

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: P333939

Luminaire Tested: **S123DW-S1165D930-4F0-1E-UDD-A**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P333939
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-20)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DW-S1165D930-4F0-1E-UDD-A
Description: DEFINE 3 DIRECT LED LUMINAIRE, ASYMMETRIC DIFFUSER
PENDANT/SURFACE/WALL MOUNT, 1165 LUMENS PER FOOT
Light Source: 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3763.6 lumens
Efficiency: N/A
Efficacy: 91.6 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 4' x L: 0.5' x H: 0')
CIE Type: Direct

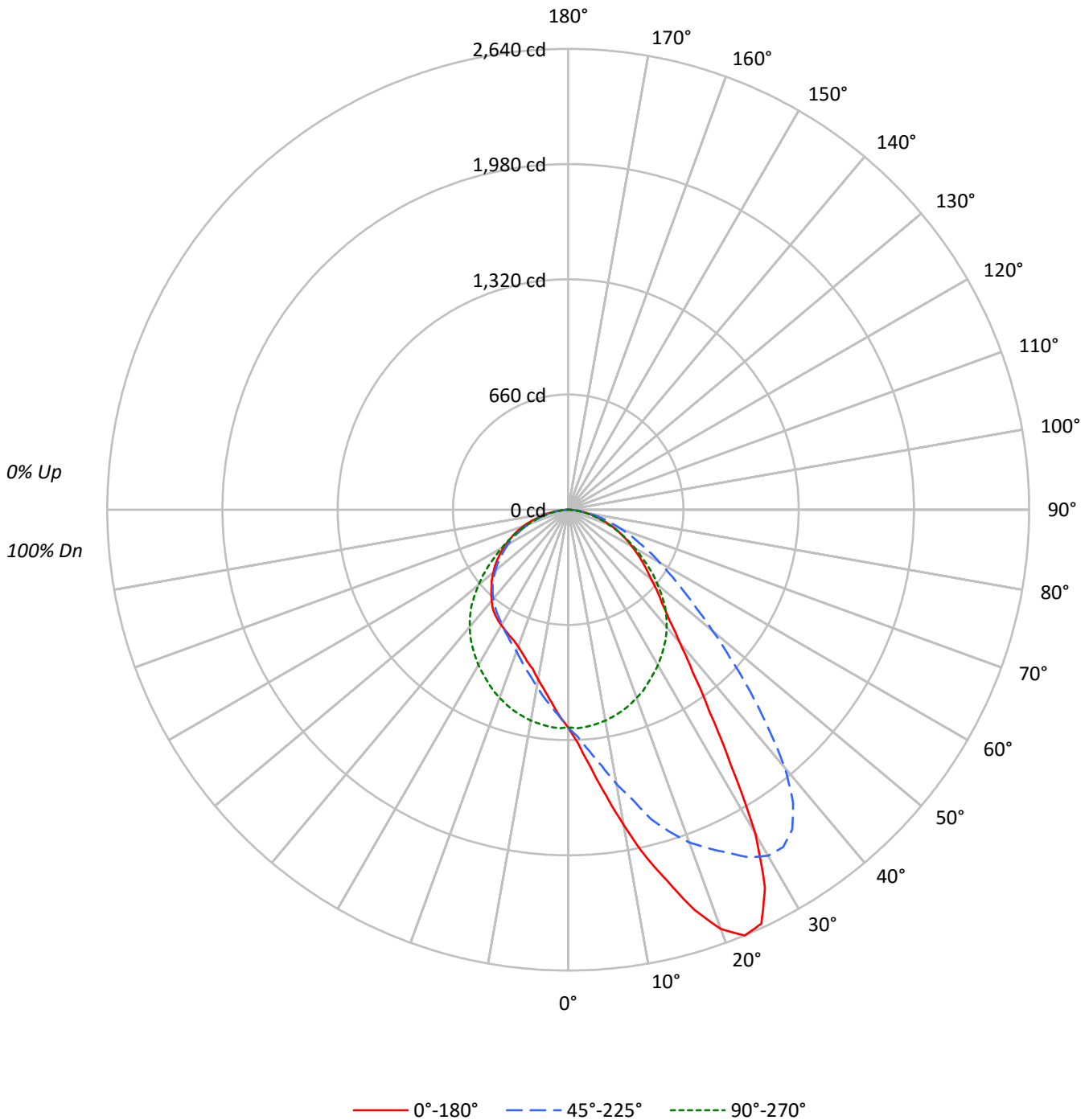
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	74	72
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62
4	84	73	65	58	82	72	64	58	69	62	57	67	61	56	65	60	56	53
5	78	66	57	51	76	64	56	50	62	55	50	60	54	49	59	53	49	47
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	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	39	35	45	39	35	33
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	36	31	29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	6711	6711	6711
5°	8003	6740	5973
10°	10017	6706	5395
15°	12286	6652	5022
20°	14636	6568	4782
25°	15542	6465	4729
30°	13321	6390	4753
35°	9265	6284	4803
40°	6978	6159	4788
45°	5794	5973	4727
50°	5190	5595	4684
55°	4852	5187	4626
60°	4552	4760	4578
65°	4278	4339	4432
70°	4011	3860	4220
75°	3593	3379	3870
80°	3146	2771	3332
85°	2464	2013	2235



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	122.6	3.3
10°-20°	393.9	10.5
20°-30°	662.8	17.6
30°-40°	749.0	19.9
40°-50°	670.9	17.8
50°-60°	541.5	14.4
60°-70°	377.3	10.0
70°-80°	198.1	5.3
80°-90°	47.5	1.3
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°	1179.3	31.3
0°-40°	1928.3	51.2
0°-60°	3140.8	83.5
0°-90°	3763.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3763.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1247	1247	1247	1247	1247	
5°	1481	1388	1248	1130	1106	152
15°	2205	1835	1194	941	901	637
25°	2617	2169	1089	809	796	1157
35°	1410	2236	956	715	731	910
45°	761	1474	785	611	621	600
55°	517	800	553	472	493	464
65°	336	449	341	321	348	335
75°	173	213	162	161	186	185
85°	40	46	33	32	36	48
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°	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0
