

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-28-30L840-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-28-30L840-UNV-NP
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient and Exam Light
w/ Nature Pattern Lens
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

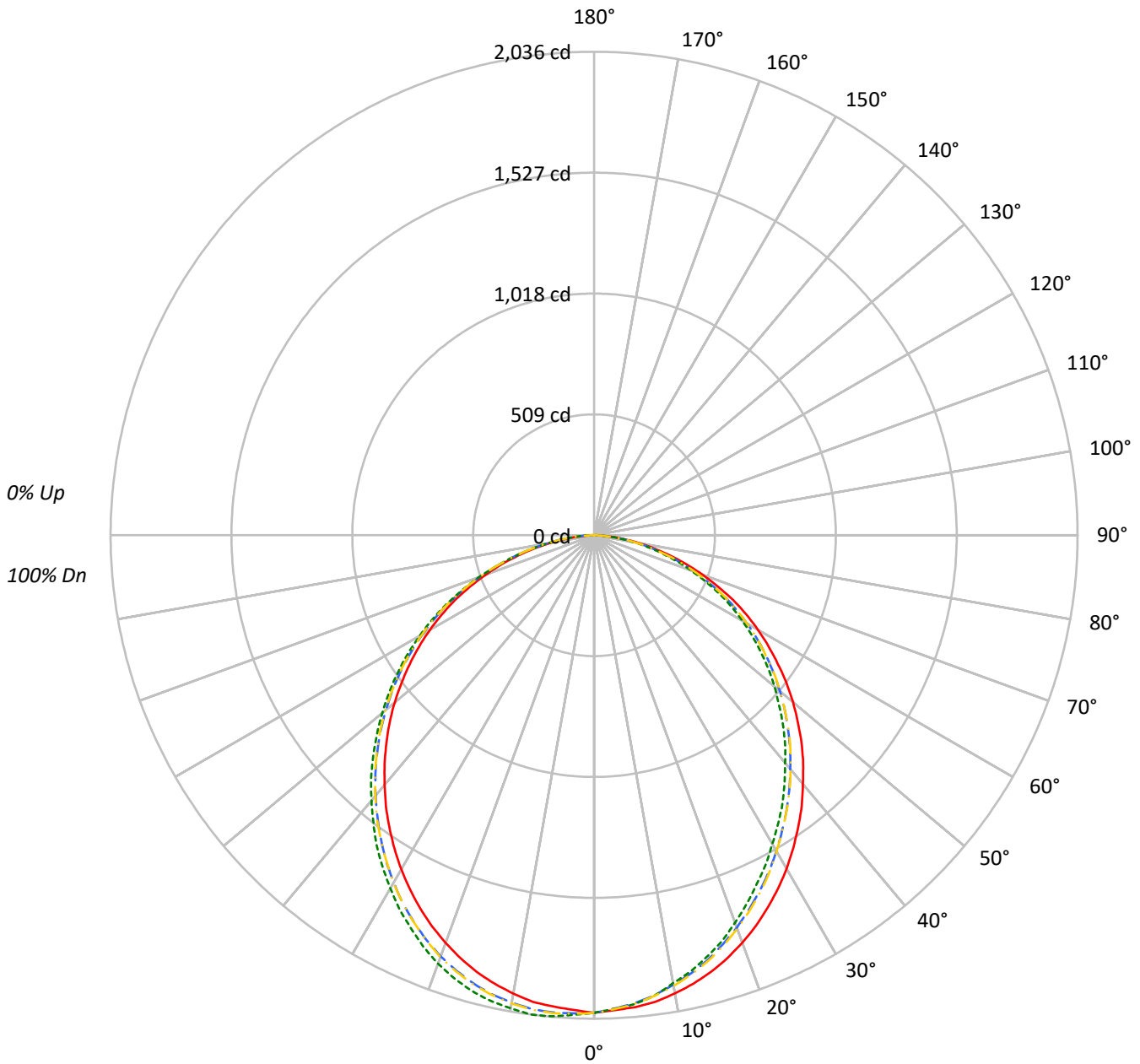
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5315.8 lumens
Efficiency: N/A
Efficacy: 81.8 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_{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



— 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	33	33	33	33	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°	18554	18554	18554	18554
5°	18472	18352	18450	18833
10°	18354	17944	18365	18951
15°	18183	17551	18194	18983
20°	17925	17043	17936	18852
25°	17610	16505	17647	18586
30°	17273	15990	17298	18279
35°	16878	15575	16917	17982
40°	16469	15075	16526	17564
45°	16117	14668	16132	17164
50°	15695	14237	15728	16712
55°	15196	13772	15254	16241
60°	14708	13293	14731	15646
65°	14103	12710	14103	14952
70°	13091	11753	13059	13887
75°	11871	10648	11785	12502
80°	10228	9160	10037	10727
85°	7876	6997	7622	8627



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.9	3.6
10°-20°	537.7	10.1
20°-30°	796.1	15.0
30°-40°	934.0	17.6
40°-50°	946.6	17.8
50°-60°	840.1	15.8
60°-70°	630.7	11.9
70°-80°	350.2	6.6
80°-90°	90.4	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°	1523.7	28.7
0°-40°	2457.7	46.2
0°-60°	4244.4	79.8
0°-90°	5315.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5315.8	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2011	2011	2011	2011	2011	
5°	1994	1982	1992	2034	1994	189
15°	1904	1838	1905	1987	1904	536
25°	1730	1621	1734	1826	1730	797
35°	1498	1383	1502	1596	1498	938
45°	1235	1124	1236	1316	1235	952
55°	945	856	948	1010	945	846
65°	646	582	646	685	646	637
75°	333	299	331	351	333	354
85°	74	66	72	82	74	90
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°	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0
2.5°	2001.6	2006.3	2012.2	2006.3	1996.9	1992.1	1992.1	1991.0	1994.5	1995.7	1994.5
5°	1994.5	1996.9	1998.1	1991.0	1980.3	1974.4	1972.1	1970.9	1975.6	1981.5	1975.6
7.5°	1981.5	1980.3	1979.2	1969.7	1957.9	1949.6	1946.1	1944.9	1949.6	1955.5	1950.8
10°	1959.1	1957.9	1954.4	1942.6	1927.2	1916.6	1913.0	1909.5	1913.0	1915.4	1913.0
