

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: FAIL-SAFE

Report Number: P709159

Luminaire Tested: **4APN-28-30L830-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709159
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-28-30L830-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient and Exam Light
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

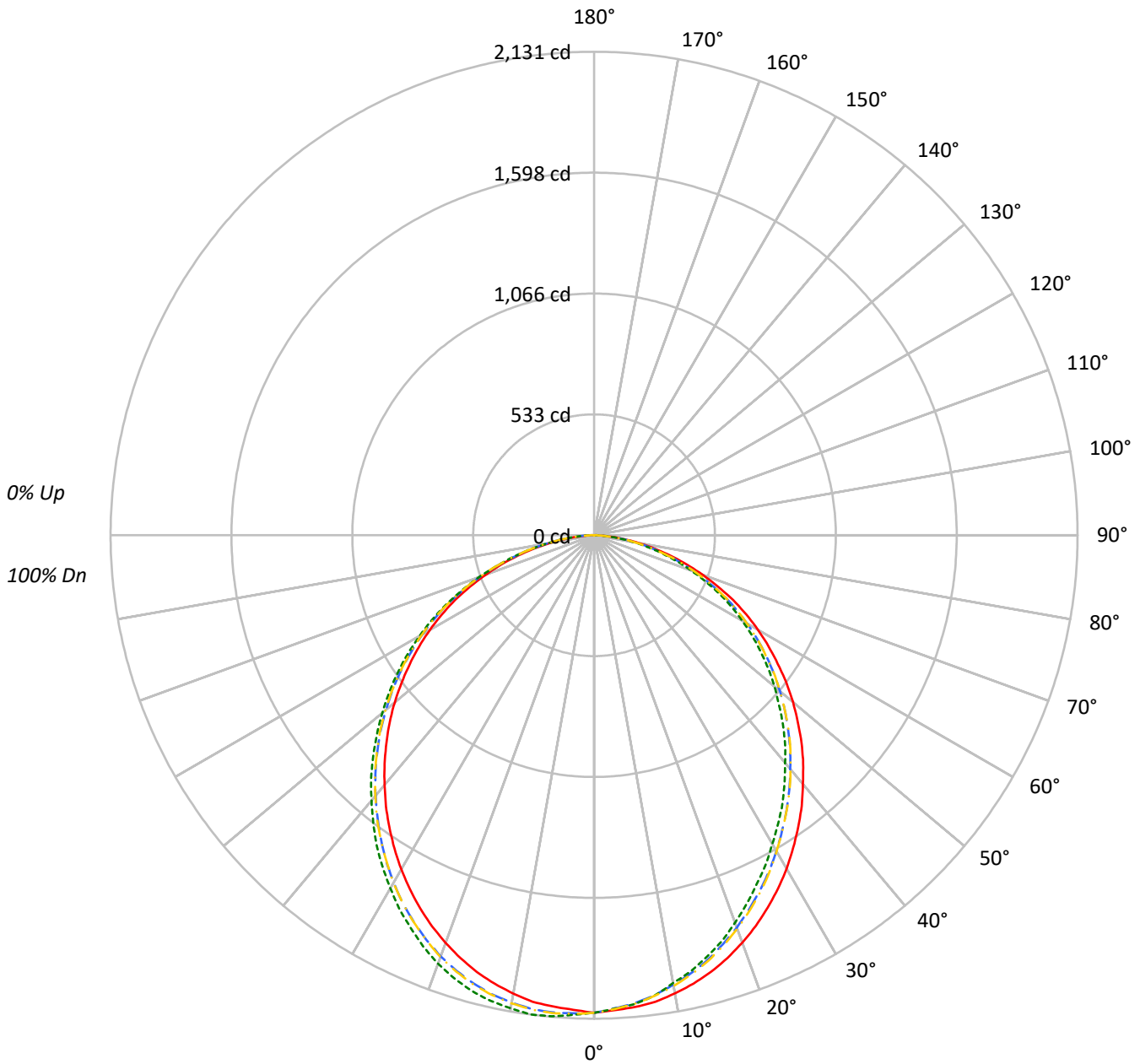
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5563.7 lumens
Efficiency: N/A
Efficacy: 85.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.19 / 1.32
Luminous Opening: Rectangular (W 0.29' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 65
Input Voltage (V): 120
Input Current (Ain): 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