2.5°	1342.4	1341.2	1338.2	1340.6	1335.8	1329.1	1328.5	1322.5	1305.0	1303.7	1298.9
5°	1481.4	1476.5	1475.9	1475.3	1466.9	1455.4	1433.6	1431.8	1402.8	1388.3	1370.8
7.5°	1649.3	1647.5	1642.7	1637.2	1608.8	1594.9	1574.4	1547.8	1514.0	1481.4	1460.8
10°	1833.0	1852.9	1828.1	1811.2	1795.5	1765.9	1731.5	1688.6	1645.7	1595.5	1557.5
12.5°	2029.9	2037.2	2037.2	2021.5	1994.9	1945.9	1878.3	1830.0	1791.3	1699.5	1666.8
15°	2205.1	2242.0	2218.4	2164.0	2165.3	2122.4	2042.6	1955.0	1908.5	1835.4	1735.7
17.5°	2403.3	2409.9	2402.7	2351.9	2327.2	2264.9	2193.0	2111.5	2023.9	1935.1	1831.8
20°	2555.5	2551.9	2530.8	2507.2	2455.2	2409.3	2329.0	2235.3	2114.5	2027.5	1912.1
22.5°	2640.1	2633.5	2626.2	2607.5	2566.4	2516.3	2446.2	2341.7	2228.1	2100.0	1962.3
25°	2617.2	2625.0	2626.2	2620.8	2605.7	2576.1	2519.3	2437.7	2322.9	2168.9	2029.9
27.5°	2439.5	2459.5	2484.8	2501.8	2528.9	2547.1	2528.9	2477.6	2383.3	2245.6	2074.6
30°	2143.5	2119.3	2179.1	2254.7	2306.0	2396.6	2447.4	2450.4	2402.7	2288.5	2123.0
32.5°	1732.7	1772.0	1790.1	1887.3	2014.8	2119.3	2232.9	2333.8	2357.4	2290.9	2151.4
35°	1410.1	1443.3	1491.6	1540.0	1660.8	1764.7	1942.3	2097.0	2220.2	2236.5	2147.7
37.5°	1172.0	1191.4	1221.0	1272.3	1355.1	1483.8	1624.5	1825.7	1995.5	2115.1	2103.0
40°	993.2	998.0	1032.5	1069.3	1133.4	1234.9	1358.7	1531.5	1745.4	1930.8	2008.2
42.5°	859.1	871.2	880.8	915.9	963.6	1033.7	1146.7	1282.0	1473.5	1694.0	1863.8
45°	761.2	773.3	782.4	805.9	842.2	893.5	973.9	1104.4	1253.6	1474.1	1677.7
47.5°	693.6	692.3	700.2	718.9	744.9	786.0	845.2	932.2	1075.4	1259.6	1472.9
50°	619.9	629.5	631.9	645.8	665.2	693.6	740.7	812.0	924.3	1081.4	1273.5
52.5°	567.9	569.1	577.0	586.0	602.3	622.9	662.1	714.1	796.3	924.3	1097.1
55°	517.1	517.1	523.8	531.6	541.3	561.2	588.4	629.5	696.6	800.5	946.7
57.5°	470.0	472.4	478.5	480.3	488.8	502.6	526.2	558.8	610.2	694.2	815.0
60°	422.9	428.3	427.7	432.6	439.8	450.1	469.4	494.8	539.5	603.5	701.4
62.5°	381.8	380.0	380.0	386.0	393.3	403.0	413.8	435.0	471.2	526.2	606.0
65°	335.9	334.7	338.9	342.5	345.0	352.2	361.9	381.2	406.6	448.9	513.5
67.5°	296.0	292.4	295.4	296.6	300.9	306.9	316.6	328.7	349.2	384.8	436.8
70°	254.9	251.9	251.3	252.5	256.2	260.4	267.0	278.5	297.2	324.4	360.1
72.5°	212.7	210.8	210.8	213.9	215.1	217.5	221.7	232.0	245.9	264.6	297.2
75°	172.8	172.8	172.8	173.4	175.2	177.6	181.2	186.7	198.2	212.7	235.0
