

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-20-22L830-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-20-22L830-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

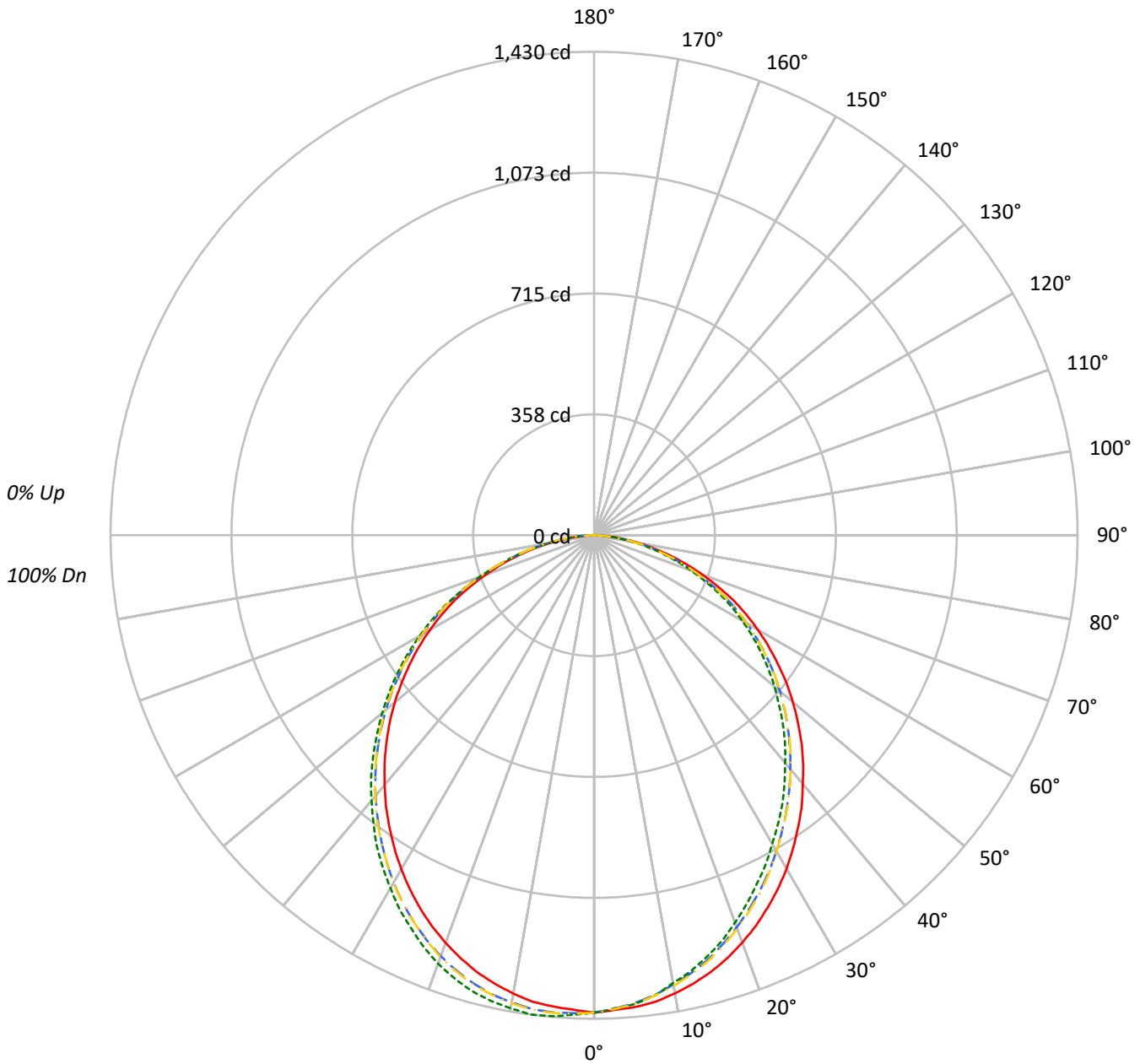
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3733.0 lumens
Efficiency: N/A
Efficacy: 77.8 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): 48
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	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°	13029	13029	13029	13029
5°	12972	12887	12957	13225
10°	12888	12601	12896	13308
15°	12768	12325	12775	13330
20°	12587	11969	12596	13238
25°	12367	11591	12392	13051
30°	12130	11228	12147	12836
35°	11853	10938	11880	12628
40°	11566	10587	11606	12335
45°	11318	10300	11328	12054
50°	11022	9999	11046	11735
55°	10671	9671	10711	11405
60°	10328	9333	10344	10987
65°	9903	8925	9903	10501
70°	9196	8255	9172	9752
75°	8334	7479	8277	8780
80°	7183	6434	7051	7534
85°	5536	4922	5356	6066



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	133.4	3.6
10°-20°	377.6	10.1
20°-30°	559.1	15.0
30°-40°	655.9	17.6
40°-50°	664.7	17.8
50°-60°	590.0	15.8
60°-70°	442.9	11.9
70°-80°	245.9	6.6
80°-90°	63.5	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°	1070.0	28.7
0°-40°	1725.9	46.2
0°-60°	2980.6	79.8
0°-90°	3733.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3733.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1412	1412	1412	1412	1412	
5°	1401	1392	1399	1428	1401	133
15°	1337	1290	1338	1396	1337	377
25°	1215	1139	1217	1282	1215	560
35°	1052	971	1055	1121	1052	659
45°	867	789	868	924	867	669
55°	663	601	666	709	663	594
65°	454	409	454	481	454	447
75°	234	210	232	246	234	249
85°	52	46	51	57	52	63
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°	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2
2.5°	1405.6	1408.9	1413.1	1408.9	1402.3	1399.0	1399.0	1398.1	1400.6	1401.4	1400.6
5°	1400.6	1402.3	1403.1	1398.1	1390.7	1386.5	1384.8	1384.0	1387.3	1391.5	1387.3
7.5°	1391.5	1390.7	1389.8	1383.2	1374.9	1369.1	1366.6	1365.8	1369.1	1373.2	1369.9
10°	1375.7	1374.9	1372.4	1364.1	1353.3	1345.8	1343.4	1340.9	1343.4	1345.0	1343.4
12.5°	1358.3	1355.0	1351.7	1342.5	1331.0	1322.7	1318.6	1315.2	1318.6	1321.0	1319.4