— 0°-180° - - 45°-225° - - - 90°-270° - · - 135°-315°



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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	0
RCR																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	102	102	102	100
1	109	104	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	86	86	86	84
2	99	91	84	79	97	89	83	78	86	80	76	82	78	74	79	76	72	72	72	72	70
3	90	80	72	66	88	78	71	65	75	69	64	73	67	63	70	66	62	62	62	62	59
4	83	71	62	56	81	70	62	55	67	60	54	65	59	54	63	57	53	53	53	53	51
5	76	64	55	48	74	62	54	48	60	53	47	58	52	47	56	51	46	46	46	46	44
6	71	57	48	42	69	56	48	42	55	47	41	53	46	41	51	45	41	41	41	41	39
7	65	52	43	37	64	51	43	37	50	42	37	48	41	36	47	41	36	36	36	36	34
8	61	48	39	33	59	47	39	33	45	38	33	44	38	33	43	37	32	32	32	32	31
9	57	44	35	30	56	43	35	30	42	35	30	41	34	30	40	34	29	29	29	29	28
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	27	27	27	25

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	19419	19419	19419	19419
5°	19333	19207	19310	19711
10°	19209	18781	19221	19835
15°	19030	18369	19042	19868
20°	18761	17838	18773	19731
25°	18432	17274	18471	19452
30°	18078	16736	18105	19132
35°	17665	16301	17707	18821
40°	17237	15779	17298	18384
45°	16868	15352	16884	17964
50°	16427	14902	16462	17491
55°	15904	14414	15965	16997
60°	15395	13911	15417	16375
65°	14760	13302	14760	15648
70°	13704	12304	13669	14537
75°	12423	11147	12338	13086
80°	10706	9585	10504	11227
85°	8246	7325	7982	9030



