

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: P709195

Luminaire Tested: **4APN-28-30L940-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709195
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-28-30L940-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient and Exam Light
Light Source: 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

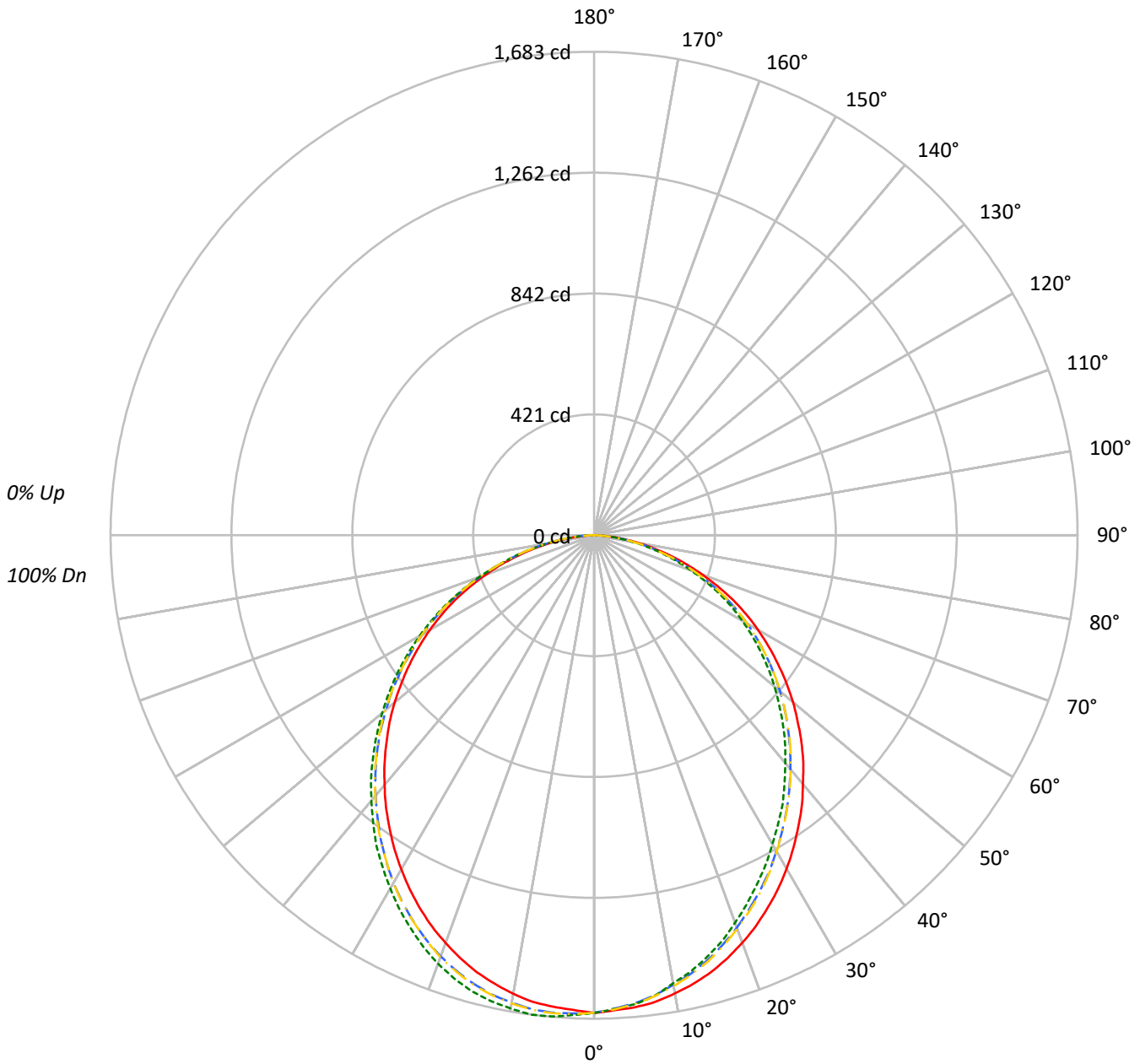
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4395.7 lumens
Efficiency: N/A
Efficacy: 67.6 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 (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				
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°	15342	15342	15342	15342
5°	15274	15175	15256	15573
10°	15176	14838	15185	15671
15°	15034	14513	15044	15697
20°	14822	14093	14832	15589
25°	14562	13648	14592	15368
30°	14283	13222	14303	15115
35°	13956	12878	13990	14870
40°	13618	12465	13665	14524
45°	13327	12129	13339	14193
50°	12978	11773	13006	13819
55°	12566	11387	12613	13430
60°	12162	10990	12180	12937
65°	11660	10509	11660	12363
70°	10825	9719	10798	11484
75°	9817	8805	9746	10338
80°	8459	7577	8299	8873
85°	6510	5790	6309	7135