12.5°	1934.3	1929.6	1924.8	1911.9	1895.3	1883.5	1877.6	1872.9	1877.6	1881.2	1878.8
15°	1903.6	1896.5	1888.2	1874.1	1857.5	1844.6	1837.5	1832.7	1836.3	1837.5	1837.5
17.5°	1867.0	1858.7	1850.5	1832.7	1812.7	1798.5	1790.2	1784.3	1789.0	1791.4	1791.4
20°	1825.7	1816.2	1805.6	1786.7	1765.4	1750.0	1740.6	1733.5	1734.7	1735.8	1735.8
22.5°	1780.8	1768.9	1755.9	1735.8	1713.4	1696.9	1687.4	1679.1	1679.1	1680.3	1680.3
25°	1729.9	1716.9	1703.9	1683.9	1660.3	1642.5	1630.7	1622.5	1622.5	1621.3	1623.7
27.5°	1678.0	1663.8	1650.8	1629.6	1604.8	1587.0	1575.2	1567.0	1565.8	1564.6	1567.0
30°	1621.3	1604.8	1590.6	1568.2	1544.5	1526.8	1515.0	1505.6	1503.2	1500.9	1503.2
32.5°	1561.1	1545.7	1530.4	1506.8	1483.1	1465.4	1453.6	1444.2	1443.0	1441.8	1444.2
35°	1498.5	1482.0	1467.8	1445.4	1421.7	1404.0	1391.0	1382.8	1382.8	1382.8	1382.8
37.5°	1437.1	1420.6	1405.2	1382.8	1359.2	1341.4	1328.5	1320.2	1317.8	1316.7	1317.8
40°	1367.4	1353.3	1339.1	1317.8	1294.2	1276.5	1265.9	1256.4	1254.1	1251.7	1255.3
42.5°	1303.7	1289.5	1274.1	1254.1	1230.5	1212.7	1200.9	1192.7	1191.5	1190.3	1191.5
45°	1235.2	1218.6	1203.3	1184.4	1163.2	1146.6	1134.8	1126.5	1125.4	1124.2	1125.4
47.5°	1163.2	1150.2	1137.2	1118.3	1097.0	1080.5	1069.9	1060.4	1058.1	1055.7	1058.1
50°	1093.5	1079.3	1066.3	1048.6	1028.5	1013.2	1003.7	995.5	993.1	991.9	993.1
52.5°	1020.3	1007.3	995.5	977.8	961.2	945.9	935.3	928.2	927.0	925.8	927.0
55°	944.7	932.9	922.3	908.1	891.6	877.4	868.0	859.7	858.5	856.2	858.5
57.5°	871.5	862.1	851.4	836.1	820.7	807.7	799.5	792.4	791.2	790.0	791.2
60°	797.1	787.7	778.2	765.2	749.9	736.9	729.8	723.9	721.5	720.4	721.5
62.5°	722.7	713.3	706.2	693.2	679.0	668.4	661.3	655.4	653.1	651.9	653.1
65°	646.0	637.7	629.4	617.6	607.0	598.7	591.6	585.7	583.3	582.2	582.2
67.5°	564.4	557.3	551.4	540.8	529.0	520.7	513.6	508.9	506.5	505.4	506.5
70°	485.3	479.4	473.5	465.2	455.8	448.7	444.0	439.2	436.9	435.7	435.7
72.5°	409.7	405.0	399.1	392.0	384.9	377.8	373.1	369.6	367.2	366.0	366.0
75°	333.0	328.3	325.9	320.0	312.9	308.2	303.5	301.1	298.7	298.7	298.7
77.5°	260.9	258.6	256.2	250.3	245.6	240.9	237.3	236.2	233.8	233.8	233.8
80°	192.5	191.3	190.1	186.6	181.8	177.1	174.8	173.6	172.4	172.4	172.4
82.5°	129.9	129.9	128.7	125.2	121.6	120.4	118.1	116.9	116.9	116.9	116.9
85°	74.4	74.4	74.4	73.2	70.8	70.8	68.5	67.3	66.1	66.1	66.1
