

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: P709173

Luminaire Tested: **4APN-20-22L840-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709173
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-20-22L840-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient and Exam Light
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

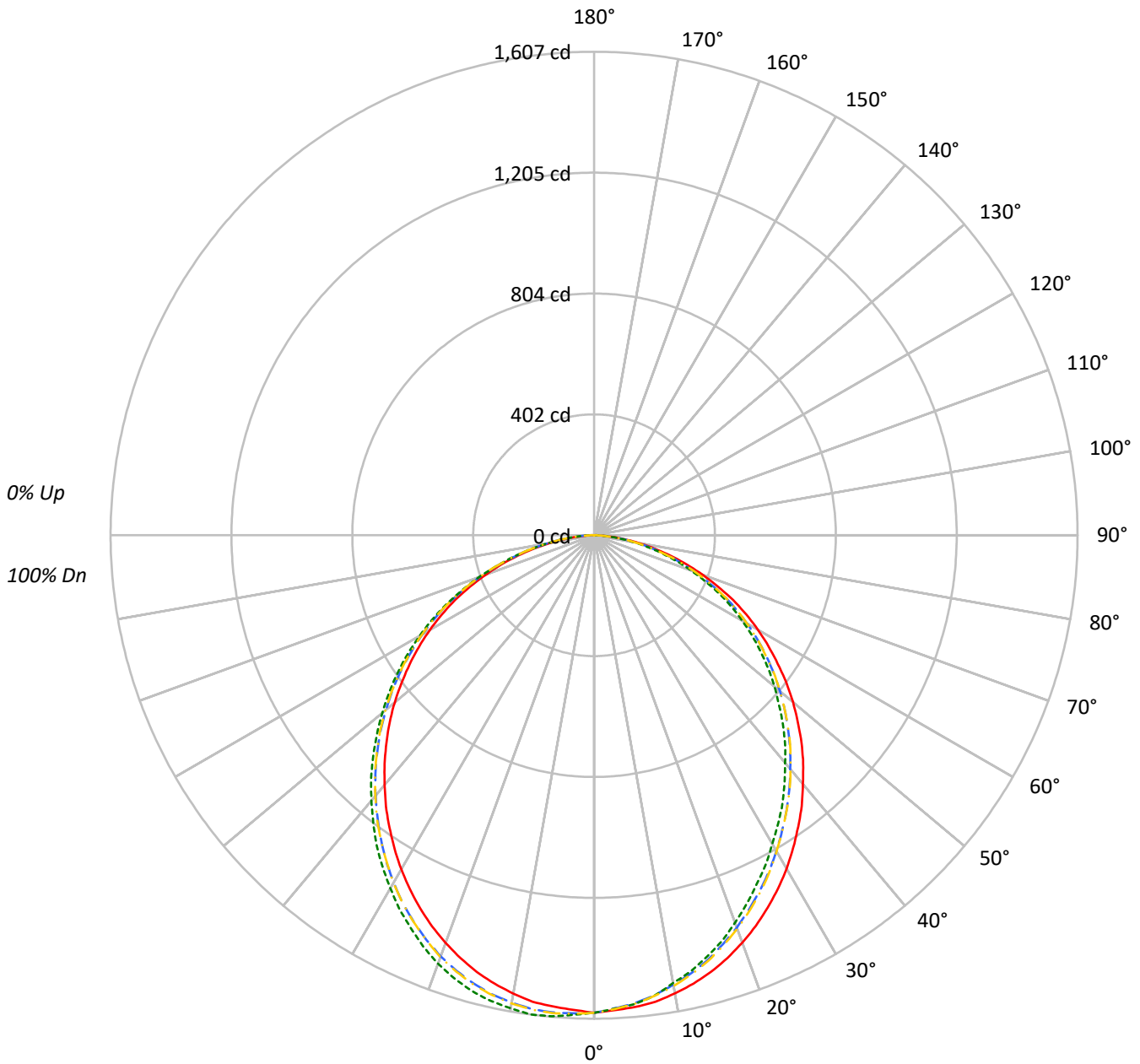
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4195.7 lumens
Efficiency: N/A
Efficacy: 87.4 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 (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

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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	100	100	100	100
1	109	104	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	84	84	84	84
2	99	91	84	79	97	89	83	78	86	80	76	82	78	74	79	76	72	70	70	70	70
3	90	80	72	66	88	78	71	65	75	69	64	73	67	63	70	66	62	59	59	59	59
4	83	71	62	56	81	70	62	55	67	60	54	65	59	54	63	57	53	51	51	51	51
5	76	64	55	48	74	62	54	48	60	53	47	58	52	47	56	51	46	44	44	44	44
6	71	57	48	42	69	56	48	42	55	47	41	53	46	41	51	45	41	39	39	39	39
7	65	52	43	37	64	51	43	37	50	42	37	48	41	36	47	41	36	34	34	34	34
8	61	48	39	33	59	47	39	33	45	38	33	44	38	33	43	37	32	31	31	31	31
9	57	44	35	30	56	43	35	30	42	35	30	41	34	30	40	34	29	28	28	28	28
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	25	25	25	25

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	14644	14644	14644	14644
5°	14579	14484	14562	14865
10°	14486	14163	14495	14958
15°	14350	13852	14360	14983
20°	14147	13452	14157	14880
25°	13900	13027	13928	14668
30°	13633	12620	13652	14427
35°	13321	12293	13352	14193
40°	12999	11899	13044	13864
45°	12720	11577	12732	13548
50°	12388	11237	12414	13191
55°	11993	10869	12038	12818
60°	11608	10490	11627	12348
65°	11129	10031	11129	11802
70°	10334	9277	10307	10963
75°	9368	8406	9304	9867
80°	8071	7231	7922	8469
85°	6214	5526	6023	6807



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	149.9	3.6
10°-20°	424.4	10.1