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	157.0	3.6
10°-20°	444.6	10.1
20°-30°	658.3	15.0
30°-40°	772.3	17.6
40°-50°	782.7	17.8
50°-60°	694.7	15.8
60°-70°	521.6	11.9
70°-80°	289.6	6.6
80°-90°	74.8	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°	1260.0	28.7
0°-40°	2032.3	46.2
0°-60°	3509.7	79.8
0°-90°	4395.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4395.7	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1663	1663	1663	1663	1663	
5°	1649	1638	1647	1682	1649	157
15°	1574	1519	1575	1643	1574	444
25°	1430	1341	1433	1510	1430	659
35°	1239	1143	1242	1320	1239	775
45°	1021	930	1022	1088	1021	787
55°	781	708	784	835	781	699
65°	534	481	534	566	534	527
75°	275	247	273	290	275	293
85°	62	55	60	67	62	74
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°	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9
2.5°	1655.1	1659.0	1663.9	1659.0	1651.2	1647.3	1647.3	1646.3	1649.2	1650.2	1649.2
5°	1649.2	1651.2	1652.2	1646.3	1637.5	1632.6	1630.7	1629.7	1633.6	1638.5	1633.6
7.5°	1638.5	1637.5	1636.5	1628.7	1619.0	1612.1	1609.2	1608.2	1612.1	1617.0	1613.1
10°	1619.9	1619.0	1616.0	1606.3	1593.6	1584.8	1581.9	1578.9	1581.9	1583.8	1581.9
12.5°	1599.4	1595.5	1591.6	1580.9	1567.2	1557.4	1552.6	1548.7	1552.6	1555.5	1553.5
15°	1574.0	1568.2	1561.4	1549.6	1536.0	1525.2	1519.4	1515.5	1518.4	1519.4	1519.4
17.5°	1543.8	1536.9	1530.1	1515.5	1498.9	1487.1	1480.3	1475.4	1479.3	1481.3	1481.3
20°	1509.6	1501.8	1493.0	1477.4	1459.8	1447.1	1439.3	1433.4	1434.4	1435.4	1435.4
22.5°	1472.5	1462.7	1452.0	1435.4	1416.8	1403.2	1395.4	1388.5	1388.5	1389.5	1389.5
25°	1430.5	1419.8	1409.0	1392.4	1372.9	1358.2	1348.5	1341.6	1341.6	1340.7	1342.6
27.5°	1387.5	1375.8	1365.1	1347.5	1327.0	1312.4	1302.6	1295.8	1294.8	1293.8	1295.8
30°	1340.7	1327.0	1315.3	1296.7	1277.2	1262.6	1252.8	1245.0	1243.0	1241.1	1243.0
32.5°	1290.9	1278.2	1265.5	1246.0	1226.4	1211.8	1202.0	1194.2	1193.2	1192.3	1194.2
35°	1239.1	1225.5	1213.7	1195.2	1175.7	1161.0	1150.3	1143.4	1143.4	1143.4	1143.4
37.5°	1188.3	1174.7	1162.0	1143.4	1123.9	1109.3	1098.5	1091.7	1089.7	1088.7	1089.7
40°	1130.7	1119.0	1107.3	1089.7	1070.2	1055.5	1046.8	1038.9	1037.0	1035.0	1038.0
42.5°	1078.0	1066.3	1053.6	1037.0	1017.5	1002.8	993.1	986.2	985.2	984.3	985.2
45°	1021.4	1007.7	995.0	979.4	961.8	948.1	938.4	931.5	930.6	929.6	930.6
47.5°	961.8	951.1	940.3	924.7	907.1	893.5	884.7	876.9	874.9	873.0	874.9
50°	904.2	892.5	881.7	867.1	850.5	837.8	830.0	823.2	821.2	820.2	821.2
52.5°	843.7	832.9	823.2	808.5	794.8	782.1	773.4	767.5	766.5	765.5	766.5
55°	781.2	771.4	762.6	750.9	737.2	725.5	717.7	710.9	709.9	707.9	709.9
57.5°	720.6	712.8	704.0	691.3	678.6	667.9	661.1	655.2	654.2	653.2	654.2
60°	659.1	651.3	643.5	632.7	620.0	609.3	603.4	598.6	596.6	595.6	596.6
62.5°	597.6	589.8	583.9	573.2	561.5	552.7	546.8	541.9	540.0	539.0	540.0
65°	534.1	527.3	520.5	510.7	501.9	495.1	489.2	484.3	482.4	481.4	481.4
67.5°	466.7	460.9	456.0	447.2	437.5	430.6	424.8	420.9	418.9	417.9	418.9
70°	401.3	396.4	391.6	384.7	376.9	371.1	367.1	363.2	361.3	360.3	360.3
72.5°	338.8	334.9	330.0	324.2	318.3	312.5	308.6	305.6	303.7	302.7	302.7
75°	275.4	271.5	269.5	264.6	258.8	254.9	250.9	249.0	247.0	247.0	247.0
