

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: P

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

Issue Date: 06/06/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 06/06/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: 4APN-28-30L830-UNV-NP  
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient and Exam Light  
w/ Nature Pattern Lens  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

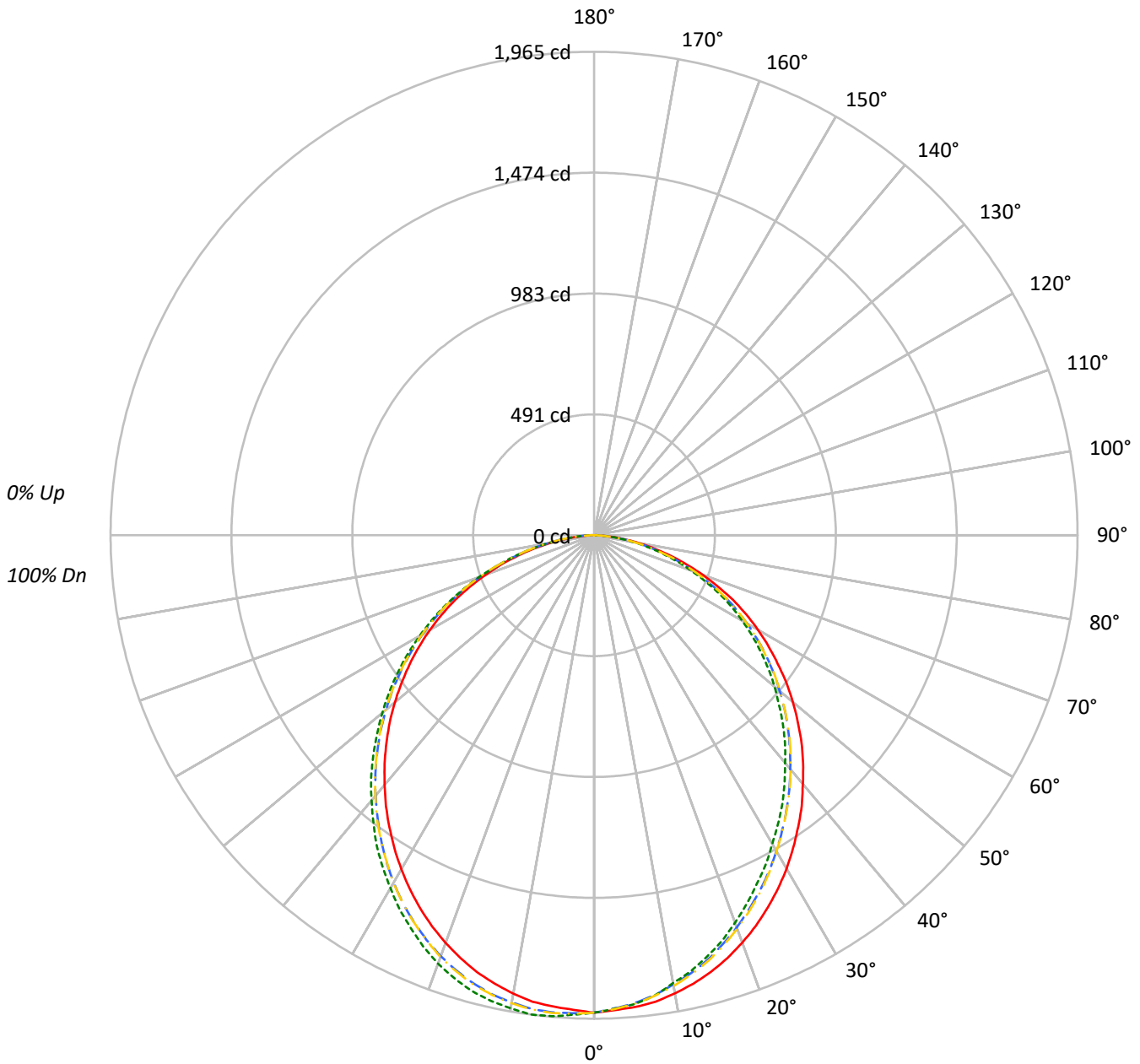
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5129.8 lumens  
Efficiency: N/A  
Efficacy: 78.9 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 (A<sub>in</sub>): 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				
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°	17904	17904	17904	17904
5°	17826	17709	17804	18174
10°	17711	17316	17722	18288
15°	17545	16936	17557	18319
20°	17298	16447	17309	18192
25°	16994	15927	17030	17935
30°	16667	15431	16692	17639
35°	16288	15029	16326	17353
40°	15893	14548	15949	16949
45°	15553	14154	15567	16563
50°	15146	13739	15177	16126
55°	14663	13290	14720	15672
60°	14194	12826	14214	15098
65°	13609	12265	13609	14428
70°	12635	11343	12603	13404
75°	11453	10277	11375	12067
80°	9872	8836	9686	10350
85°	7601	6754	7357	8321



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	183.3	3.6
10°-20°	518.9	10.1
20°-30°	768.2	15.0
30°-40°	901.3	17.6
40°-50°	913.5	17.8
50°-60°	810.7	15.8
60°-70°	608.7	11.9
70°-80°	338.0	6.6
80°-90°	87.3	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°	1470.4	28.7
0°-40°	2371.7	46.2
0°-60°	4095.9	79.8
0°-90°	5129.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5129.8	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1941	1941	1941	1941	1941	
5°	1925	1912	1922	1962	1925	183
15°	1837	1773	1838	1918	1837	518
25°	1669	1564	1673	1762	1669	769
35°	1446	1334	1450	1541	1446	905
45°	1192	1085	1193	1269	1192	919
55°	912	826	915	974	912	816
65°	623	562	623	661	623	615
75°	321	288	319	338	321	342
85°	72	64	70	79	72	87
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°	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6
2.5°	1931.5	1936.1	1941.7	1936.1	1927.0	1922.4	1922.4	1921.3	1924.7	1925.8	1924.7
5°	1924.7	1927.0	1928.1	1921.3	1911.0	1905.3	1903.0	1901.9	1906.4	1912.1	1906.4
7.5°	1912.1	1911.0	1909.8	1900.7	1889.4	1881.3	1877.9	1876.8	1881.3	1887.1	1882.5