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	198.8	3.6
10°-20°	562.8	10.1
20°-30°	833.2	15.0
30°-40°	977.6	17.6
40°-50°	990.7	17.8
50°-60°	879.3	15.8
60°-70°	660.2	11.9
70°-80°	366.6	6.6
80°-90°	94.7	1.7
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°	1594.8	28.7
0°-40°	2572.3	46.2
0°-60°	4442.4	79.8
0°-90°	5563.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5563.7	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2105	2105	2105	2105	2105	
5°	2088	2074	2085	2128	2088	198
15°	1992	1923	1994	2080	1992	561
25°	1811	1697	1814	1911	1811	834
35°	1568	1447	1572	1671	1568	982
45°	1293	1177	1294	1377	1293	996
55°	989	896	992	1057	989	885
65°	676	609	676	717	676	667
75°	348	313	346	367	348	370
85°	78	69	75	85	78	94
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
0°	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8
2.5°	2094.9	2099.9	2106.0	2099.9	2090.0	2085.0	2085.0	2083.8	2087.5	2088.7	2087.5
5°	2087.5	2090.0	2091.2	2083.8	2072.7	2066.5	2064.0	2062.8	2067.7	2073.9	2067.7
7.5°	2073.9	2072.7	2071.4	2061.5	2049.2	2040.5	2036.8	2035.6	2040.5	2046.7	2041.8
10°	2050.4	2049.2	2045.5	2033.1	2017.0	2005.9	2002.2	1998.5	2002.2	2004.7	2002.2
12.5°	2024.5	2019.5	2014.6	2001.0	1983.7	1971.3	1965.1	1960.2	1965.1	1968.8	1966.4
15°	1992.3	1984.9	1976.3	1961.4	1944.1	1930.5	1923.1	1918.2	1921.9	1923.1	1923.1
17.5°	1954.0	1945.4	1936.7	1918.2	1897.2	1882.3	1873.7	1867.5	1872.4	1874.9	1874.9
20°	1910.8	1900.9	1889.7	1870.0	1847.7	1831.7	1821.8	1814.4	1815.6	1816.8	1816.8
22.5°	1863.8	1851.4	1837.8	1816.8	1793.3	1776.0	1766.2	1757.5	1757.5	1758.7	1758.7
25°	1810.6	1797.1	1783.5	1762.4	1737.7	1719.2	1706.8	1698.2	1698.2	1696.9	1699.4
27.5°	1756.3	1741.4	1727.8	1705.6	1679.6	1661.1	1648.7	1640.1	1638.9	1637.6	1640.1
30°	1696.9	1679.6	1664.8	1641.3	1616.6	1598.1	1585.7	1575.8	1573.3	1570.9	1573.3
32.5°	1633.9	1617.8	1601.8	1577.1	1552.3	1533.8	1521.4	1511.6	1510.3	1509.1	1511.6
35°	1568.4	1551.1	1536.3	1512.8	1488.1	1469.5	1455.9	1447.3	1447.3	1447.3	1447.3
37.5°	1504.1	1486.8	1470.8	1447.3	1422.6	1404.0	1390.4	1381.8	1379.3	1378.1	1379.3
40°	1431.2	1416.4	1401.6	1379.3	1354.6	1336.0	1324.9	1315.0	1312.6	1310.1	1313.8
42.5°	1364.5	1349.6	1333.6	1312.6	1287.8	1269.3	1256.9	1248.3	1247.1	1245.8	1247.1
45°	1292.8	1275.5	1259.4	1239.6	1217.4	1200.1	1187.7	1179.1	1177.8	1176.6	1177.8
47.5°	1217.4	1203.8	1190.2	1170.4	1148.2	1130.9	1119.8	1109.9	1107.4	1104.9	1107.4
50°	1144.5	1129.6	1116.1	1097.5	1076.5	1060.4	1050.5	1041.9	1039.4	1038.2	1039.4
52.5°	1067.8	1054.3	1041.9	1023.4	1006.1	990.0	978.9	971.4	970.2	969.0	970.2
55°	988.7	976.4	965.3	950.4	933.1	918.3	908.4	899.8	898.5	896.1	898.5
57.5°	912.1	902.2	891.1	875.0	859.0	845.4	836.7	829.3	828.1	826.8	828.1
60°	834.3	824.4	814.5	800.9	784.8	771.2	763.8	757.6	755.2	753.9	755.2
62.5°	756.4	746.5	739.1	725.5	710.7	699.5	692.1	685.9	683.5	682.2	683.5
65°	676.1	667.4	658.8	646.4	635.3	626.6	619.2	613.0	610.6	609.3	609.3
67.5°	590.8	583.4	577.2	566.1	553.7	545.0	537.6	532.7	530.2	529.0	530.2
70°	508.0	501.8	495.6	487.0	477.1	469.7	464.7	459.8	457.3	456.1	456.1
72.5°	428.9	423.9	417.7	410.3	402.9	395.5	390.6	386.8	384.4	383.1	383.1
75°	348.5	343.6	341.1	334.9	327.5	322.6	317.6	315.2	312.7	312.7	312.7
