

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: P709201

Luminaire Tested: **4APN-28-30L950-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709201
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-28-30L950-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient and Exam Light
Light Source: 5000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

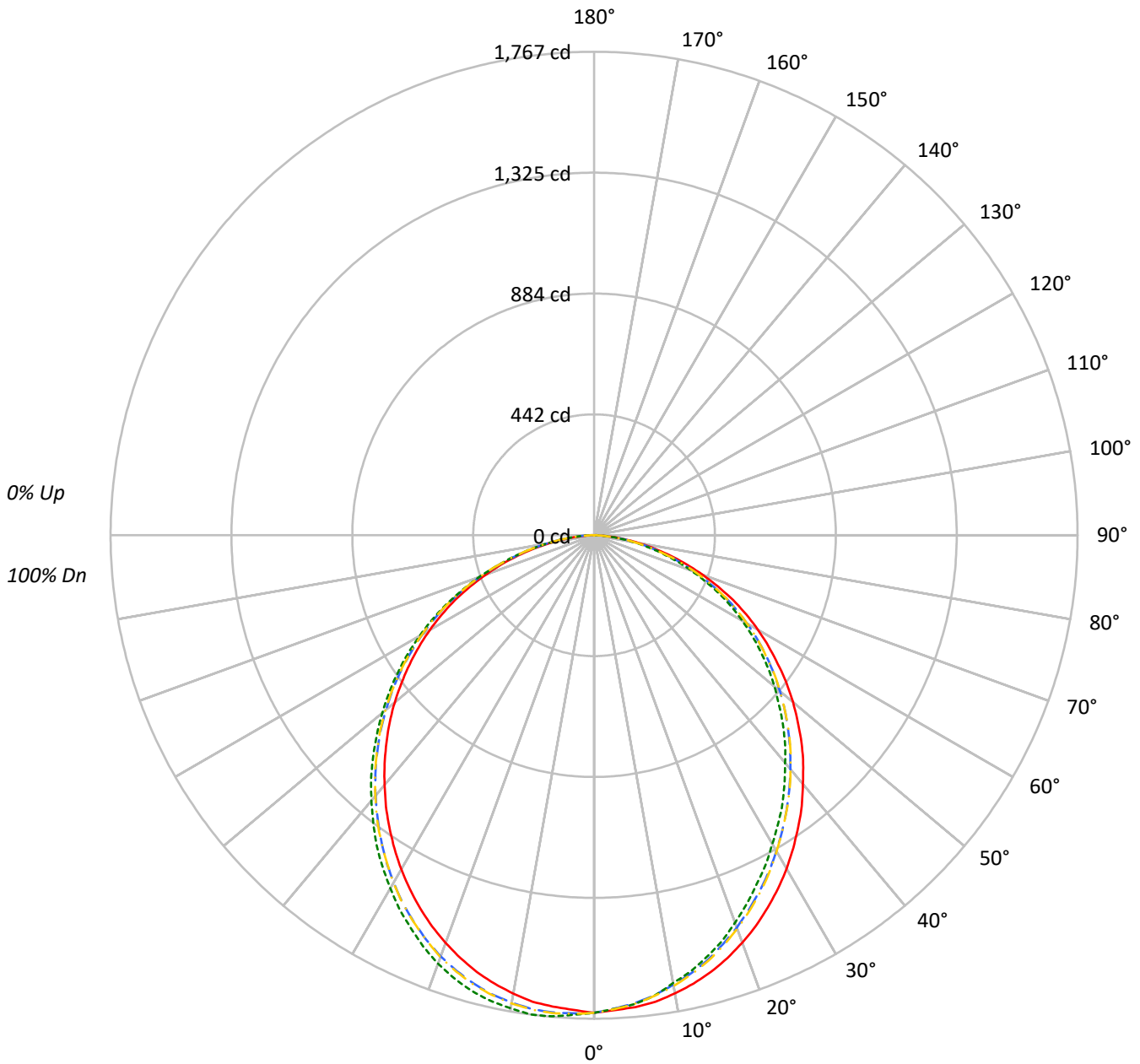
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4613.6 lumens
Efficiency: N/A
Efficacy: 71.0 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