10°	1890.5	1889.4	1886.0	1874.5	1859.7	1849.4	1846.0	1842.6	1846.0	1848.3	1846.0
12.5°	1866.6	1862.0	1857.5	1844.9	1829.0	1817.5	1811.8	1807.3	1811.8	1815.2	1813.0
15°	1836.9	1830.1	1822.1	1808.4	1792.5	1779.9	1773.1	1768.6	1772.0	1773.1	1773.1
17.5°	1801.6	1793.7	1785.6	1768.6	1749.2	1735.5	1727.6	1721.8	1726.4	1728.7	1728.7
20°	1761.8	1752.6	1742.3	1724.1	1703.6	1688.8	1679.7	1672.9	1674.0	1675.1	1675.1
22.5°	1718.4	1707.0	1694.5	1675.1	1653.4	1637.5	1628.4	1620.4	1620.4	1621.5	1621.5
25°	1669.4	1656.9	1644.4	1624.9	1602.2	1585.1	1573.7	1565.7	1565.7	1564.5	1566.8
27.5°	1619.3	1605.6	1593.0	1572.6	1548.6	1531.5	1520.1	1512.2	1511.1	1509.9	1512.2
30°	1564.5	1548.6	1534.9	1513.3	1490.5	1473.4	1462.0	1452.9	1450.6	1448.4	1450.6
32.5°	1506.5	1491.6	1476.9	1454.1	1431.2	1414.2	1402.7	1393.7	1392.5	1391.4	1393.7
35°	1446.1	1430.1	1416.5	1394.8	1372.0	1354.9	1342.3	1334.4	1334.4	1334.4	1334.4
37.5°	1386.8	1370.8	1356.1	1334.4	1311.6	1294.5	1281.9	1274.0	1271.7	1270.6	1271.7
40°	1319.6	1305.9	1292.3	1271.7	1248.9	1231.8	1221.6	1212.4	1210.2	1207.9	1211.3
42.5°	1258.1	1244.3	1229.6	1210.2	1187.4	1170.3	1158.9	1150.9	1149.8	1148.6	1149.8
45°	1192.0	1176.0	1161.2	1142.9	1122.4	1106.5	1095.1	1087.1	1085.9	1084.8	1085.9
47.5°	1122.4	1109.9	1097.4	1079.1	1058.6	1042.7	1032.5	1023.3	1021.0	1018.7	1021.0
50°	1055.2	1041.5	1029.0	1011.9	992.5	977.7	968.6	960.6	958.3	957.2	958.3
52.5°	984.5	972.1	960.6	943.6	927.6	912.8	902.5	895.6	894.5	893.4	894.5
55°	911.6	900.2	890.0	876.3	860.3	846.7	837.5	829.6	828.4	826.2	828.4
57.5°	841.0	831.8	821.6	806.8	792.0	779.5	771.4	764.6	763.5	762.3	763.5
60°	769.2	760.1	751.0	738.4	723.6	711.0	704.2	698.5	696.3	695.1	696.3
62.5°	697.4	688.3	681.5	668.9	655.3	644.9	638.1	632.4	630.2	629.0	630.2
65°	623.4	615.3	607.4	596.0	585.7	577.7	570.9	565.2	563.0	561.8	561.8
67.5°	544.7	537.9	532.2	521.9	510.5	502.5	495.7	491.1	488.8	487.7	488.8
70°	468.4	462.7	456.9	449.0	439.9	433.1	428.5	423.9	421.6	420.5	420.5
72.5°	395.4	390.8	385.1	378.3	371.5	364.7	360.1	356.6	354.4	353.2	353.2
75°	321.3	316.8	314.5	308.8	302.0	297.4	292.8	290.6	288.3	288.3	288.3
77.5°	251.8	249.6	247.3	241.6	237.0	232.4	229.0	227.9	225.6	225.6	225.6
80°	185.8	184.6	183.5	180.1	175.5	170.9	168.6	167.5	166.3	166.3	166.3
82.5°	125.4	125.4	124.2	120.8	117.4	116.3	114.0	112.9	112.9	112.9	112.9
85°	71.8	71.8	71.8	70.6	68.4	68.4	66.1	64.9	63.8	63.8	63.8