77.5°	273.1	270.7	268.2	262.0	257.1	252.1	248.4	247.2	244.7	244.7	244.7
80°	201.5	200.2	199.0	195.3	190.3	185.4	182.9	181.7	180.4	180.4	180.4
82.5°	136.0	136.0	134.7	131.0	127.3	126.1	123.6	122.4	122.4	122.4	122.4
85°	77.9	77.9	77.9	76.6	74.2	74.2	71.7	70.4	69.2	69.2	69.2
87.5°	30.9	32.1	33.4	32.1	29.7	29.7	29.7	29.7	29.7	29.7	29.7
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°	120°	130°	140°	150°	160°	170°	180°	190°	200°	210°
0°	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8
2.5°	2083.8	2086.3	2087.5	2093.7	2101.1	2106.0	2099.9	2093.7	2103.6	2114.7	2114.7
5°	2062.8	2065.3	2069.0	2076.4	2086.3	2092.4	2090.0	2085.0	2099.9	2112.2	2113.5
7.5°	2036.8	2039.3	2044.2	2051.7	2064.0	2072.7	2072.7	2073.9	2087.5	2102.3	2106.0
10°	1998.5	2004.7	2012.1	2023.2	2035.6	2046.7	2050.4	2051.7	2069.0	2085.0	2090.0
12.5°	1962.7	1968.8	1976.3	1988.6	2003.5	2015.8	2019.5	2024.5	2043.0	2061.5	2069.0
15°	1921.9	1928.1	1936.7	1949.1	1965.1	1978.7	1986.2	1993.6	2012.1	2031.9	2040.5
17.5°	1873.7	1879.9	1888.5	1903.3	1921.9	1937.9	1946.6	1955.3	1976.3	1997.3	2005.9
20°	1816.8	1825.5	1837.8	1852.7	1873.7	1892.2	1902.1	1912.0	1934.2	1955.3	1965.1
22.5°	1758.7	1768.6	1782.2	1799.5	1821.8	1841.5	1853.9	1866.3	1888.5	1909.5	1920.6
25°	1700.6	1711.8	1725.4	1743.9	1764.9	1784.7	1799.5	1814.4	1836.6	1858.8	1870.0
27.5°	1641.3	1651.2	1664.8	1683.3	1706.8	1727.8	1742.7	1758.7	1781.0	1804.5	1815.6
30°	1575.8	1586.9	1599.3	1617.8	1643.8	1667.3	1682.1	1699.4	1721.7	1745.1	1756.3
32.5°	1512.8	1522.7	1535.0	1553.6	1579.5	1604.2	1620.3	1637.6	1659.9	1683.3	1693.2
35°	1447.3	1457.2	1470.8	1489.3	1515.3	1538.7	1554.8	1572.1	1593.1	1615.4	1626.5
37.5°	1383.0	1392.9	1406.5	1425.0	1449.8	1473.2	1489.3	1506.6	1527.6	1548.6	1558.5
40°	1316.3	1326.2	1337.3	1355.8	1380.5	1404.0	1418.9	1436.2	1457.2	1479.4	1489.3
42.5°	1248.3	1258.2	1271.8	1290.3	1313.8	1334.8	1350.9	1366.9	1386.7	1406.5	1416.4
45°	1180.3	1189.0	1202.6	1219.9	1242.1	1261.9	1278.0	1294.0	1312.6	1331.1	1341.0
47.5°	1109.9	1119.8	1130.9	1148.2	1170.4	1191.4	1207.5	1222.3	1239.6	1258.2	1266.8
50°	1041.9	1050.5	1061.7	1077.7	1098.7	1118.5	1132.1	1146.9	1163.0	1180.3	1187.7
52.5°	971.4	980.1	991.2	1007.3	1024.6	1043.1	1055.5	1069.1	1085.2	1101.2	1108.6
55°	899.8	905.9	915.8	930.7	949.2	966.5	978.9	992.5	1006.1	1019.6	1028.3
57.5°	829.3	836.7	846.6	860.2	876.3	892.3	903.5	914.6	928.2	941.8	948.0
60°	757.6	763.8	771.2	783.6	799.7	813.2	824.4	835.5	846.6	859.0	865.2
62.5°	684.7	690.9	698.3	710.7	724.3	736.6	746.5	756.4	766.3	777.4	783.6
65°	611.8	618.0	625.4	634.0	645.2	656.3	666.2	676.1	683.5	690.9	697.1
67.5°	532.7	538.9	546.3	553.7	563.6	574.7	582.1	590.8	598.2	606.8	610.6
70°	458.5	463.5	470.9	477.1	485.7	493.1	499.3	506.7	511.7	519.1	525.3
72.5°	385.6	390.6	396.7	402.9	407.9	414.0	421.5	427.6	433.8	441.2	443.7
75°	315.2	317.6	322.6	327.5	332.5	337.4	341.1	346.1	351.0	355.9	359.7
77.5°	246.0	248.4	253.4	257.1	260.8	264.5	267.0	269.4	274.4	278.1	281.8
80°	180.4	182.9	186.6	190.3	194.0	197.7	197.7	197.7	203.9	208.9	210.1
82.5°	122.4	123.6	126.1	128.5	131.0	133.5	133.5	132.2	136.0	139.7	142.1
85°	70.4	71.7	74.2	74.2	75.4	75.4	75.4	75.4	77.9	81.6	84.0
87.5°	28.4	28.4	29.7	29.7	30.9	30.9	29.7	28.4	30.9	34.6	35.8
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):