20°-30°	628.3	15.0
30°-40°	737.2	17.6
40°-50°	747.1	17.8
50°-60°	663.1	15.8
60°-70°	497.8	11.9
70°-80°	276.4	6.6
80°-90°	71.4	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°	1202.6	28.7
0°-40°	1939.8	46.2
0°-60°	3350.0	79.8
0°-90°	4195.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4195.7	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1587	1587	1587	1587	1587	
5°	1574	1564	1572	1605	1574	149
15°	1502	1450	1503	1569	1502	423
25°	1365	1280	1368	1441	1365	629
35°	1183	1091	1186	1260	1183	740
45°	975	887	976	1038	975	751
55°	746	676	748	797	746	667
65°	510	460	510	541	510	503
75°	263	236	261	277	263	279
85°	59	52	57	64	59	71
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°	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2
2.5°	1579.8	1583.5	1588.2	1583.5	1576.1	1572.3	1572.3	1571.4	1574.2	1575.1	1574.2
5°	1574.2	1576.1	1577.0	1571.4	1563.0	1558.4	1556.5	1555.6	1559.3	1563.9	1559.3
7.5°	1563.9	1563.0	1562.1	1554.6	1545.3	1538.8	1536.0	1535.1	1538.8	1543.4	1539.7
10°	1546.2	1545.3	1542.5	1533.2	1521.1	1512.7	1509.9	1507.1	1509.9	1511.8	1509.9
12.5°	1526.7	1522.9	1519.2	1509.0	1495.9	1486.6	1481.9	1478.2	1481.9	1484.7	1482.9
15°	1502.4	1496.8	1490.3	1479.1	1466.1	1455.8	1450.2	1446.5	1449.3	1450.2	1450.2
17.5°	1473.5	1467.0	1460.5	1446.5	1430.7	1419.5	1413.0	1408.3	1412.0	1413.9	1413.9
20°	1440.9	1433.5	1425.1	1410.2	1393.4	1381.3	1373.8	1368.2	1369.2	1370.1	1370.1
22.5°	1405.5	1396.2	1385.9	1370.1	1352.4	1339.3	1331.9	1325.3	1325.3	1326.3	1326.3
25°	1365.4	1355.2	1344.9	1329.1	1310.4	1296.5	1287.1	1280.6	1280.6	1279.7	1281.5
27.5°	1324.4	1313.2	1303.0	1286.2	1266.6	1252.6	1243.3	1236.8	1235.9	1234.9	1236.8
30°	1279.7	1266.6	1255.4	1237.7	1219.1	1205.1	1195.8	1188.3	1186.5	1184.6	1186.5
32.5°	1232.1	1220.0	1207.9	1189.3	1170.6	1156.6	1147.3	1139.9	1138.9	1138.0	1139.9
35°	1182.7	1169.7	1158.5	1140.8	1122.2	1108.2	1097.9	1091.4	1091.4	1091.4	1091.4
37.5°	1134.3	1121.2	1109.1	1091.4	1072.8	1058.8	1048.5	1042.0	1040.1	1039.2	1040.1