77.5°	136.5	137.1	135.9	135.3	138.3	139.6	140.2	146.2	152.8	163.7	181.2
80°	101.5	98.5	99.7	101.5	102.7	103.3	105.1	106.3	111.8	117.2	128.7
82.5°	68.9	66.5	66.5	69.5	69.5	70.1	71.9	73.7	74.9	79.7	84.6
85°	39.9	39.9	40.5	40.5	41.1	40.5	42.3	42.9	42.9	45.9	49.5
87.5°	18.1	16.9	17.5	18.1	17.5	18.1	18.7	19.3	19.9	20.5	21.1
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°	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0
2.5°	1295.3	1290.5	1285.6	1277.2	1269.9	1259.6	1256.6	1253.0	1242.1	1232.5	1225.2
5°	1364.2	1349.7	1328.5	1309.2	1293.5	1272.3	1260.2	1247.6	1229.4	1213.1	1199.8
7.5°	1430.0	1404.6	1375.0	1343.0	1312.2	1282.6	1259.0	1237.9	1214.3	1191.4	1173.9
10°	1511.6	1470.5	1424.6	1375.0	1332.7	1291.7	1257.2	1227.0	1194.4	1166.0	1142.4
12.5°	1604.6	1538.8	1471.1	1408.3	1356.3	1295.3	1251.8	1211.3	1173.2	1137.6	1110.4
15°	1674.1	1596.8	1521.8	1439.1	1362.9	1291.7	1242.1	1193.8	1150.9	1115.9	1082.0
17.5°	1743.0	1658.4	1562.9	1463.2	1373.8	1291.7	1224.0	1172.0	1119.5	1077.2	1044.6
20°	1799.7	1700.1	1588.3	1483.8	1382.3	1288.0	1211.9	1146.7	1088.7	1043.4	1005.3
22.5°	1848.7	1727.9	1611.3	1497.7	1381.7	1278.4	1189.6	1121.9	1057.9	1013.8	972.7
25°	1879.5	1739.9	1623.9	1492.8	1366.6	1261.5	1164.8	1088.7	1025.8	973.9	932.2
27.5°	1908.5	1738.1	1607.0	1465.7	1348.4	1243.9	1140.0	1058.5	992.6	936.4	893.5
30°	1937.5	1741.1	1577.4	1437.9	1319.4	1210.7	1110.4	1028.3	958.2	900.8	860.9
32.5°	1955.6	1739.3	1550.2	1399.2	1273.5	1180.5	1078.4	992.6	920.1	863.9	825.9
35°	1960.4	1729.1	1518.2	1343.0	1223.4	1129.7	1044.6	956.4	880.8	828.3	784.8
37.5°	1950.2	1710.3	1483.2	1292.3	1163.0	1069.9	995.6	920.1	847.6	789.0	751.0
40°	1916.9	1692.2	1440.9	1237.9	1100.1	1011.3	950.3	876.6	805.3	750.3	715.3
42.5°	1853.5	1655.4	1394.4	1177.5	1034.9	946.1	891.1	832.5	766.1	715.3	680.3
45°	1742.4	1598.6	1347.8	1117.1	970.9	879.0	829.5	784.8	723.8	673.6	643.4
47.5°	1600.4	1521.8	1280.8	1053.6	903.8	815.0	763.0	726.2	678.5	638.0	608.4
50°	1451.2	1422.8	1212.5	988.4	836.7	750.3	700.8	668.2	636.2	595.7	569.1
52.5°	1279.0	1308.0	1132.8	920.7	768.5	683.9	638.0	613.8	585.4	554.0	531.6
55°	1119.5	1182.9	1038.5	843.4	700.8	619.9	575.7	552.8	535.9	511.1	491.2
57.5°	964.8	1045.8	940.7	765.5	634.4	563.7	520.2	494.2	483.3	469.4	453.1
60°	830.1	909.8	834.3	686.9	567.3	500.8	463.4	442.2	431.4	422.3	409.0