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8	2104.8
2.5°	2109.7	2108.5	2112.2	2113.5	2115.9	2115.9	2117.2	2117.2	2114.7	2111.0	2112.2
5°	2111.0	2111.0	2114.7	2118.4	2123.3	2128.3	2124.6	2120.9	2118.4	2114.7	2113.5
7.5°	2104.8	2107.3	2111.0	2117.2	2123.3	2130.8	2125.8	2120.9	2114.7	2109.7	2107.3
10°	2090.0	2092.4	2098.6	2104.8	2111.0	2117.2	2112.2	2107.3	2102.3	2096.1	2093.7
12.5°	2071.4	2075.1	2082.6	2088.7	2094.9	2102.3	2096.1	2090.0	2083.8	2077.6	2073.9
15°	2044.2	2049.2	2057.8	2065.3	2073.9	2080.1	2075.1	2070.2	2062.8	2054.1	2047.9
17.5°	2009.6	2017.0	2025.7	2034.4	2041.8	2047.9	2044.2	2039.3	2030.6	2020.8	2013.3
20°	1971.3	1978.7	1986.2	1994.8	2003.5	2009.6	2004.7	1998.5	1989.9	1982.4	1975.0
22.5°	1926.8	1934.2	1942.9	1950.3	1957.7	1963.9	1957.7	1950.3	1942.9	1935.5	1928.1
25°	1876.2	1883.6	1893.5	1900.9	1905.8	1910.8	1905.8	1899.6	1892.2	1884.8	1877.4
27.5°	1823.0	1830.4	1840.3	1847.7	1852.7	1857.6	1852.7	1846.5	1839.1	1831.7	1824.2
30°	1763.7	1771.1	1781.0	1788.4	1792.1	1795.8	1790.9	1785.9	1779.7	1772.3	1764.9
32.5°	1700.6	1708.1	1715.5	1722.9	1729.1	1734.0	1729.1	1724.1	1716.7	1706.8	1699.4
35°	1633.9	1641.3	1650.0	1657.4	1664.8	1671.0	1663.6	1654.9	1648.7	1642.6	1636.4
37.5°	1563.5	1572.1	1582.0	1590.7	1593.1	1598.1	1593.1	1588.2	1582.0	1575.8	1568.4
40°	1494.2	1501.7	1510.3	1519.0	1522.7	1526.4	1521.4	1516.5	1509.1	1502.9	1495.5
42.5°	1422.6	1430.0	1437.4	1444.8	1449.8	1454.7	1449.8	1442.3	1437.4	1432.5	1426.3
45°	1348.4	1355.8	1362.0	1369.4	1373.1	1376.8	1371.9	1365.7	1360.8	1357.1	1350.9
47.5°	1273.0	1279.2	1285.4	1291.6	1294.0	1297.7	1292.8	1289.1	1285.4	1281.7	1276.7
50°	1193.9	1200.1	1207.5	1213.7	1214.9	1218.6	1213.7	1210.0	1206.3	1202.6	1198.9
52.5°	1116.1	1121.0	1127.2	1133.4	1135.8	1138.3	1133.4	1128.4	1124.7	1122.2	1118.5
55°	1034.5	1039.4	1045.6	1050.5	1054.3	1056.7	1051.8	1046.8	1043.1	1041.9	1038.2
57.5°	952.9	957.9	964.0	969.0	971.4	973.9	969.0	964.0	961.6	959.1	956.6
60°	870.1	875.0	880.0	883.7	886.2	887.4	882.5	878.8	877.5	876.3	873.8
62.5°	788.5	791.0	795.9	798.4	800.9	802.1	798.4	795.9	794.7	793.5	792.2
65°	703.2	709.4	713.1	715.6	715.6	716.8	713.1	711.9	710.7	709.4	707.0
67.5°	615.5	620.4	622.9	625.4	625.4	625.4	625.4	625.4	624.1	621.7	619.2
70°	531.5	535.2	537.6	538.9	538.9	538.9	536.4	535.2	536.4	536.4	535.2
72.5°	446.2	448.6	449.9	451.1	449.9	449.9	449.9	452.4	452.4	451.1	448.6
75°	363.4	365.8	367.1	368.3	367.1	367.1	367.1	369.5	368.3	368.3	367.1
77.5°	285.5	286.7	286.7	288.0	286.7	286.7	288.0	290.4	289.2	289.2	289.2
80°	211.3	211.3	211.3	212.6	211.3	211.3	212.6	215.1	213.8	213.8	213.8
82.5°	143.4	144.6	144.6	144.6	145.8	147.1	147.1	147.1	147.1	147.1	145.8
85°	85.3	86.5	85.3	85.3	85.3	85.3	86.5	87.8	87.8	87.8	87.8
87.5°	37.1	38.3	37.1	35.8	34.6	34.6	37.1	39.5	39.5	38.3	38.3
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: P709159