77.5°	215.8	213.8	211.9	207.0	203.1	199.2	196.3	195.3	193.3	193.3	193.3
80°	159.2	158.2	157.2	154.3	150.4	146.5	144.5	143.5	142.6	142.6	142.6
82.5°	107.4	107.4	106.4	103.5	100.6	99.6	97.6	96.7	96.7	96.7	96.7
85°	61.5	61.5	61.5	60.5	58.6	58.6	56.6	55.7	54.7	54.7	54.7
87.5°	24.4	25.4	26.4	25.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4
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°	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9
2.5°	1646.3	1648.3	1649.2	1654.1	1660.0	1663.9	1659.0	1654.1	1661.9	1670.7	1670.7
5°	1629.7	1631.7	1634.6	1640.4	1648.3	1653.1	1651.2	1647.3	1659.0	1668.8	1669.7
7.5°	1609.2	1611.2	1615.1	1620.9	1630.7	1637.5	1637.5	1638.5	1649.2	1660.9	1663.9
10°	1578.9	1583.8	1589.7	1598.5	1608.2	1617.0	1619.9	1620.9	1634.6	1647.3	1651.2
12.5°	1550.6	1555.5	1561.4	1571.1	1582.8	1592.6	1595.5	1599.4	1614.1	1628.7	1634.6
15°	1518.4	1523.3	1530.1	1539.9	1552.6	1563.3	1569.2	1575.0	1589.7	1605.3	1612.1
17.5°	1480.3	1485.2	1492.0	1503.7	1518.4	1531.1	1537.9	1544.8	1561.4	1578.0	1584.8
20°	1435.4	1442.2	1452.0	1463.7	1480.3	1495.0	1502.8	1510.6	1528.2	1544.8	1552.6
22.5°	1389.5	1397.3	1408.0	1421.7	1439.3	1454.9	1464.7	1474.4	1492.0	1508.6	1517.4
25°	1343.6	1352.4	1363.1	1377.8	1394.4	1410.0	1421.7	1433.4	1451.0	1468.6	1477.4
27.5°	1296.7	1304.5	1315.3	1329.9	1348.5	1365.1	1376.8	1389.5	1407.1	1425.6	1434.4
30°	1245.0	1253.8	1263.5	1278.2	1298.7	1317.2	1329.0	1342.6	1360.2	1378.8	1387.5
32.5°	1195.2	1203.0	1212.8	1227.4	1247.9	1267.4	1280.1	1293.8	1311.4	1329.9	1337.7
35°	1143.4	1151.2	1162.0	1176.6	1197.1	1215.7	1228.4	1242.1	1258.6	1276.2	1285.0
37.5°	1092.7	1100.5	1111.2	1125.9	1145.4	1163.9	1176.6	1190.3	1206.9	1223.5	1231.3
40°	1039.9	1047.7	1056.5	1071.2	1090.7	1109.3	1121.0	1134.6	1151.2	1168.8	1176.6
42.5°	986.2	994.0	1004.8	1019.4	1038.0	1054.6	1067.3	1080.0	1095.6	1111.2	1119.0
45°	932.5	939.3	950.1	963.8	981.3	997.0	1009.7	1022.3	1037.0	1051.6	1059.5
47.5°	876.9	884.7	893.5	907.1	924.7	941.3	954.0	965.7	979.4	994.0	1000.9
50°	823.2	830.0	838.8	851.5	868.1	883.7	894.4	906.1	918.8	932.5	938.4
52.5°	767.5	774.3	783.1	795.8	809.5	824.1	833.9	844.6	857.3	870.0	875.9
55°	710.9	715.7	723.6	735.3	749.9	763.6	773.4	784.1	794.8	805.6	812.4
57.5°	655.2	661.1	668.9	679.6	692.3	705.0	713.8	722.6	733.3	744.1	748.9
60°	598.6	603.4	609.3	619.1	631.8	642.5	651.3	660.1	668.9	678.6	683.5
62.5°	541.0	545.8	551.7	561.5	572.2	582.0	589.8	597.6	605.4	614.2	619.1
65°	483.3	488.2	494.1	500.9	509.7	518.5	526.3	534.1	540.0	545.8	550.7
67.5°	420.9	425.7	431.6	437.5	445.3	454.1	459.9	466.7	472.6	479.4	482.4
70°	362.3	366.2	372.0	376.9	383.7	389.6	394.5	400.3	404.3	410.1	415.0
72.5°	304.7	308.6	313.4	318.3	322.2	327.1	333.0	337.9	342.7	348.6	350.5
75°	249.0	250.9	254.9	258.8	262.7	266.6	269.5	273.4	277.3	281.2	284.1
77.5°	194.3	196.3	200.2	203.1	206.0	209.0	210.9	212.9	216.8	219.7	222.6
80°	142.6	144.5	147.4	150.4	153.3	156.2	156.2	156.2	161.1	165.0	166.0
82.5°	96.7	97.6	99.6	101.6	103.5	105.5	105.5	104.5	107.4	110.3	112.3
85°	55.7	56.6	58.6	58.6	59.6	59.6	59.6	59.6	61.5	64.4	66.4
87.5°	22.5	22.5	23.4	23.4	24.4	24.4	23.4	22.5	24.4	27.3	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):