15°	1336.7	1331.8	1326.0	1316.1	1304.4	1295.3	1290.3	1287.0	1289.5	1290.3	1290.3
17.5°	1311.1	1305.3	1299.5	1287.0	1272.9	1263.0	1257.1	1253.0	1256.3	1258.0	1258.0
20°	1282.0	1275.4	1267.9	1254.7	1239.7	1228.9	1222.3	1217.3	1218.1	1219.0	1219.0
22.5°	1250.5	1242.2	1233.1	1219.0	1203.2	1191.7	1185.0	1179.2	1179.2	1180.1	1180.1
25°	1214.8	1205.7	1196.6	1182.6	1166.0	1153.5	1145.2	1139.4	1139.4	1138.6	1140.2
27.5°	1178.4	1168.5	1159.3	1144.4	1127.0	1114.5	1106.2	1100.4	1099.6	1098.7	1100.4
30°	1138.6	1127.0	1117.0	1101.2	1084.6	1072.2	1063.9	1057.3	1055.6	1053.9	1055.6
32.5°	1096.3	1085.5	1074.7	1058.1	1041.6	1029.1	1020.8	1014.2	1013.4	1012.5	1014.2
35°	1052.4	1040.8	1030.8	1015.0	998.4	986.0	976.9	971.1	971.1	971.1	971.1
37.5°	1009.2	997.6	986.8	971.1	954.5	942.0	932.9	927.1	925.4	924.6	925.4
40°	960.3	950.3	940.3	925.4	908.9	896.5	889.0	882.4	880.7	879.0	881.5
42.5°	915.5	905.6	894.8	880.7	864.1	851.7	843.4	837.5	836.7	835.9	836.7
45°	867.4	855.8	845.0	831.7	816.8	805.2	796.9	791.1	790.2	789.4	790.2
47.5°	816.8	807.7	798.5	785.3	770.4	758.8	751.3	744.7	743.0	741.4	743.0
50°	767.9	758.0	748.8	736.4	722.3	711.5	704.9	699.1	697.4	696.6	697.4
52.5°	716.5	707.4	699.1	686.6	675.0	664.2	656.7	651.8	650.9	650.1	650.9
55°	663.4	655.1	647.6	637.7	626.1	616.2	609.5	603.7	602.9	601.2	602.9
57.5°	612.0	605.4	597.9	587.1	576.3	567.2	561.4	556.4	555.6	554.8	555.6
60°	559.7	553.1	546.5	537.3	526.6	517.4	512.4	508.3	506.6	505.8	506.6
62.5°	507.5	500.8	495.9	486.8	476.9	469.4	464.4	460.3	458.6	457.8	458.6
65°	453.6	447.8	442.0	433.7	426.2	420.4	415.5	411.3	409.6	408.8	408.8
67.5°	396.4	391.4	387.2	379.8	371.5	365.7	360.7	357.4	355.7	354.9	355.7
70°	340.9	336.7	332.6	326.8	320.1	315.1	311.8	308.5	306.8	306.0	306.0
72.5°	287.8	284.4	280.3	275.3	270.3	265.4	262.0	259.5	257.9	257.1	257.1
75°	233.8	230.5	228.8	224.7	219.7	216.4	213.1	211.4	209.8	209.8	209.8
77.5°	183.3	181.6	180.0	175.8	172.5	169.2	166.7	165.9	164.2	164.2	164.2
80°	135.2	134.3	133.5	131.0	127.7	124.4	122.7	121.9	121.1	121.1	121.1
82.5°	91.2	91.2	90.4	87.9	85.4	84.5	82.9	82.1	82.1	82.1	82.1
85°	52.3	52.3	52.3	51.4	49.8	49.8	48.1	47.3	46.5	46.5	46.5
87.5°	20.7	21.6	22.4	21.6	19.9	19.9	19.9	19.9	19.9	19.9	19.9
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°	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2