CATALOG NUMBER: 4APN-28-30L830-UNV

CANDELA DISTRIBUTION (continued):

	330°	340°	350°	360°
0°	2104.8	2104.8	2104.8	2104.8
2.5°	2117.2	2117.2	2106.0	2094.9
5°	2115.9	2113.5	2101.1	2087.5
7.5°	2108.5	2104.8	2088.7	2073.9
10°	2091.2	2086.3	2069.0	2050.4
12.5°	2070.2	2062.8	2043.0	2024.5
15°	2043.0	2034.4	2013.3	1992.3
17.5°	2007.2	1997.3	1976.3	1954.0
20°	1968.8	1957.7	1934.2	1910.8
22.5°	1921.9	1912.0	1887.3	1863.8
25°	1871.2	1860.1	1835.4	1810.6
27.5°	1816.8	1804.5	1779.7	1756.3
30°	1757.5	1745.1	1720.4	1696.9
32.5°	1694.5	1684.6	1659.9	1633.9
35°	1630.2	1617.8	1593.1	1568.4
37.5°	1562.2	1551.1	1527.6	1504.1
40°	1490.5	1479.4	1454.7	1431.2
42.5°	1420.1	1410.2	1386.7	1364.5
45°	1344.7	1334.8	1312.6	1292.8
47.5°	1269.3	1259.4	1238.4	1217.4
50°	1192.7	1182.8	1163.0	1144.5
52.5°	1112.3	1104.9	1086.4	1067.8
55°	1032.0	1023.4	1004.8	988.7
57.5°	951.7	945.5	928.2	912.1
60°	868.9	861.4	847.9	834.3
62.5°	788.5	782.3	768.8	756.4
65°	703.2	698.3	687.2	676.1
67.5°	615.5	611.8	600.7	590.8
70°	531.5	525.3	516.6	508.0
72.5°	446.2	443.7	436.3	428.9
75°	364.6	362.1	354.7	348.5
77.5°	288.0	285.5	279.3	273.1
80°	212.6	211.3	206.4	201.5
82.5°	145.8	144.6	140.9	136.0
85°	87.8	85.3	81.6	77.9
87.5°	38.3	37.1	33.4	30.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)