40°	1079.3	1068.1	1056.9	1040.1	1021.5	1007.5	999.1	991.7	989.8	988.0	990.7
42.5°	1029.0	1017.8	1005.7	989.8	971.2	957.2	947.9	941.4	940.4	939.5	940.4
45°	974.9	961.9	949.7	934.8	918.0	905.0	895.7	889.2	888.2	887.3	888.2
47.5°	918.0	907.8	897.5	882.6	865.9	852.8	844.4	837.0	835.1	833.2	835.1
50°	863.1	851.9	841.6	827.6	811.8	799.7	792.2	785.7	783.8	782.9	783.8
52.5°	805.3	795.0	785.7	771.7	758.7	746.6	738.2	732.6	731.6	730.7	731.6
55°	745.6	736.3	727.9	716.7	703.7	692.5	685.0	678.5	677.6	675.7	677.6
57.5°	687.8	680.4	672.0	659.9	647.8	637.5	631.0	625.4	624.5	623.5	624.5
60°	629.1	621.7	614.2	604.0	591.8	581.6	576.0	571.3	569.5	568.5	569.5
62.5°	570.4	562.9	557.4	547.1	535.9	527.5	521.9	517.3	515.4	514.5	515.4
65°	509.8	503.3	496.8	487.5	479.1	472.5	466.9	462.3	460.4	459.5	459.5
67.5°	445.5	439.9	435.3	426.9	417.5	411.0	405.4	401.7	399.8	398.9	399.8
70°	383.1	378.4	373.7	367.2	359.8	354.2	350.4	346.7	344.9	343.9	343.9
72.5°	323.4	319.7	315.0	309.4	303.8	298.2	294.5	291.7	289.9	288.9	288.9
75°	262.8	259.1	257.2	252.6	247.0	243.3	239.5	237.7	235.8	235.8	235.8
77.5°	206.0	204.1	202.3	197.6	193.9	190.1	187.3	186.4	184.5	184.5	184.5
80°	151.9	151.0	150.1	147.3	143.5	139.8	137.9	137.0	136.1	136.1	136.1
82.5°	102.5	102.5	101.6	98.8	96.0	95.1	93.2	92.3	92.3	92.3	92.3
85°	58.7	58.7	58.7	57.8	55.9	55.9	54.1	53.1	52.2	52.2	52.2
87.5°	23.3	24.2	25.2	24.2	22.4	22.4	22.4	22.4	22.4	22.4	22.4
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°	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2
2.5°	1571.4	1573.3	1574.2	1578.9	1584.5	1588.2	1583.5	1578.9	1586.3	1594.7	1594.7
5°	1555.6	1557.4	1560.2	1565.8	1573.3	1577.9	1576.1	1572.3	1583.5	1592.8	1593.8
7.5°	1536.0	1537.8	1541.6	1547.2	1556.5	1563.0	1563.0	1563.9	1574.2	1585.4	1588.2
10°	1507.1	1511.8	1517.3	1525.7	1535.1	1543.4	1546.2	1547.2	1560.2	1572.3	1576.1
12.5°	1480.1	1484.7	1490.3	1499.6	1510.8	1520.1	1522.9	1526.7	1540.6	1554.6	1560.2
15°	1449.3	1454.0	1460.5	1469.8	1481.9	1492.2	1497.8	1503.4	1517.3	1532.3	1538.8
17.5°	1413.0	1417.6	1424.1	1435.3	1449.3	1461.4	1467.9	1474.5	1490.3	1506.2	1512.7