87.5°	28.5	29.6	30.8	29.6	27.4	27.4	27.4	27.4	27.4	27.4	27.4
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°	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6
2.5°	1921.3	1923.6	1924.7	1930.4	1937.2	1941.7	1936.1	1930.4	1939.5	1949.8	1949.8
5°	1901.9	1904.2	1907.6	1914.4	1923.6	1929.2	1927.0	1922.4	1936.1	1947.4	1948.6
7.5°	1877.9	1880.2	1884.8	1891.7	1903.0	1911.0	1911.0	1912.1	1924.7	1938.3	1941.7
10°	1842.6	1848.3	1855.2	1865.4	1876.8	1887.1	1890.5	1891.7	1907.6	1922.4	1927.0
12.5°	1809.6	1815.2	1822.1	1833.5	1847.2	1858.6	1862.0	1866.6	1883.6	1900.7	1907.6
15°	1772.0	1777.7	1785.6	1797.1	1811.8	1824.4	1831.3	1838.1	1855.2	1873.4	1881.3
17.5°	1727.6	1733.3	1741.2	1754.8	1772.0	1786.7	1794.8	1802.8	1822.1	1841.5	1849.4
20°	1675.1	1683.1	1694.5	1708.2	1727.6	1744.6	1753.7	1762.9	1783.3	1802.8	1811.8
22.5°	1621.5	1630.6	1643.2	1659.1	1679.7	1697.9	1709.3	1720.7	1741.2	1760.6	1770.8
25°	1568.0	1578.3	1590.8	1607.9	1627.2	1645.5	1659.1	1672.9	1693.3	1713.8	1724.1
27.5°	1513.3	1522.4	1534.9	1552.0	1573.7	1593.0	1606.8	1621.5	1642.1	1663.7	1674.0
30°	1452.9	1463.1	1474.6	1491.6	1515.6	1537.3	1550.9	1566.8	1587.4	1609.0	1619.3
32.5°	1394.8	1403.9	1415.3	1432.4	1456.3	1479.1	1493.9	1509.9	1530.4	1552.0	1561.1
35°	1334.4	1343.5	1356.1	1373.1	1397.1	1418.7	1433.5	1449.5	1468.8	1489.4	1499.6
37.5°	1275.1	1284.3	1296.8	1313.9	1336.7	1358.3	1373.1	1389.1	1408.4	1427.8	1436.9
40°	1213.6	1222.8	1233.0	1250.0	1272.8	1294.5	1308.2	1324.2	1343.5	1364.0	1373.1
42.5°	1150.9	1160.1	1172.6	1189.7	1211.3	1230.7	1245.5	1260.3	1278.5	1296.8	1305.9
45°	1088.2	1096.3	1108.8	1124.7	1145.2	1163.5	1178.3	1193.1	1210.2	1227.3	1236.4
47.5°	1023.3	1032.5	1042.7	1058.6	1079.1	1098.5	1113.3	1127.0	1142.9	1160.1	1168.0
50°	960.6	968.6	978.9	993.6	1013.0	1031.3	1043.8	1057.4	1072.3	1088.2	1095.1
52.5°	895.6	903.7	913.9	928.7	944.7	961.7	973.2	985.7	1000.6	1015.3	1022.1
55°	829.6	835.2	844.4	858.1	875.2	891.1	902.5	915.1	927.6	940.1	948.1
57.5°	764.6	771.4	780.6	793.1	807.9	822.7	833.0	843.3	855.8	868.3	874.1
60°	698.5	704.2	711.0	722.5	737.3	749.8	760.1	770.3	780.6	792.0	797.7
62.5°	631.3	637.0	643.8	655.3	667.8	679.1	688.3	697.4	706.5	716.8	722.5
65°	564.1	569.8	576.6	584.5	594.9	605.1	614.2	623.4	630.2	637.0	642.7
67.5°	491.1	496.9	503.7	510.5	519.6	529.9	536.7	544.7	551.5	559.5	563.0