62.5°	709.9	790.8	730.4	607.2	501.4	441.0	409.6	389.1	381.2	377.6	366.7
65°	601.7	671.2	628.9	523.8	439.2	384.8	355.2	340.7	332.9	331.1	323.8
67.5°	508.1	561.9	529.2	450.1	381.2	331.7	305.7	293.0	286.4	285.8	279.7
70°	416.3	465.8	442.2	372.2	314.8	277.9	256.2	245.3	241.7	241.1	238.0
72.5°	345.0	375.8	358.3	302.7	261.6	229.0	214.5	203.0	198.8	200.0	198.2
75°	265.8	291.8	280.9	240.4	204.8	183.1	169.8	162.5	158.9	160.7	158.3
77.5°	203.0	221.1	210.2	179.4	156.5	140.2	129.9	125.1	121.4	121.4	120.2
80°	144.4	154.1	148.6	131.7	113.6	100.3	92.4	89.4	87.6	87.0	86.4
82.5°	92.4	100.3	93.6	83.4	72.5	65.9	62.2	58.0	56.8	57.4	56.8
85°	52.0	55.0	52.6	45.3	40.5	36.9	34.4	32.6	31.4	32.0	30.8
87.5°	22.4	23.0	21.1	18.7	17.5	15.7	15.7	14.5	13.3	13.3	12.7
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°	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0	1247.0
2.5°	1221.0	1216.7	1210.7	1201.6	1194.4	1182.9	1182.9	1184.7	1184.7	1184.1	1182.9
5°	1189.0	1179.9	1169.0	1156.3	1143.0	1129.7	1127.3	1122.5	1118.9	1116.5	1113.4
7.5°	1156.3	1141.2	1126.1	1108.6	1093.5	1080.8	1071.8	1063.9	1059.1	1053.6	1049.4
10°	1123.1	1103.2	1084.4	1065.7	1045.2	1028.9	1018.6	1011.3	1005.9	1001.1	998.6
12.5°	1083.8	1060.3	1039.1	1021.6	998.6	981.7	972.1	969.7	963.0	951.5	945.5
15°	1045.8	1024.6	999.9	972.7	961.8	941.3	929.8	924.3	920.7	912.9	910.4
17.5°	1014.4	986.0	957.6	937.6	917.7	901.4	894.7	887.5	882.7	875.4	873.6
20°	975.1	950.3	924.9	903.2	882.0	863.9	858.5	853.7	848.8	845.8	843.4
22.5°	935.2	910.4	890.5	870.6	847.6	837.3	831.3	825.9	822.8	821.0	818.6
25°	898.4	876.6	853.1	834.9	816.8	808.9	805.3	802.3	799.9	796.9	796.3
27.5°	865.7	841.6	821.6	804.1	790.8	784.2	779.9	778.1	778.1	779.3	779.9
30°	828.3	806.5	790.8	776.3	764.2	758.2	757.6	757.6	760.0	760.6	761.8
32.5°	793.8	776.9	761.2	747.3	738.9	735.2	738.3	738.3	740.1	741.9	744.3
35°	760.6	744.9	732.8	720.7	712.9	714.7	715.9	717.1	720.1	723.8	726.2
37.5°	729.2	714.7	702.0	692.3	687.5	691.1	694.2	696.6	700.2	703.2	705.6
40°	694.8	684.5	672.4	664.0	665.2	667.0	669.4	672.4	675.4	677.2	679.7
42.5°	662.7	651.9	643.4	636.8	638.6	641.0	642.2	643.4	647.0	650.7	651.9
45°	630.1	621.7	613.2	609.0	610.2	611.4	612.6	614.4	617.4	619.9	620.5
47.5°	593.3	587.2	581.8	577.0	579.4	578.8	580.6	584.2	585.4	586.6	590.2
50°	558.2	552.8	546.1	544.9	544.9	544.9	545.5	550.4	550.4	552.8	555.2