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9	1662.9
2.5°	1666.8	1665.8	1668.8	1669.7	1671.7	1671.7	1672.7	1672.7	1670.7	1667.8	1668.8
5°	1667.8	1667.8	1670.7	1673.6	1677.5	1681.5	1678.5	1675.6	1673.6	1670.7	1669.7
7.5°	1662.9	1664.9	1667.8	1672.7	1677.5	1683.4	1679.5	1675.6	1670.7	1666.8	1664.9
10°	1651.2	1653.1	1658.0	1662.9	1667.8	1672.7	1668.8	1664.9	1660.9	1656.1	1654.1
12.5°	1636.5	1639.5	1645.3	1650.2	1655.1	1660.9	1656.1	1651.2	1646.3	1641.4	1638.5
15°	1615.1	1619.0	1625.8	1631.7	1638.5	1643.4	1639.5	1635.6	1629.7	1622.9	1618.0
17.5°	1587.7	1593.6	1600.4	1607.2	1613.1	1618.0	1615.1	1611.2	1604.3	1596.5	1590.6
20°	1557.4	1563.3	1569.2	1576.0	1582.8	1587.7	1583.8	1578.9	1572.1	1566.2	1560.4
22.5°	1522.3	1528.2	1535.0	1540.8	1546.7	1551.6	1546.7	1540.8	1535.0	1529.1	1523.3
25°	1482.3	1488.1	1495.9	1501.8	1505.7	1509.6	1505.7	1500.8	1495.0	1489.1	1483.2
27.5°	1440.3	1446.1	1453.9	1459.8	1463.7	1467.6	1463.7	1458.8	1453.0	1447.1	1441.2
30°	1393.4	1399.3	1407.1	1412.9	1415.9	1418.8	1414.9	1411.0	1406.1	1400.2	1394.4
32.5°	1343.6	1349.5	1355.3	1361.2	1366.1	1370.0	1366.1	1362.2	1356.3	1348.5	1342.6
35°	1290.9	1296.7	1303.6	1309.4	1315.3	1320.2	1314.3	1307.5	1302.6	1297.7	1292.8
37.5°	1235.2	1242.1	1249.9	1256.7	1258.6	1262.6	1258.6	1254.7	1249.9	1245.0	1239.1
40°	1180.5	1186.4	1193.2	1200.1	1203.0	1205.9	1202.0	1198.1	1192.3	1187.4	1181.5
42.5°	1123.9	1129.8	1135.6	1141.5	1145.4	1149.3	1145.4	1139.5	1135.6	1131.7	1126.8
45°	1065.3	1071.2	1076.1	1081.9	1084.8	1087.8	1083.9	1079.0	1075.1	1072.1	1067.3
47.5°	1005.7	1010.6	1015.5	1020.4	1022.3	1025.3	1021.4	1018.4	1015.5	1012.6	1008.7
50°	943.3	948.1	954.0	958.9	959.9	962.8	958.9	955.9	953.0	950.1	947.2
52.5°	881.7	885.6	890.5	895.4	897.4	899.3	895.4	891.5	888.6	886.6	883.7
55°	817.3	821.2	826.1	830.0	832.9	834.9	831.0	827.1	824.1	823.2	820.2
57.5°	752.8	756.8	761.6	765.5	767.5	769.4	765.5	761.6	759.7	757.7	755.8
60°	687.4	691.3	695.2	698.2	700.1	701.1	697.2	694.3	693.3	692.3	690.4
62.5°	623.0	624.9	628.8	630.8	632.7	633.7	630.8	628.8	627.9	626.9	625.9
65°	555.6	560.5	563.4	565.4	565.4	566.3	563.4	562.4	561.5	560.5	558.5
67.5°	486.3	490.2	492.1	494.1	494.1	494.1	494.1	494.1	493.1	491.2	489.2
70°	419.9	422.8	424.8	425.7	425.7	425.7	423.8	422.8	423.8	423.8	422.8
72.5°	352.5	354.5	355.4	356.4	355.4	355.4	355.4	357.4	357.4	356.4	354.5
75°	287.1	289.0	290.0	291.0	290.0	290.0	290.0	292.0	291.0	291.0	290.0
77.5°	225.6	226.5	226.5	227.5	226.5	226.5	227.5	229.5	228.5	228.5	228.5
80°	167.0	167.0	167.0	168.0	167.0	167.0	168.0	169.9	168.9	168.9	168.9
82.5°	113.3	114.2	114.2	114.2	115.2	116.2	116.2	116.2	116.2	116.2	115.2
85°	67.4	68.4	67.4	67.4	67.4	67.4	68.4	69.3	69.3	69.3	69.3
87.5°	29.3	30.3	29.3	28.3	27.3	27.3	29.3	31.2	31.2	30.3	30.3
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: P709195