70°	422.7	427.3	434.2	439.9	447.8	454.6	460.4	467.2	471.8	478.6	484.3
72.5°	355.5	360.1	365.8	371.5	376.1	381.7	388.6	394.2	400.0	406.8	409.1
75°	290.6	292.8	297.4	302.0	306.6	311.1	314.5	319.1	323.6	328.1	331.6
77.5°	226.8	229.0	233.6	237.0	240.5	243.9	246.2	248.4	253.0	256.4	259.8
80°	166.3	168.6	172.0	175.5	178.9	182.3	182.3	182.3	188.0	192.6	193.7
82.5°	112.9	114.0	116.3	118.5	120.8	123.1	123.1	121.9	125.4	128.8	131.0
85°	64.9	66.1	68.4	68.4	69.5	69.5	69.5	69.5	71.8	75.2	77.4
87.5°	26.2	26.2	27.4	27.4	28.5	28.5	27.4	26.2	28.5	31.9	33.0
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):**

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6	1940.6
2.5°	1945.1	1944.0	1947.4	1948.6	1950.9	1950.9	1952.1	1952.1	1949.8	1946.3	1947.4
5°	1946.3	1946.3	1949.8	1953.2	1957.7	1962.3	1958.9	1955.5	1953.2	1949.8	1948.6
7.5°	1940.6	1942.9	1946.3	1952.1	1957.7	1964.6	1960.0	1955.5	1949.8	1945.1	1942.9
10°	1927.0	1929.2	1934.9	1940.6	1946.3	1952.1	1947.4	1942.9	1938.3	1932.6	1930.4
12.5°	1909.8	1913.2	1920.2	1925.8	1931.5	1938.3	1932.6	1927.0	1921.3	1915.5	1912.1
15°	1884.8	1889.4	1897.3	1904.2	1912.1	1917.9	1913.2	1908.7	1901.9	1893.9	1888.2
17.5°	1852.9	1859.7	1867.7	1875.7	1882.5	1888.2	1884.8	1880.2	1872.2	1863.2	1856.3
20°	1817.5	1824.4	1831.3	1839.2	1847.2	1852.9	1848.3	1842.6	1834.7	1827.8	1821.0
22.5°	1776.5	1783.3	1791.4	1798.2	1805.0	1810.7	1805.0	1798.2	1791.4	1784.5	1777.7
25°	1729.9	1736.7	1745.8	1752.6	1757.1	1761.8	1757.1	1751.4	1744.6	1737.8	1731.0
27.5°	1680.8	1687.6	1696.8	1703.6	1708.2	1712.7	1708.2	1702.5	1695.7	1688.8	1681.9
30°	1626.1	1633.0	1642.1	1648.9	1652.3	1655.7	1651.2	1646.6	1640.9	1634.1	1627.2
32.5°	1568.0	1574.9	1581.7	1588.5	1594.2	1598.7	1594.2	1589.6	1582.8	1573.7	1566.8
35°	1506.5	1513.3	1521.3	1528.1	1534.9	1540.7	1533.8	1525.8	1520.1	1514.5	1508.8
37.5°	1441.5	1449.5	1458.6	1466.6	1468.8	1473.4	1468.8	1464.3	1458.6	1452.9	1446.1
40°	1377.7	1384.6	1392.5	1400.5	1403.9	1407.3	1402.7	1398.2	1391.4	1385.7	1378.9
42.5°	1311.6	1318.5	1325.3	1332.1	1336.7	1341.2	1336.7	1329.8	1325.3	1320.8	1315.0
45°	1243.2	1250.0	1255.8	1262.6	1266.0	1269.4	1264.9	1259.2	1254.7	1251.2	1245.5
47.5°	1173.7	1179.4	1185.1	1190.9	1193.1	1196.5	1192.0	1188.6	1185.1	1181.7	1177.1
50°	1100.8	1106.5	1113.3	1119.0	1120.1	1123.5	1119.0	1115.6	1112.2	1108.8	1105.4
52.5°	1029.0	1033.6	1039.3	1045.0	1047.2	1049.5	1045.0	1040.4	1037.0	1034.7	1031.3