87.5°	29.5	30.7	31.9	30.7	28.3	28.3	28.3	28.3	28.3	28.3	28.3
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°	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0
2.5°	1991.0	1993.3	1994.5	2000.4	2007.5	2012.2	2006.3	2000.4	2009.9	2020.5	2020.5
5°	1970.9	1973.3	1976.8	1983.9	1993.3	1999.2	1996.9	1992.1	2006.3	2018.1	2019.3
7.5°	1946.1	1948.5	1953.2	1960.3	1972.1	1980.3	1980.3	1981.5	1994.5	2008.7	2012.2
10°	1909.5	1915.4	1922.5	1933.1	1944.9	1955.5	1959.1	1960.3	1976.8	1992.1	1996.9
12.5°	1875.3	1881.2	1888.2	1900.0	1914.2	1926.0	1929.6	1934.3	1952.0	1969.7	1976.8
15°	1836.3	1842.2	1850.5	1862.3	1877.6	1890.6	1897.7	1904.8	1922.5	1941.4	1949.6
17.5°	1790.2	1796.1	1804.4	1818.6	1836.3	1851.6	1859.9	1868.2	1888.2	1908.3	1916.6
20°	1735.8	1744.1	1755.9	1770.1	1790.2	1807.9	1817.4	1826.8	1848.1	1868.2	1877.6
22.5°	1680.3	1689.8	1702.8	1719.3	1740.6	1759.5	1771.3	1783.1	1804.4	1824.5	1835.1
25°	1624.8	1635.5	1648.4	1666.2	1686.2	1705.1	1719.3	1733.5	1754.8	1776.0	1786.7
27.5°	1568.2	1577.6	1590.6	1608.3	1630.7	1650.8	1665.0	1680.3	1701.6	1724.0	1734.7
30°	1505.6	1516.2	1528.0	1545.7	1570.5	1593.0	1607.1	1623.7	1644.9	1667.3	1678.0
32.5°	1445.4	1454.8	1466.6	1484.3	1509.1	1532.7	1548.1	1564.6	1585.9	1608.3	1617.7
35°	1382.8	1392.2	1405.2	1422.9	1447.7	1470.2	1485.5	1502.0	1522.1	1543.4	1554.0
37.5°	1321.4	1330.8	1343.8	1361.5	1385.1	1407.6	1422.9	1439.5	1459.5	1479.6	1489.0
40°	1257.6	1267.1	1277.7	1295.4	1319.0	1341.4	1355.6	1372.1	1392.2	1413.5	1422.9
42.5°	1192.7	1202.1	1215.1	1232.8	1255.3	1275.3	1290.7	1306.0	1324.9	1343.8	1353.3
45°	1127.7	1136.0	1149.0	1165.5	1186.8	1205.7	1221.0	1236.4	1254.1	1271.8	1281.2
47.5°	1060.4	1069.9	1080.5	1097.0	1118.3	1138.4	1153.7	1167.9	1184.4	1202.1	1210.4
50°	995.5	1003.7	1014.4	1029.7	1049.8	1068.7	1081.7	1095.8	1111.2	1127.7	1134.8
52.5°	928.2	936.4	947.1	962.4	979.0	996.7	1008.5	1021.5	1036.8	1052.2	1059.2
55°	859.7	865.6	875.0	889.2	906.9	923.5	935.3	948.3	961.2	974.2	982.5
57.5°	792.4	799.5	808.9	821.9	837.3	852.6	863.2	873.9	886.9	899.8	905.7
60°	723.9	729.8	736.9	748.7	764.1	777.0	787.7	798.3	808.9	820.7	826.6
62.5°	654.2	660.1	667.2	679.0	692.0	703.8	713.3	722.7	732.2	742.8	748.7
65°	584.5	590.4	597.5	605.8	616.4	627.1	636.5	646.0	653.1	660.1	666.1
67.5°	508.9	514.8	521.9	529.0	538.4	549.1	556.2	564.4	571.5	579.8	583.3