CATALOG NUMBER: 4APN-28-30L940-UNV

CANDELA DISTRIBUTION (continued):

	330°	340°	350°	360°
0°	1662.9	1662.9	1662.9	1662.9
2.5°	1672.7	1672.7	1663.9	1655.1
5°	1671.7	1669.7	1660.0	1649.2
7.5°	1665.8	1662.9	1650.2	1638.5
10°	1652.2	1648.3	1634.6	1619.9
12.5°	1635.6	1629.7	1614.1	1599.4
15°	1614.1	1607.2	1590.6	1574.0
17.5°	1585.8	1578.0	1561.4	1543.8
20°	1555.5	1546.7	1528.2	1509.6
22.5°	1518.4	1510.6	1491.0	1472.5
25°	1478.4	1469.6	1450.0	1430.5
27.5°	1435.4	1425.6	1406.1	1387.5
30°	1388.5	1378.8	1359.2	1340.7
32.5°	1338.7	1330.9	1311.4	1290.9
35°	1287.9	1278.2	1258.6	1239.1
37.5°	1234.2	1225.5	1206.9	1188.3
40°	1177.6	1168.8	1149.3	1130.7
42.5°	1121.9	1114.1	1095.6	1078.0
45°	1062.4	1054.6	1037.0	1021.4
47.5°	1002.8	995.0	978.4	961.8
50°	942.3	934.5	918.8	904.2
52.5°	878.8	873.0	858.3	843.7
55°	815.3	808.5	793.9	781.2
57.5°	751.9	747.0	733.3	720.6
60°	686.4	680.6	669.8	659.1
62.5°	623.0	618.1	607.4	597.6
65°	555.6	551.7	542.9	534.1
67.5°	486.3	483.3	474.6	466.7
70°	419.9	415.0	408.2	401.3
72.5°	352.5	350.5	344.7	338.8
75°	288.1	286.1	280.2	275.4
77.5°	227.5	225.6	220.7	215.8
80°	168.0	167.0	163.1	159.2
82.5°	115.2	114.2	111.3	107.4
85°	69.3	67.4	64.4	61.5
87.5°	30.3	29.3	26.4	24.4
90°	0.0	0.0	0.0	0.0

(END OF REPORT)