55°	953.8	958.3	964.0	968.6	972.1	974.3	969.8	965.1	961.7	960.6	957.2
57.5°	878.6	883.2	888.8	893.4	895.6	897.9	893.4	888.8	886.6	884.3	882.0
60°	802.2	806.8	811.4	814.8	817.1	818.2	813.7	810.3	809.1	807.9	805.6
62.5°	727.0	729.3	733.8	736.1	738.4	739.5	736.1	733.8	732.7	731.6	730.4
65°	648.4	654.1	657.5	659.8	659.8	660.9	657.5	656.4	655.3	654.1	651.9
67.5°	567.5	572.0	574.3	576.6	576.6	576.6	576.6	576.6	575.4	573.2	570.9
70°	490.0	493.5	495.7	496.9	496.9	496.9	494.6	493.5	494.6	494.6	493.5
72.5°	411.4	413.6	414.8	415.9	414.8	414.8	414.8	417.1	417.1	415.9	413.6
75°	335.1	337.3	338.5	339.6	338.5	338.5	338.5	340.7	339.6	339.6	338.5
77.5°	263.2	264.3	264.3	265.5	264.3	264.3	265.5	267.7	266.6	266.6	266.6
80°	194.8	194.8	194.8	196.0	194.8	194.8	196.0	198.3	197.1	197.1	197.1
82.5°	132.2	133.3	133.3	133.3	134.4	135.6	135.6	135.6	135.6	135.6	134.4
85°	78.6	79.8	78.6	78.6	78.6	78.6	79.8	81.0	81.0	81.0	81.0
87.5°	34.2	35.3	34.2	33.0	31.9	31.9	34.2	36.4	36.4	35.3	35.3
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: P  
 CATALOG NUMBER: 4APN-28-30L830-UNV-NP

**CANDELA DISTRIBUTION (continued):**

	330°	340°	350°	360°
0°	1940.6	1940.6	1940.6	1940.6
2.5°	1952.1	1952.1	1941.7	1931.5
5°	1950.9	1948.6	1937.2	1924.7
7.5°	1944.0	1940.6	1925.8	1912.1
10°	1928.1	1923.6	1907.6	1890.5
12.5°	1908.7	1901.9	1883.6	1866.6
15°	1883.6	1875.7	1856.3	1836.9
17.5°	1850.6	1841.5	1822.1	1801.6
20°	1815.2	1805.0	1783.3	1761.8
22.5°	1772.0	1762.9	1740.1	1718.4
25°	1725.2	1715.0	1692.2	1669.4
27.5°	1675.1	1663.7	1640.9	1619.3
30°	1620.4	1609.0	1586.2	1564.5
32.5°	1562.3	1553.2	1530.4	1506.5
35°	1503.0	1491.6	1468.8	1446.1
37.5°	1440.3	1430.1	1408.4	1386.8
40°	1374.2	1364.0	1341.2	1319.6
42.5°	1309.3	1300.2	1278.5	1258.1
45°	1239.8	1230.7	1210.2	1192.0
47.5°	1170.3	1161.2	1141.8	1122.4
50°	1099.7	1090.5	1072.3	1055.2
52.5°	1025.5	1018.7	1001.7	984.5
55°	951.5	943.6	926.4	911.6
57.5°	877.5	871.8	855.8	841.0
60°	801.1	794.2	781.8	769.2
62.5°	727.0	721.3	708.8	697.4
65°	648.4	643.8	633.6	623.4
67.5°	567.5	564.1	553.8	544.7
70°	490.0	484.3	476.3	468.4
72.5°	411.4	409.1	402.3	395.4
75°	336.2	333.9	327.0	321.3
77.5°	265.5	263.2	257.5	251.8
80°	196.0	194.8	190.3	185.8
82.5°	134.4	133.3	129.9	125.4
85°	81.0	78.6	75.2	71.8
87.5°	35.3	34.2	30.8	28.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)