52.5°	519.6	516.5	512.9	510.5	509.3	509.3	512.3	514.1	515.3	519.0	521.4
55°	481.5	477.9	474.3	472.4	471.2	472.4	477.3	478.5	481.5	483.3	485.1
57.5°	441.6	439.2	436.2	435.0	435.0	435.6	439.2	442.2	442.8	448.9	451.3
60°	402.4	398.1	395.7	395.7	394.5	399.9	398.7	404.8	406.0	409.6	413.8
62.5°	361.9	355.8	355.2	355.2	357.7	358.3	360.7	362.5	366.1	370.9	374.0
65°	317.8	314.8	319.0	318.4	317.2	320.8	320.8	323.8	327.4	331.7	338.3
67.5°	276.7	274.3	275.5	274.9	276.7	279.1	280.9	283.3	287.6	292.4	296.6
70°	235.0	236.8	233.8	236.2	238.0	238.6	239.8	243.5	248.3	251.3	256.2
72.5°	194.5	193.9	195.1	195.7	197.6	198.8	200.0	204.2	209.6	212.1	215.7
75°	155.9	155.3	157.1	157.1	160.1	161.3	162.5	164.3	169.2	172.8	175.8
77.5°	120.8	121.4	120.8	123.2	122.0	122.6	126.3	128.1	128.7	136.5	137.7
80°	85.8	87.0	87.6	88.2	88.8	87.6	91.8	93.6	93.6	97.9	100.9
82.5°	55.6	56.2	58.0	58.6	58.6	60.4	59.8	61.0	62.8	64.0	68.3
85°	30.8	32.6	33.2	32.6	33.2	32.0	33.8	34.4	35.0	35.0	35.0
87.5°	12.1	12.7	12.1	12.7	12.1	12.7	12.7	11.5	11.5	13.3	10.9
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: P333939

CATALOG NUMBER: S123DW-S1165D930-4F0-1E-UDD-A

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1247.0	1247.0	1247.0	1247.0
2.5°	1178.7	1178.1	1182.3	1179.3
5°	1109.8	1111.6	1105.6	1105.6
7.5°	1047.6	1045.2	1045.8	1041.5
10°	991.4	987.8	986.6	987.2
12.5°	944.9	944.9	935.2	935.2
15°	910.4	899.0	897.8	901.4
17.5°	872.4	865.7	866.3	865.1
20°	843.4	839.8	839.2	834.9
22.5°	816.8	816.2	816.8	812.0
25°	795.7	798.7	796.3	796.3
27.5°	781.2	781.2	779.3	779.3
30°	764.2	763.6	764.8	764.8
32.5°	747.3	748.5	748.5	749.1
35°	729.8	730.4	732.2	731.0
37.5°	706.8	709.9	709.3	710.5
40°	680.3	682.1	681.5	681.5
42.5°	653.1	654.3	652.5	651.3
45°	622.9	621.7	623.5	621.1
47.5°	589.6	590.2	590.9	593.3
50°	556.4	560.0	560.0	559.4
52.5°	523.8	525.0	528.0	528.0
55°	490.0	491.2	492.4	493.0
57.5°	455.5	454.9	457.3	457.9
60°	418.7	418.7	423.5	425.3
62.5°	379.4	381.8	386.7	383.0
65°	341.3	346.2	345.6	348.0
67.5°	301.5	304.5	309.3	309.3
70°	261.0	264.0	266.4	268.2
72.5°	221.7	222.9	229.6	225.9
75°	180.0	184.3	187.9	186.1
77.5°	140.2	145.6	146.8	145.0
80°	105.1	104.5	108.1	107.5
82.5°	70.1	69.5	70.7	71.3
85°	37.5	39.3	36.9	36.2
87.5°	10.9	10.9	10.3	9.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)