TEST NUMBER: P709201
CATALOG NUMBER: 4APN-28-30L950-UNV

Luminous Intensity Polar Plot



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



TEST NUMBER: P709201
 CATALOG NUMBER: 4APN-28-30L950-UNV

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°	16102	16102	16102	16102
5°	16032	15927	16013	16345
10°	15929	15573	15939	16447
15°	15780	15232	15790	16476
20°	15556	14792	15567	16361
25°	15284	14324	15316	16129
30°	14991	13877	15013	15864
35°	14649	13517	14683	15606
40°	14294	13085	14343	15244
45°	13987	12731	14000	14897
50°	13621	12357	13652	14504
55°	13188	11951	13238	14096
60°	12765	11536	12784	13579
65°	12238	11031	12238	12976
70°	11362	10202	11335	12053
75°	10302	9243	10231	10851
80°	8878	7948	8714	9314
85°	6838	6076	6616	7484



TEST NUMBER: P709201
 CATALOG NUMBER: 4APN-28-30L950-UNV

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	164.8	3.6
10°-20°	466.7	10.1
20°-30°	690.9	15.0
30°-40°	810.6	17.6
40°-50°	821.5	17.8
50°-60°	729.1	15.8
60°-70°	547.4	11.9
70°-80°	304.0	6.6
80°-90°	78.5	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°	1322.4	28.7
0°-40°	2133.1	46.2
0°-60°	3683.7	79.8
0°-90°	4613.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4613.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1745	1745	1745	1745	1745	
5°	1731	1720	1729	1765	1731	164
15°	1652	1595	1653	1725	1652	466
25°	1501	1407	1504	1584	1501	692
35°	1301	1200	1304	1386	1301	814
45°	1072	976	1073	1142	1072	826
55°	820	743	823	876	820	734
65°	561	505	561	594	561	553
75°	289	259	287	304	289	307
85°	65	57	62	71	65	78
90°	0	0	0	0	0	



TEST NUMBER: P709201

CATALOG NUMBER: 4APN-28-30L950-UNV

CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
0°	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3
2.5°	1737.2	1741.2	1746.4	1741.2	1733.1	1729.0	1729.0	1727.9	1731.0	1732.0	1731.0
5°	1731.0	1733.1	1734.1	1727.9	1718.7	1713.6	1711.5	1710.5	1714.6	1719.7	1714.6
7.5°	1719.7	1718.7	1717.7	1709.5	1699.2	1692.1	1689.0	1688.0	1692.1	1697.2	1693.1
10°	1700.3	1699.2	1696.2	1685.9	1672.6	1663.4	1660.3	1657.2	1660.3	1662.3	1660.3
12.5°	1678.7	1674.6	1670.5	1659.3	1644.9	1634.7	1629.5	1625.4	1629.5	1632.6	1630.6
15°	1652.1	1645.9	1638.8	1626.5	1612.1	1600.8	1594.7	1590.6	1593.7	1594.7	1594.7
17.5°	1620.3	1613.1	1606.0	1590.6	1573.2	1560.9	1553.7	1548.6	1552.7	1554.7	1554.7
20°	1584.4	1576.2	1567.0	1550.6	1532.2	1518.9	1510.7	1504.5	1505.5	1506.6	1506.6
22.5°	1545.5	1535.3	1524.0	1506.6	1487.1	1472.7	1464.5	1457.4	1457.4	1458.4	1458.4
25°	1501.4	1490.2	1478.9	1461.5	1441.0	1425.6	1415.3	1408.2	1408.2	1407.1	1409.2
27.5°	1456.3	1444.0	1432.8	1414.3	1392.8	1377.4	1367.2	1360.0	1359.0	1357.9	1360.0
30°	1407.1	1392.8	1380.5	1361.0	1340.5	1325.2	1314.9	1306.7	1304.7	1302.6	1304.7
32.5°	1354.9	1341.6	1328.2	1307.7	1287.2	1271.9	1261.6	1253.4	1252.4	1251.4	1253.4
35°	1300.6	1286.2	1273.9	1254.4	1233.9	1218.6	1207.3	1200.1	1200.1	1200.1	1200.1
37.5°	1247.3	1232.9	1219.6	1200.1	1179.6	1164.2	1153.0	1145.8	1143.8	1142.7	1143.8
40°	1186.8	1174.5	1162.2	1143.8	1123.3	1107.9	1098.7	1090.5	1088.4	1086.4	1089.4
42.5°	1131.5	1119.2	1105.8	1088.4	1067.9	1052.5	1042.3	1035.1	1034.1	1033.1	1034.1
45°	1072.0	1057.7	1044.3	1027.9	1009.5	995.1	984.9	977.7	976.7	975.7	976.7
47.5°	1009.5	998.2	986.9	970.5	952.1	937.8	928.5	920.3	918.3	916.2	918.3
50°	949.0	936.7	925.5	910.1	892.7	879.3	871.1	864.0	861.9	860.9	861.9
52.5°	885.5	874.2	864.0	848.6	834.2	820.9	811.7	805.5	804.5	803.5	804.5
55°	819.9	809.6	800.4	788.1	773.8	761.5	753.3	746.1	745.1	743.0	745.1
57.5°	756.4	748.2	738.9	725.6	712.3	701.0	693.8	687.7	686.7	685.6	686.7
60°	691.8	683.6	675.4	664.1	650.8	639.5	633.4	628.2	626.2	625.2	626.2
62.5°	627.2	619.0	612.9	601.6	589.3	580.1	573.9	568.8	566.8	565.7	566.8
65°	560.6	553.4	546.3	536.0	526.8	519.6	513.5	508.3	506.3	505.3	505.3
67.5°	489.9	483.7	478.6	469.4	459.1	452.0	445.8	441.7	439.7	438.6	439.7
70°	421.2	416.1	411.0	403.8	395.6	389.4	385.4	381.3	379.2	378.2	378.2
72.5°	355.6	351.5	346.4	340.3	334.1	328.0	323.9	320.8	318.7	317.7	317.7
75°	289.0	284.9	282.9	277.7	271.6	267.5	263.4	261.3	259.3	259.3	259.3
77.5°	226.5	224.4	222.4	217.3	213.2	209.1	206.0	205.0	202.9	202.9	202.9
80°	167.1	166.0	165.0	161.9	157.8	153.7	151.7	150.7	149.6	149.6	149.6
82.5°	112.7	112.7	111.7	108.6	105.6	104.5	102.5	101.5	101.5	101.5	101.5
85°	64.6	64.6	64.6	63.5	61.5	61.5	59.4	58.4	57.4	57.4	57.4
87.5°	25.6	26.6	27.7	26.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6
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: P709201

