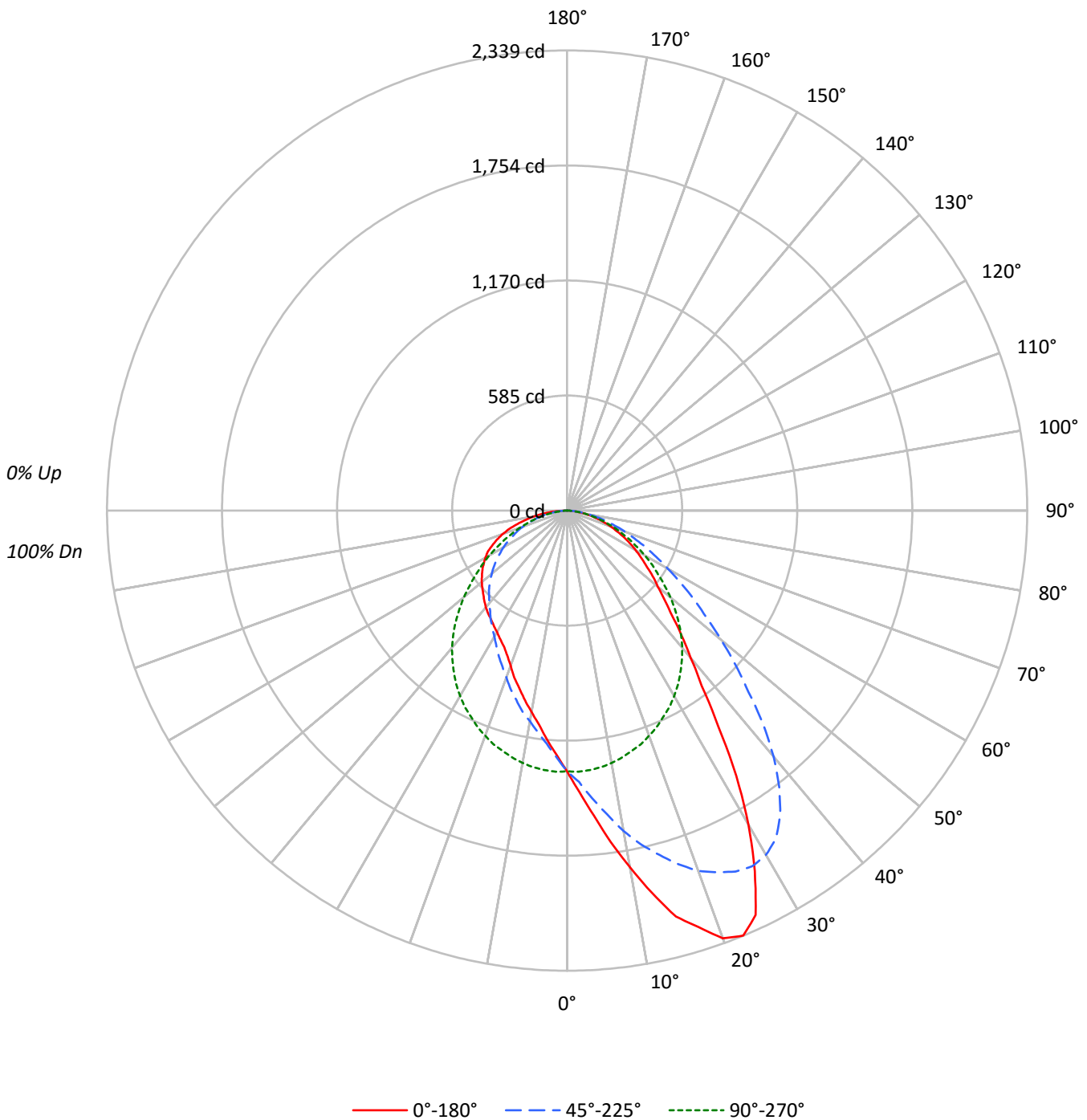
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	10699	10699	10699
5°	12600	10726	9468
10°	15085	10680	8524
15°	17849	10572	7828
20°	19875	10461	7207
25°	20197	10299	6778
30°	17185	10143	6643
35°	13213	9891	6644
40°	10298	9592	6769
45°	8587	9145	6882
50°	7557	8598	7116
55°	6923	7944	7402
60°	6489	7358	7747
65°	6040	6701	8032
70°	5521	6052	8216
75°	4931	5324	8116
80°	4133	4365	7861
85°	3047	3149	7531



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	129.0	3.5
10°-20°	398.1	10.9
20°-30°	632.5	17.3
30°-40°	702.7	19.2
40°-50°	639.1	17.5
50°-60°	522.2	14.3
60°-70°	372.8	10.2
70°-80°	205.1	5.6
80°-90°	55.4	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°	1159.5	31.7
0°-40°	1862.3	50.9
0°-60°	3023.6	82.7
0°-90°	3657.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3657.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1325	1325	1325	1325	1325	
5°	1555	1469	1324	1190	1168	157
15°	2136	1812	1265	997	937	604
25°	2267	2024	1156	820	761	1006
35°	1341	1888	1004	677	674	849
45°	752	1303	801	561	603	591
55°	492	784	564	439	526	444
65°	316	437	351	305	420	313
75°	158	204	171	170	260	168
85°	33	42	34	48	81	40
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°	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3
2.5°	1431.8	1431.2	1425.7	1424.6	1420.8	1415.9	1414.8	1406.0	1388.4	1380.2	1378.0
5°	1554.8	1565.7	1551.5	1548.7	1547.1	1529.0	1519.6	1508.6	1483.4	1468.6	1457.0
7.5°	1698.6	1699.1	1693.1	1687.1	1676.6	1661.3	1640.4	1616.2	1587.1	1557.5	1536.6
10°	1840.2	1844.6	1837.5	1836.4	1808.4	1790.8	1755.7	1726.0	1692.0	1654.1	1619.5
12.5°	1989.6	1980.8	1978.0	1948.9	1949.5	1913.8	1871.5	1840.8	1783.7	1738.7	1689.8
15°	2135.6	2123.5	2115.8	2083.4	2067.5	2023.1	1979.7	1946.2	1877.6	1812.2	1762.8
17.5°	2220.1	2235.0	2215.2	2202.0	2158.7	2129.6	2086.2	2017.6	1966.5	1885.3	1828.7
20°	2313.5	2314.6	2304.7	2291.0	2258.6	2219.0	2170.7	2093.9	2029.6	1948.9	1863.3
22.5°	2338.7	2338.7	2336.0	2323.4	2300.8	2270.7	2221.8	2160.9	2079.6	1990.1	1904.5
25°	2267.4	2265.2	2270.1	2284.4	2275.0	2265.2	2237.2	2189.4	2116.9	2024.2	1931.9