70°	438.1	442.8	449.9	455.8	464.0	471.1	477.0	484.1	488.8	495.9	501.8
72.5°	368.4	373.1	379.0	384.9	389.7	395.6	402.6	408.5	414.4	421.5	423.9
75°	301.1	303.5	308.2	312.9	317.6	322.3	325.9	330.6	335.3	340.1	343.6
77.5°	235.0	237.3	242.1	245.6	249.1	252.7	255.0	257.4	262.1	265.7	269.2
80°	172.4	174.8	178.3	181.8	185.4	188.9	188.9	188.9	194.8	199.5	200.7
82.5°	116.9	118.1	120.4	122.8	125.2	127.5	127.5	126.3	129.9	133.4	135.8
85°	67.3	68.5	70.8	70.8	72.0	72.0	72.0	72.0	74.4	77.9	80.3
87.5°	27.2	27.2	28.3	28.3	29.5	29.5	28.3	27.2	29.5	33.1	34.2
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°	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0	2011.0
2.5°	2015.8	2014.6	2018.1	2019.3	2021.7	2021.7	2022.8	2022.8	2020.5	2016.9	2018.1
5°	2016.9	2016.9	2020.5	2024.0	2028.8	2033.5	2029.9	2026.4	2024.0	2020.5	2019.3
7.5°	2011.0	2013.4	2016.9	2022.8	2028.8	2035.8	2031.1	2026.4	2020.5	2015.8	2013.4
10°	1996.9	1999.2	2005.1	2011.0	2016.9	2022.8	2018.1	2013.4	2008.7	2002.8	2000.4
12.5°	1979.2	1982.7	1989.8	1995.7	2001.6	2008.7	2002.8	1996.9	1991.0	1985.1	1981.5
15°	1953.2	1957.9	1966.2	1973.3	1981.5	1987.4	1982.7	1978.0	1970.9	1962.6	1956.7
17.5°	1920.1	1927.2	1935.5	1943.7	1950.8	1956.7	1953.2	1948.5	1940.2	1930.7	1923.7
20°	1883.5	1890.6	1897.7	1906.0	1914.2	1920.1	1915.4	1909.5	1901.2	1894.1	1887.1
22.5°	1841.0	1848.1	1856.4	1863.4	1870.5	1876.4	1870.5	1863.4	1856.4	1849.3	1842.2
25°	1792.6	1799.7	1809.1	1816.2	1820.9	1825.7	1820.9	1815.0	1807.9	1800.9	1793.8
27.5°	1741.8	1748.8	1758.3	1765.4	1770.1	1774.9	1770.1	1764.2	1757.1	1750.0	1742.9
30°	1685.1	1692.1	1701.6	1708.7	1712.2	1715.8	1711.0	1706.3	1700.4	1693.3	1686.2
32.5°	1624.8	1631.9	1639.0	1646.1	1652.0	1656.7	1652.0	1647.3	1640.2	1630.7	1623.7
35°	1561.1	1568.2	1576.4	1583.5	1590.6	1596.5	1589.4	1581.1	1575.2	1569.3	1563.4
37.5°	1493.8	1502.0	1511.5	1519.7	1522.1	1526.8	1522.1	1517.4	1511.5	1505.6	1498.5
40°	1427.6	1434.7	1443.0	1451.3	1454.8	1458.3	1453.6	1448.9	1441.8	1435.9	1428.8
42.5°	1359.2	1366.2	1373.3	1380.4	1385.1	1389.9	1385.1	1378.1	1373.3	1368.6	1362.7
45°	1288.3	1295.4	1301.3	1308.4	1311.9	1315.5	1310.7	1304.8	1300.1	1296.6	1290.7
47.5°	1216.3	1222.2	1228.1	1234.0	1236.4	1239.9	1235.2	1231.6	1228.1	1224.6	1219.8
50°	1140.7	1146.6	1153.7	1159.6	1160.8	1164.3	1159.6	1156.1	1152.5	1149.0	1145.4
52.5°	1066.3	1071.1	1077.0	1082.9	1085.2	1087.6	1082.9	1078.1	1074.6	1072.2	1068.7