CATALOG NUMBER: 4APN-28-30L950-UNV

CANDELA DISTRIBUTION (continued):

	110°	120°	130°	140°	150°	160°	170°	180°	190°	200°	210°
0°	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3
2.5°	1727.9	1730.0	1731.0	1736.1	1742.3	1746.4	1741.2	1736.1	1744.3	1753.5	1753.5
5°	1710.5	1712.6	1715.6	1721.8	1730.0	1735.1	1733.1	1729.0	1741.2	1751.5	1752.5
7.5°	1689.0	1691.0	1695.1	1701.3	1711.5	1718.7	1718.7	1719.7	1731.0	1743.3	1746.4
10°	1657.2	1662.3	1668.5	1677.7	1688.0	1697.2	1700.3	1701.3	1715.6	1729.0	1733.1
12.5°	1627.5	1632.6	1638.8	1649.0	1661.3	1671.6	1674.6	1678.7	1694.1	1709.5	1715.6
15°	1593.7	1598.8	1606.0	1616.2	1629.5	1640.8	1647.0	1653.1	1668.5	1684.9	1692.1
17.5°	1553.7	1558.8	1566.0	1578.3	1593.7	1607.0	1614.2	1621.3	1638.8	1656.2	1663.4
20°	1506.6	1513.7	1524.0	1536.3	1553.7	1569.1	1577.3	1585.5	1603.9	1621.3	1629.5
22.5°	1458.4	1466.6	1477.9	1492.2	1510.7	1527.1	1537.3	1547.5	1566.0	1583.4	1592.6
25°	1410.2	1419.4	1430.7	1446.1	1463.5	1479.9	1492.2	1504.5	1523.0	1541.4	1550.6
27.5°	1361.0	1369.2	1380.5	1395.9	1415.3	1432.8	1445.1	1458.4	1476.8	1496.3	1505.5
30°	1306.7	1315.9	1326.2	1341.6	1363.1	1382.5	1394.8	1409.2	1427.6	1447.1	1456.3
32.5°	1254.4	1262.6	1272.9	1288.3	1309.8	1330.3	1343.6	1357.9	1376.4	1395.9	1404.1
35°	1200.1	1208.3	1219.6	1235.0	1256.5	1276.0	1289.3	1303.6	1321.1	1339.5	1348.7
37.5°	1146.8	1155.0	1166.3	1181.7	1202.2	1221.6	1235.0	1249.3	1266.7	1284.2	1292.4
40°	1091.5	1099.7	1108.9	1124.3	1144.8	1164.2	1176.5	1190.9	1208.3	1226.8	1235.0
42.5°	1035.1	1043.3	1054.6	1070.0	1089.4	1106.9	1120.2	1133.5	1149.9	1166.3	1174.5
45°	978.7	985.9	997.2	1011.5	1030.0	1046.4	1059.7	1073.0	1088.4	1103.8	1112.0
47.5°	920.3	928.5	937.8	952.1	970.5	988.0	1001.3	1013.6	1027.9	1043.3	1050.5
50°	864.0	871.1	880.4	893.7	911.1	927.5	938.8	951.1	964.4	978.7	984.9
52.5°	805.5	812.7	821.9	835.3	849.6	865.0	875.2	886.5	899.8	913.2	919.3
55°	746.1	751.2	759.4	771.7	787.1	801.4	811.7	823.0	834.2	845.5	852.7
57.5°	687.7	693.8	702.0	713.3	726.6	740.0	749.2	758.4	769.7	780.9	786.1
60°	628.2	633.4	639.5	649.8	663.1	674.4	683.6	692.8	702.0	712.3	717.4
62.5°	567.8	572.9	579.1	589.3	600.6	610.8	619.0	627.2	635.4	644.6	649.8
65°	507.3	512.4	518.6	525.8	535.0	544.2	552.4	560.6	566.8	572.9	578.0
67.5°	441.7	446.8	453.0	459.1	467.3	476.6	482.7	489.9	496.0	503.2	506.3
70°	380.2	384.3	390.5	395.6	402.8	408.9	414.0	420.2	424.3	430.4	435.6
72.5°	319.8	323.9	329.0	334.1	338.2	343.3	349.5	354.6	359.7	365.9	367.9
75°	261.3	263.4	267.5	271.6	275.7	279.8	282.9	287.0	291.1	295.2	298.2
77.5°	203.9	206.0	210.1	213.2	216.2	219.3	221.4	223.4	227.5	230.6	233.7
80°	149.6	151.7	154.8	157.8	160.9	164.0	164.0	164.0	169.1	173.2	174.2
82.5°	101.5	102.5	104.5	106.6	108.6	110.7	110.7	109.7	112.7	115.8	117.9
85°	58.4	59.4	61.5	61.5	62.5	62.5	62.5	62.5	64.6	67.6	69.7
87.5°	23.6	23.6	24.6	24.6	25.6	25.6	24.6	23.6	25.6	28.7	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