27.5°	2065.3	2079.6	2109.2	2144.4	2169.6	2192.1	2190.5	2170.2	2118.6	2038.4	1940.2
30°	1843.5	1862.2	1883.1	1918.2	1986.3	2025.2	2068.1	2100.5	2082.3	2021.4	1931.4
32.5°	1599.8	1600.9	1634.4	1675.5	1736.5	1820.5	1894.6	1968.7	2000.5	1975.8	1904.5
35°	1340.7	1348.3	1381.8	1421.4	1497.7	1589.3	1691.5	1782.6	1857.8	1888.0	1849.6
37.5°	1123.2	1147.4	1172.7	1217.7	1287.4	1370.3	1480.1	1593.7	1704.1	1771.1	1778.2
40°	977.2	990.9	1008.0	1040.3	1097.4	1178.7	1269.8	1404.9	1524.0	1631.6	1666.8
42.5°	861.9	868.5	877.3	905.8	945.9	1026.6	1107.9	1222.6	1342.3	1476.3	1541.0
45°	752.1	760.4	777.9	794.9	827.9	883.9	961.3	1059.0	1179.2	1303.3	1412.0
47.5°	669.8	675.3	686.2	704.9	734.6	772.4	838.3	921.2	1038.7	1158.9	1275.3
50°	601.7	606.1	614.3	630.8	652.2	685.1	736.8	813.1	900.4	1021.7	1135.3
52.5°	547.9	549.0	554.5	564.4	580.3	606.6	646.7	706.6	786.2	891.0	1004.1
55°	491.9	494.1	499.6	507.8	522.6	540.2	572.6	619.8	690.6	784.5	882.8
57.5°	445.8	448.0	452.4	455.7	468.8	483.7	510.0	544.1	599.5	683.0	772.4
60°	401.9	400.8	406.3	409.0	417.2	429.3	448.5	480.9	527.6	591.8	672.5
62.5°	359.0	357.4	361.8	365.6	369.5	379.4	394.2	417.8	453.5	510.0	577.0
65°	316.2	314.0	316.8	321.2	325.6	331.0	342.6	365.1	395.3	437.0	490.3
67.5°	272.3	275.0	275.0	277.8	280.5	288.2	296.5	314.0	335.4	369.5	416.7
70°	233.9	234.4	236.6	236.6	238.3	244.9	251.4	260.8	281.6	312.4	349.2
72.5°	195.4	198.2	196.5	198.7	199.8	203.7	208.1	216.9	233.9	254.7	284.4
75°	158.1	159.8	159.8	160.3	162.0	163.6	167.4	174.0	186.7	203.7	225.1
77.5°	121.9	121.9	123.0	125.2	125.2	127.9	131.2	136.2	143.3	155.9	169.6
80°	88.9	90.0	89.5	90.6	90.6	92.8	93.9	100.5	103.2	110.9	121.3
82.5°	59.3	60.4	60.4	62.0	63.1	63.1	64.8	66.4	69.2	75.8	78.5
85°	32.9	34.0	32.9	34.0	35.7	36.2	37.9	38.4	40.6	42.3	46.1
87.5°	12.1	13.7	13.7	14.3	15.4	15.9	16.5	15.9	18.1	18.7	20.9
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°	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3
2.5°	1378.5	1370.8	1365.4	1361.0	1348.9	1341.7	1336.3	1328.6	1319.8	1310.5	1298.9
5°	1445.5	1426.8	1413.1	1392.3	1372.5	1356.0	1339.0	1323.6	1305.0	1284.7	1269.8