2.5°	1398.1	1399.8	1400.6	1404.8	1409.7	1413.1	1408.9	1404.8	1411.4	1418.9	1418.9
5°	1384.0	1385.7	1388.2	1393.1	1399.8	1403.9	1402.3	1399.0	1408.9	1417.2	1418.0
7.5°	1366.6	1368.2	1371.6	1376.5	1384.8	1390.7	1390.7	1391.5	1400.6	1410.6	1413.1
10°	1340.9	1345.0	1350.0	1357.5	1365.8	1373.2	1375.7	1376.5	1388.2	1399.0	1402.3
12.5°	1316.9	1321.0	1326.0	1334.2	1344.2	1352.5	1355.0	1358.3	1370.7	1383.2	1388.2
15°	1289.5	1293.7	1299.5	1307.8	1318.6	1327.7	1332.7	1337.5	1350.0	1363.3	1369.1
17.5°	1257.1	1261.3	1267.1	1277.1	1289.5	1300.3	1306.1	1311.9	1326.0	1340.0	1345.8
20°	1219.0	1224.8	1233.1	1243.0	1257.1	1269.6	1276.2	1282.9	1297.8	1311.9	1318.6
22.5°	1180.1	1186.7	1195.7	1207.4	1222.3	1235.6	1243.9	1252.2	1267.1	1281.2	1288.7
25°	1141.1	1148.5	1157.7	1170.1	1184.2	1197.4	1207.4	1217.3	1232.3	1247.2	1254.7
27.5°	1101.2	1107.9	1117.0	1129.5	1145.2	1159.3	1169.3	1180.1	1194.9	1210.7	1218.1
30°	1057.3	1064.7	1073.0	1085.5	1102.9	1118.7	1128.6	1140.2	1155.2	1170.9	1178.4
32.5°	1015.0	1021.7	1030.0	1042.4	1059.7	1076.3	1087.1	1098.7	1113.7	1129.5	1136.1
35°	971.1	977.7	986.8	999.3	1016.7	1032.5	1043.2	1054.8	1068.9	1083.8	1091.3
37.5°	927.9	934.5	943.7	956.1	972.7	988.5	999.3	1010.9	1025.0	1039.1	1045.7
40°	883.2	889.8	897.3	909.7	926.2	942.0	952.0	963.6	977.7	992.6	999.3
42.5°	837.5	844.2	853.3	865.8	881.5	895.6	906.4	917.1	930.4	943.7	950.3
45°	791.9	797.7	806.8	818.5	833.4	846.7	857.5	868.2	880.7	893.1	899.8
47.5°	744.7	751.3	758.8	770.4	785.3	799.4	810.2	820.1	831.7	844.2	850.0
50°	699.1	704.9	712.3	723.1	737.2	750.5	759.6	769.6	780.3	791.9	796.9
52.5°	651.8	657.6	665.0	675.8	687.4	699.9	708.2	717.3	728.1	738.9	743.9
55°	603.7	607.9	614.5	624.5	636.8	648.4	656.7	665.9	675.0	684.1	689.9
57.5°	556.4	561.4	568.0	577.2	588.0	598.7	606.2	613.7	622.8	631.8	636.0
60°	508.3	512.4	517.4	525.7	536.5	545.6	553.1	560.6	568.0	576.3	580.5
62.5°	459.4	463.6	468.6	476.9	486.0	494.2	500.8	507.5	514.1	521.6	525.7
65°	410.5	414.6	419.6	425.4	432.9	440.3	447.0	453.6	458.6	463.6	467.7
67.5°	357.4	361.5	366.5	371.5	378.1	385.6	390.6	396.4	401.3	407.2	409.6
70°	307.7	311.0	316.0	320.1	325.9	330.9	335.1	340.0	343.4	348.3	352.4
72.5°	258.7	262.0	266.2	270.3	273.6	277.8	282.8	286.9	291.1	296.1	297.7