55°	988.4	993.1	999.0	1003.7	1007.3	1009.7	1004.9	1000.2	996.7	995.5	991.9
57.5°	910.5	915.2	921.1	925.8	928.2	930.5	925.8	921.1	918.7	916.4	914.0
60°	831.4	836.1	840.8	844.3	846.7	847.9	843.2	839.6	838.4	837.3	834.9
62.5°	753.4	755.8	760.5	762.9	765.2	766.4	762.9	760.5	759.3	758.2	757.0
65°	672.0	677.9	681.4	683.8	683.8	684.9	681.4	680.2	679.0	677.9	675.5
67.5°	588.1	592.8	595.2	597.5	597.5	597.5	597.5	597.5	596.3	594.0	591.6
70°	507.7	511.3	513.6	514.8	514.8	514.8	512.5	511.3	512.5	512.5	511.3
72.5°	426.3	428.6	429.8	431.0	429.8	429.8	429.8	432.2	432.2	431.0	428.6
75°	347.1	349.5	350.7	351.9	350.7	350.7	350.7	353.0	351.9	351.9	350.7
77.5°	272.8	273.9	273.9	275.1	273.9	273.9	275.1	277.5	276.3	276.3	276.3
80°	201.9	201.9	201.9	203.1	201.9	201.9	203.1	205.5	204.3	204.3	204.3
82.5°	137.0	138.1	138.1	138.1	139.3	140.5	140.5	140.5	140.5	140.5	139.3
85°	81.5	82.7	81.5	81.5	81.5	81.5	82.7	83.8	83.8	83.8	83.8
87.5°	35.4	36.6	35.4	34.2	33.1	33.1	35.4	37.8	37.8	36.6	36.6
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-28-30L840-UNV-NP

CANDELA DISTRIBUTION (continued):

	330°	340°	350°	360°
0°	2011.0	2011.0	2011.0	2011.0
2.5°	2022.8	2022.8	2012.2	2001.6
5°	2021.7	2019.3	2007.5	1994.5
7.5°	2014.6	2011.0	1995.7	1981.5
10°	1998.1	1993.3	1976.8	1959.1
12.5°	1978.0	1970.9	1952.0	1934.3
15°	1952.0	1943.7	1923.7	1903.6
17.5°	1917.8	1908.3	1888.2	1867.0
20°	1881.2	1870.5	1848.1	1825.7
22.5°	1836.3	1826.8	1803.2	1780.8
25°	1787.9	1777.2	1753.6	1729.9
27.5°	1735.8	1724.0	1700.4	1678.0
30°	1679.1	1667.3	1643.7	1621.3
32.5°	1618.9	1609.5	1585.9	1561.1
35°	1557.5	1545.7	1522.1	1498.5
37.5°	1492.6	1482.0	1459.5	1437.1
40°	1424.1	1413.5	1389.9	1367.4
42.5°	1356.8	1347.4	1324.9	1303.7
45°	1284.8	1275.3	1254.1	1235.2
47.5°	1212.7	1203.3	1183.2	1163.2
50°	1139.5	1130.1	1111.2	1093.5
52.5°	1062.8	1055.7	1038.0	1020.3
55°	986.0	977.8	960.1	944.7
57.5°	909.3	903.4	886.9	871.5
60°	830.2	823.1	810.1	797.1
62.5°	753.4	747.5	734.5	722.7
65°	672.0	667.2	656.6	646.0
67.5°	588.1	584.5	573.9	564.4
70°	507.7	501.8	493.6	485.3
72.5°	426.3	423.9	416.8	409.7
75°	348.3	346.0	338.9	333.0
77.5°	275.1	272.8	266.9	260.9
80°	203.1	201.9	197.2	192.5
82.5°	139.3	138.1	134.6	129.9
85°	83.8	81.5	77.9	74.4
87.5°	36.6	35.4	31.9	29.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)