7.5°	1514.1	1488.3	1453.7	1426.8	1394.5	1366.5	1341.7	1315.9	1288.5	1262.1	1237.4
10°	1578.9	1543.2	1503.7	1457.0	1413.1	1374.1	1337.9	1302.8	1268.7	1234.7	1205.6
12.5°	1648.6	1602.0	1538.8	1482.3	1431.8	1376.3	1330.8	1285.8	1242.9	1206.7	1171.6
15°	1709.6	1645.3	1577.8	1504.8	1440.0	1379.1	1319.2	1264.9	1218.8	1171.6	1138.6
17.5°	1748.0	1668.4	1595.9	1519.6	1445.0	1368.6	1306.6	1245.7	1188.6	1142.5	1101.3
20°	1785.9	1706.8	1610.8	1534.4	1441.1	1362.1	1287.4	1217.7	1157.3	1107.3	1064.5
22.5°	1818.8	1724.4	1628.3	1521.8	1429.0	1343.9	1260.5	1190.2	1128.2	1074.9	1034.3
25°	1826.5	1721.7	1617.3	1517.4	1412.0	1312.7	1238.5	1156.2	1090.3	1034.9	990.9
27.5°	1829.3	1718.4	1602.5	1493.8	1385.1	1294.5	1197.9	1126.0	1057.9	999.2	957.5
30°	1823.2	1706.3	1579.5	1459.2	1350.0	1249.5	1168.3	1088.1	1018.4	960.2	916.3
32.5°	1804.0	1681.0	1549.8	1420.8	1306.6	1208.9	1124.3	1049.1	981.6	924.5	877.8
35°	1763.4	1643.1	1504.3	1371.9	1256.1	1156.7	1081.0	1003.6	935.5	881.1	836.7
37.5°	1709.0	1597.0	1455.9	1318.1	1206.7	1105.7	1029.4	958.0	896.5	840.5	794.4
40°	1633.3	1537.7	1396.1	1262.7	1139.7	1044.7	974.5	910.2	849.3	797.1	753.8
42.5°	1546.0	1465.8	1337.9	1194.6	1077.1	981.6	913.5	857.5	801.0	753.8	710.4
45°	1438.9	1384.0	1261.0	1130.4	1006.9	916.8	851.5	801.0	752.7	705.5	669.2
47.5°	1319.8	1289.0	1182.0	1056.8	938.2	848.2	791.7	743.3	699.4	658.2	625.9
50°	1199.6	1186.4	1096.9	977.2	865.2	781.8	724.7	684.6	648.4	613.2	583.0
52.5°	1081.0	1083.7	1005.2	898.2	796.6	717.0	660.4	623.7	593.5	566.6	540.2
55°	959.6	975.0	911.9	814.2	721.4	648.9	597.9	564.4	542.4	518.8	498.5
57.5°	848.2	874.0	819.1	729.6	651.1	581.9	536.9	511.1	487.0	471.6	455.7
60°	739.5	763.7	723.0	650.6	577.5	520.4	478.2	455.7	435.4	425.5	415.0
62.5°	642.9	663.7	636.3	570.4	509.5	455.1	421.1	399.7	387.6	376.6	370.6
65°	551.7	569.9	544.1	495.2	440.8	396.9	367.8	350.8	337.6	333.2	325.6
67.5°	461.7	478.2	464.5	421.6	375.5	340.9	317.9	299.8	292.1	287.7	282.7
70°	383.2	399.7	384.8	348.6	315.1	287.1	265.7	256.4	248.1	246.5	238.8
72.5°	316.8	326.7	311.8	285.5	258.0	235.5	220.1	210.3	207.0	203.7	200.4
75°	247.6	257.5	247.6	225.6	205.3	188.9	174.6	170.7	165.8	164.2	161.4