75°	211.4	213.1	216.4	219.7	223.0	226.4	228.8	232.2	235.5	238.8	241.3
77.5°	165.0	166.7	170.0	172.5	175.0	177.5	179.1	180.8	184.1	186.6	189.1
80°	121.1	122.7	125.2	127.7	130.2	132.7	132.7	132.7	136.8	140.1	141.0
82.5°	82.1	82.9	84.5	86.2	87.9	89.5	89.5	88.7	91.2	93.7	95.3
85°	47.3	48.1	49.8	49.8	50.6	50.6	50.6	50.6	52.3	54.8	56.4
87.5°	19.1	19.1	19.9	19.9	20.7	20.7	19.9	19.1	20.7	23.2	24.1
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°	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2	1412.2
2.5°	1415.5	1414.7	1417.2	1418.0	1419.7	1419.7	1420.5	1420.5	1418.9	1416.4	1417.2
5°	1416.4	1416.4	1418.9	1421.4	1424.7	1428.0	1425.5	1423.0	1421.4	1418.9	1418.0
7.5°	1412.2	1413.9	1416.4	1420.5	1424.7	1429.7	1426.3	1423.0	1418.9	1415.5	1413.9
10°	1402.3	1403.9	1408.1	1412.2	1416.4	1420.5	1417.2	1413.9	1410.6	1406.4	1404.8
12.5°	1389.8	1392.3	1397.3	1401.4	1405.6	1410.6	1406.4	1402.3	1398.1	1394.0	1391.5
15°	1371.6	1374.9	1380.7	1385.7	1391.5	1395.6	1392.3	1389.0	1384.0	1378.2	1374.1
17.5°	1348.3	1353.3	1359.1	1364.9	1369.9	1374.1	1371.6	1368.2	1362.4	1355.8	1350.8
20°	1322.7	1327.7	1332.7	1338.4	1344.2	1348.3	1345.0	1340.9	1335.1	1330.2	1325.2
22.5°	1292.8	1297.8	1303.6	1308.6	1313.6	1317.7	1313.6	1308.6	1303.6	1298.6	1293.7
25°	1258.8	1263.8	1270.4	1275.4	1278.7	1282.0	1278.7	1274.6	1269.6	1264.6	1259.6
27.5°	1223.1	1228.1	1234.7	1239.7	1243.0	1246.4	1243.0	1238.9	1233.9	1228.9	1224.0
30°	1183.4	1188.4	1194.9	1199.9	1202.4	1204.9	1201.6	1198.2	1194.1	1189.2	1184.2
32.5°	1141.1	1146.0	1151.0	1156.0	1160.2	1163.5	1160.2	1156.8	1151.9	1145.2	1140.2
35°	1096.3	1101.2	1107.0	1112.0	1117.0	1121.2	1116.2	1110.4	1106.2	1102.1	1097.9
37.5°	1049.1	1054.8	1061.4	1067.2	1068.9	1072.2	1068.9	1065.6	1061.4	1057.3	1052.4
40°	1002.6	1007.6	1013.4	1019.2	1021.7	1024.2	1020.8	1017.5	1012.5	1008.4	1003.4
42.5°	954.5	959.4	964.4	969.4	972.7	976.0	972.7	967.7	964.4	961.1	956.9
45°	904.8	909.7	913.8	918.8	921.3	923.8	920.4	916.3	913.0	910.6	906.4
47.5°	854.1	858.3	862.4	866.6	868.2	870.7	867.4	864.9	862.4	859.9	856.6
50°	801.0	805.2	810.2	814.3	815.1	817.6	814.3	811.8	809.3	806.8	804.4
52.5°	748.8	752.2	756.3	760.5	762.1	763.8	760.5	757.1	754.7	753.0	750.5