TEST NUMBER: P709201

CATALOG NUMBER: 4APN-28-30L950-UNV

CANDELA DISTRIBUTION (continued):

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3	1745.3
2.5°	1749.4	1748.4	1751.5	1752.5	1754.6	1754.6	1755.6	1755.6	1753.5	1750.5	1751.5
5°	1750.5	1750.5	1753.5	1756.6	1760.7	1764.8	1761.7	1758.7	1756.6	1753.5	1752.5
7.5°	1745.3	1747.4	1750.5	1755.6	1760.7	1766.9	1762.8	1758.7	1753.5	1749.4	1747.4
10°	1733.1	1735.1	1740.2	1745.3	1750.5	1755.6	1751.5	1747.4	1743.3	1738.2	1736.1
12.5°	1717.7	1720.8	1726.9	1732.0	1737.2	1743.3	1738.2	1733.1	1727.9	1722.8	1719.7
15°	1695.1	1699.2	1706.4	1712.6	1719.7	1724.9	1720.8	1716.7	1710.5	1703.3	1698.2
17.5°	1666.4	1672.6	1679.8	1686.9	1693.1	1698.2	1695.1	1691.0	1683.9	1675.7	1669.5
20°	1634.7	1640.8	1647.0	1654.1	1661.3	1666.4	1662.3	1657.2	1650.0	1643.9	1637.7
22.5°	1597.8	1603.9	1611.1	1617.2	1623.4	1628.5	1623.4	1617.2	1611.1	1604.9	1598.8
25°	1555.7	1561.9	1570.1	1576.2	1580.3	1584.4	1580.3	1575.2	1569.1	1562.9	1556.8
27.5°	1511.7	1517.8	1526.0	1532.2	1536.3	1540.4	1536.3	1531.2	1525.0	1518.9	1512.7
30°	1462.5	1468.6	1476.8	1483.0	1486.1	1489.1	1485.0	1480.9	1475.8	1469.7	1463.5
32.5°	1410.2	1416.4	1422.5	1428.7	1433.8	1437.9	1433.8	1429.7	1423.5	1415.3	1409.2
35°	1354.9	1361.0	1368.2	1374.3	1380.5	1385.6	1379.5	1372.3	1367.2	1362.0	1356.9
37.5°	1296.5	1303.6	1311.8	1319.0	1321.1	1325.2	1321.1	1317.0	1311.8	1306.7	1300.6
40°	1239.1	1245.2	1252.4	1259.6	1262.6	1265.7	1261.6	1257.5	1251.4	1246.2	1240.1
42.5°	1179.6	1185.8	1191.9	1198.1	1202.2	1206.3	1202.2	1196.0	1191.9	1187.8	1182.7
45°	1118.1	1124.3	1129.4	1135.6	1138.6	1141.7	1137.6	1132.5	1128.4	1125.3	1120.2
47.5°	1055.6	1060.7	1065.9	1071.0	1073.0	1076.1	1072.0	1068.9	1065.9	1062.8	1058.7
50°	990.0	995.1	1001.3	1006.4	1007.4	1010.5	1006.4	1003.3	1000.3	997.2	994.1
52.5°	925.5	929.6	934.7	939.8	941.9	943.9	939.8	935.7	932.6	930.6	927.5
55°	857.8	861.9	867.0	871.1	874.2	876.3	872.2	868.1	865.0	864.0	860.9
57.5°	790.2	794.3	799.4	803.5	805.5	807.6	803.5	799.4	797.3	795.3	793.2
60°	721.5	725.6	729.7	732.8	734.8	735.9	731.8	728.7	727.7	726.6	724.6
62.5°	653.9	655.9	660.0	662.1	664.1	665.1	662.1	660.0	659.0	658.0	656.9
65°	583.1	588.3	591.3	593.4	593.4	594.4	591.3	590.3	589.3	588.3	586.2
67.5°	510.4	514.5	516.5	518.6	518.6	518.6	518.6	518.6	517.6	515.5	513.5
70°	440.7	443.8	445.8	446.8	446.8	446.8	444.8	443.8	444.8	444.8	443.8
72.5°	370.0	372.0	373.1	374.1	373.1	373.1	373.1	375.1	375.1	374.1	372.0
75°	301.3	303.4	304.4	305.4	304.4	304.4	304.4	306.4	305.4	305.4	304.4
77.5°	236.7	237.8	237.8	238.8	237.8	237.8	238.8	240.8	239.8	239.8	239.8
80°	175.3	175.3	175.3	176.3	175.3	175.3	176.3	178.3	177.3	177.3	177.3
82.5°	118.9	119.9	119.9	119.9	120.9	122.0	122.0	122.0	122.0	122.0	120.9
85°	70.7	71.7	70.7	70.7	70.7	70.7	71.7	72.8	72.8	72.8	72.8
87.5°	30.7	31.8	30.7	29.7	28.7	28.7	30.7	32.8	32.8	31.8	31.8
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: P709201
 CATALOG NUMBER: 4APN-28-30L950-UNV