77.5°	185.6	194.9	187.2	172.4	156.5	142.7	134.5	129.0	128.5	125.2	126.3
80°	134.0	139.4	132.3	123.0	110.9	102.1	96.6	93.9	90.6	89.5	91.7
82.5°	86.7	88.4	85.6	80.2	71.9	67.0	63.7	60.4	60.4	60.9	60.4
85°	50.0	49.4	48.9	43.4	40.6	36.8	34.6	34.0	33.5	34.6	35.7
87.5°	20.9	21.4	20.9	18.7	17.0	15.4	14.8	14.3	14.8	15.4	15.9
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°	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3	1325.3
2.5°	1293.4	1288.5	1281.4	1271.5	1263.2	1254.5	1252.3	1249.0	1255.6	1250.1	1248.4
5°	1257.2	1245.7	1230.9	1213.8	1204.0	1189.7	1186.9	1181.4	1176.0	1175.4	1169.9
7.5°	1219.3	1203.4	1184.7	1167.2	1151.8	1136.4	1126.5	1125.4	1116.7	1112.3	1106.8
10°	1183.1	1162.2	1139.7	1123.2	1104.6	1088.1	1076.6	1070.0	1064.5	1058.5	1053.0
12.5°	1140.3	1117.8	1100.2	1082.1	1059.0	1047.5	1026.6	1014.0	1014.0	1015.6	999.2
15°	1109.0	1087.0	1058.5	1033.2	1021.1	997.0	986.5	973.4	965.1	956.9	950.3
17.5°	1070.5	1043.6	1021.7	993.1	970.6	952.5	938.2	931.1	917.9	905.8	897.6
20°	1034.9	1005.8	982.2	951.4	926.2	902.6	891.0	880.0	870.7	860.8	851.5
22.5°	998.6	967.9	937.7	908.0	885.0	859.7	848.7	832.8	824.0	819.7	810.3
25°	960.2	927.3	894.3	865.8	841.6	819.7	804.8	793.3	783.4	779.0	773.0
27.5°	918.5	886.1	854.8	821.8	793.8	777.9	765.9	756.5	750.5	743.9	741.1
30°	878.9	844.9	810.9	780.7	755.4	739.5	728.5	722.5	718.1	715.3	712.6
32.5°	838.9	805.4	769.1	742.2	720.3	706.6	698.9	692.8	691.2	690.6	690.1
35°	795.5	761.5	728.5	703.8	682.4	676.9	669.8	666.5	665.4	669.2	670.9
37.5°	753.8	721.9	691.2	666.5	652.2	643.4	640.7	640.1	644.0	647.3	651.1
40°	713.7	683.0	654.4	633.5	620.4	615.4	614.3	617.1	621.5	625.3	629.7
42.5°	674.7	644.5	619.3	600.1	591.8	587.4	588.5	591.3	597.9	602.8	609.9
45°	634.1	608.8	583.6	567.7	560.0	561.1	561.1	566.0	572.1	579.2	586.3
47.5°	596.2	570.4	549.0	535.3	531.4	529.8	532.5	539.1	547.3	555.6	565.5
50°	557.8	533.6	515.5	503.4	499.0	500.7	505.1	511.1	521.5	532.5	543.0
52.5°	518.8	497.4	480.9	469.9	467.2	470.5	474.9	485.3	494.1	506.2	519.4
55°	478.2	459.5	446.3	438.1	437.0	438.6	443.6	454.0	467.2	482.0	494.1