55°	694.1	697.4	701.5	704.9	707.4	709.0	705.7	702.4	699.9	699.1	696.6
57.5°	639.3	642.6	646.8	650.1	651.8	653.4	650.1	646.8	645.1	643.5	641.8
60°	583.8	587.1	590.4	592.9	594.6	595.4	592.1	589.6	588.8	588.0	586.3
62.5°	529.0	530.7	534.0	535.7	537.3	538.2	535.7	534.0	533.2	532.4	531.5
65°	471.9	476.0	478.5	480.2	480.2	481.0	478.5	477.7	476.9	476.0	474.4
67.5°	413.0	416.3	417.9	419.6	419.6	419.6	419.6	419.6	418.8	417.1	415.5
70°	356.5	359.0	360.7	361.5	361.5	361.5	359.9	359.0	359.9	359.9	359.0
72.5°	299.4	301.0	301.9	302.7	301.9	301.9	301.9	303.5	303.5	302.7	301.0
75°	243.8	245.4	246.3	247.1	246.3	246.3	246.3	247.9	247.1	247.1	246.3
77.5°	191.6	192.4	192.4	193.3	192.4	192.4	193.3	194.9	194.1	194.1	194.1
80°	141.8	141.8	141.8	142.6	141.8	141.8	142.6	144.3	143.5	143.5	143.5
82.5°	96.2	97.0	97.0	97.0	97.8	98.7	98.7	98.7	98.7	98.7	97.8
85°	57.3	58.1	57.3	57.3	57.3	57.3	58.1	58.9	58.9	58.9	58.9
87.5°	24.9	25.7	24.9	24.1	23.2	23.2	24.9	26.6	26.6	25.7	25.7
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: P
 CATALOG NUMBER: 4APN-20-22L830-UNV-NP

CANDELA DISTRIBUTION (continued):

	330°	340°	350°	360°
0°	1412.2	1412.2	1412.2	1412.2
2.5°	1420.5	1420.5	1413.1	1405.6
5°	1419.7	1418.0	1409.7	1400.6
7.5°	1414.7	1412.2	1401.4	1391.5
10°	1403.1	1399.8	1388.2	1375.7
12.5°	1389.0	1384.0	1370.7	1358.3
15°	1370.7	1364.9	1350.8	1336.7
17.5°	1346.7	1340.0	1326.0	1311.1
20°	1321.0	1313.6	1297.8	1282.0
22.5°	1289.5	1282.9	1266.3	1250.5
25°	1255.5	1248.0	1231.4	1214.8
27.5°	1219.0	1210.7	1194.1	1178.4
30°	1179.2	1170.9	1154.3	1138.6
32.5°	1136.9	1130.3	1113.7	1096.3
35°	1093.8	1085.5	1068.9	1052.4
37.5°	1048.2	1040.8	1025.0	1009.2
40°	1000.1	992.6	976.0	960.3
42.5°	952.8	946.2	930.4	915.5
45°	902.3	895.6	880.7	867.4
47.5°	851.7	845.0	830.9	816.8
50°	800.2	793.6	780.3	767.9
52.5°	746.4	741.4	728.9	716.5
55°	692.4	686.6	674.2	663.4
57.5°	638.5	634.3	622.8	612.0
60°	583.0	578.0	568.9	559.7
62.5°	529.0	524.9	515.8	507.5
65°	471.9	468.6	461.1	453.6
67.5°	413.0	410.5	403.0	396.4
70°	356.5	352.4	346.7	340.9
72.5°	299.4	297.7	292.7	287.8
75°	244.6	242.9	238.0	233.8
77.5°	193.3	191.6	187.4	183.3
80°	142.6	141.8	138.5	135.2
82.5°	97.8	97.0	94.5	91.2
85°	58.9	57.3	54.8	52.3
87.5°	25.7	24.9	22.4	20.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)