CANDELA DISTRIBUTION (continued):

	330°	340°	350°	360°
0°	1745.3	1745.3	1745.3	1745.3
2.5°	1755.6	1755.6	1746.4	1737.2
5°	1754.6	1752.5	1742.3	1731.0
7.5°	1748.4	1745.3	1732.0	1719.7
10°	1734.1	1730.0	1715.6	1700.3
12.5°	1716.7	1710.5	1694.1	1678.7
15°	1694.1	1686.9	1669.5	1652.1
17.5°	1664.4	1656.2	1638.8	1620.3
20°	1632.6	1623.4	1603.9	1584.4
22.5°	1593.7	1585.5	1565.0	1545.5
25°	1551.6	1542.4	1521.9	1501.4
27.5°	1506.6	1496.3	1475.8	1456.3
30°	1457.4	1447.1	1426.6	1407.1
32.5°	1405.1	1396.9	1376.4	1354.9
35°	1351.8	1341.6	1321.1	1300.6
37.5°	1295.4	1286.2	1266.7	1247.3
40°	1236.0	1226.8	1206.3	1186.8
42.5°	1177.6	1169.4	1149.9	1131.5
45°	1115.1	1106.9	1088.4	1072.0
47.5°	1052.5	1044.3	1026.9	1009.5
50°	989.0	980.8	964.4	949.0
52.5°	922.4	916.2	900.9	885.5
55°	855.8	848.6	833.2	819.9
57.5°	789.1	784.0	769.7	756.4
60°	720.5	714.3	703.1	691.8
62.5°	653.9	648.7	637.5	627.2
65°	583.1	579.1	569.8	560.6
67.5°	510.4	507.3	498.1	489.9
70°	440.7	435.6	428.4	421.2
72.5°	370.0	367.9	361.8	355.6
75°	302.3	300.3	294.1	289.0
77.5°	238.8	236.7	231.6	226.5
80°	176.3	175.3	171.2	167.1
82.5°	120.9	119.9	116.8	112.7
85°	72.8	70.7	67.6	64.6
87.5°	31.8	30.7	27.7	25.6
90°	0.0	0.0	0.0	0.0

(END OF REPORT)