57.5°	438.1	422.2	409.6	403.5	404.1	405.2	412.8	425.5	438.6	454.6	469.9
60°	397.5	383.2	373.3	368.9	369.5	372.8	382.7	394.2	411.7	427.1	443.6
62.5°	359.0	347.0	337.6	333.8	332.7	340.9	350.3	362.3	379.9	397.5	415.6
65°	317.3	307.4	299.8	297.6	299.2	304.7	316.8	332.7	347.5	365.6	384.3
67.5°	276.7	268.5	263.0	264.1	265.7	273.4	283.8	297.6	314.0	332.7	351.9
70°	238.3	230.6	226.2	226.7	230.0	239.9	248.7	262.4	280.5	299.8	315.1
72.5°	198.7	194.3	190.5	193.2	196.5	202.6	214.1	227.8	243.2	260.8	277.2
75°	158.7	158.7	156.5	158.1	163.1	169.6	177.9	192.1	208.1	222.3	235.5
77.5°	124.6	123.0	124.1	125.7	129.0	137.2	146.6	157.0	169.6	184.5	195.4
80°	90.0	90.6	93.3	96.6	97.7	103.8	113.6	123.0	132.3	144.4	154.8
82.5°	62.0	62.6	63.7	68.1	69.2	75.8	81.3	90.6	98.8	106.0	114.2
85°	36.8	36.8	39.5	41.2	43.9	48.3	52.2	57.6	65.3	70.8	79.1
87.5°	17.6	17.6	19.8	20.9	22.5	25.3	26.4	32.4	34.6	37.3	42.3
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: P334118

CATALOG NUMBER: S124DW-S1020D935-4F0-1E-UDD-A

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1325.3	1325.3	1325.3	1325.3
2.5°	1247.3	1246.2	1242.4	1241.8
5°	1166.6	1163.9	1162.2	1168.3
7.5°	1105.7	1103.5	1098.5	1096.9
10°	1047.5	1045.3	1040.9	1039.8
12.5°	991.5	986.5	986.5	988.2
15°	943.2	941.0	934.9	936.6
17.5°	893.8	891.6	883.3	891.6
20°	847.7	843.3	839.4	838.9
22.5°	803.7	799.9	800.4	796.0
25°	768.6	764.8	763.7	760.9
27.5°	740.0	737.9	735.7	736.8
30°	714.2	713.7	712.6	712.6
32.5°	692.8	692.8	693.9	693.9
35°	673.1	674.7	675.8	674.2
37.5°	655.5	656.6	658.2	659.9
40°	634.6	638.5	639.6	642.3
42.5°	614.9	619.3	622.6	622.6
45°	594.6	599.0	602.8	602.8
47.5°	573.7	579.7	583.6	584.1
50°	552.3	560.0	563.8	566.6
52.5°	531.4	539.1	544.6	545.7
55°	506.7	517.7	523.7	525.9
57.5°	484.8	494.6	501.2	502.9
60°	458.4	469.4	478.2	479.8
62.5°	431.5	443.0	450.7	455.7
65°	399.7	411.2	418.9	420.5
67.5°	366.2	378.3	383.2	386.5
70°	330.5	339.8	345.3	348.1
72.5°	289.9	299.8	306.3	306.3
75°	248.1	256.9	260.2	260.2
77.5°	204.8	209.7	214.1	215.2
80°	163.1	165.8	169.1	169.1
82.5°	120.2	122.4	125.7	125.2
85°	78.0	82.9	82.3	81.3
87.5°	43.9	44.5	46.1	47.2
90°	0.0	0.0	0.0	0.0

(END OF REPORT)