20°	1370.1	1376.6	1385.9	1397.1	1413.0	1426.9	1434.4	1441.9	1458.6	1474.5	1481.9
22.5°	1326.3	1333.7	1344.0	1357.0	1373.8	1388.7	1398.0	1407.4	1424.1	1440.0	1448.4
25°	1282.5	1290.9	1301.1	1315.1	1330.9	1345.9	1357.0	1368.2	1385.0	1401.8	1410.2
27.5°	1237.7	1245.2	1255.4	1269.4	1287.1	1303.0	1314.2	1326.3	1343.1	1360.8	1369.2
30°	1188.3	1196.7	1206.0	1220.0	1239.6	1257.3	1268.5	1281.5	1298.3	1316.0	1324.4
32.5°	1140.8	1148.3	1157.6	1171.6	1191.1	1209.8	1221.9	1234.9	1251.7	1269.4	1276.9
35°	1091.4	1098.9	1109.1	1123.1	1142.7	1160.4	1172.5	1185.5	1201.4	1218.2	1226.6
37.5°	1042.9	1050.4	1060.7	1074.6	1093.3	1111.0	1123.1	1136.1	1152.0	1167.8	1175.3
40°	992.6	1000.1	1008.5	1022.4	1041.1	1058.8	1070.0	1083.0	1098.9	1115.6	1123.1
42.5°	941.4	948.8	959.1	973.0	990.7	1006.6	1018.7	1030.8	1045.7	1060.7	1068.1
45°	890.1	896.6	906.9	919.9	936.7	951.6	963.7	975.8	989.8	1003.8	1011.3
47.5°	837.0	844.4	852.8	865.9	882.6	898.5	910.6	921.8	934.8	948.8	955.3
50°	785.7	792.2	800.6	812.7	828.6	843.5	853.7	864.9	877.0	890.1	895.7
52.5°	732.6	739.1	747.5	759.6	772.7	786.6	796.0	806.2	818.3	830.4	836.0
55°	678.5	683.2	690.6	701.8	715.8	728.8	738.2	748.4	758.7	768.9	775.4
57.5°	625.4	631.0	638.4	648.7	660.8	672.9	681.3	689.7	700.0	710.2	714.9
60°	571.3	576.0	581.6	590.9	603.0	613.3	621.7	630.1	638.4	647.8	652.4
62.5°	516.3	521.0	526.6	535.9	546.2	555.5	562.9	570.4	577.9	586.2	590.9
65°	461.4	466.0	471.6	478.1	486.5	494.9	502.4	509.8	515.4	521.0	525.7
67.5°	401.7	406.4	412.0	417.5	425.0	433.4	439.0	445.5	451.1	457.6	460.4
70°	345.8	349.5	355.1	359.8	366.3	371.9	376.5	382.1	385.9	391.5	396.1
72.5°	290.8	294.5	299.2	303.8	307.6	312.2	317.8	322.5	327.1	332.7	334.6
75°	237.7	239.5	243.3	247.0	250.7	254.4	257.2	261.0	264.7	268.4	271.2
77.5°	185.5	187.3	191.1	193.9	196.7	199.5	201.3	203.2	206.9	209.7	212.5
80°	136.1	137.9	140.7	143.5	146.3	149.1	149.1	149.1	153.8	157.5	158.4
82.5°	92.3	93.2	95.1	96.9	98.8	100.7	100.7	99.7	102.5	105.3	107.2
85°	53.1	54.1	55.9	55.9	56.9	56.9	56.9	56.9	58.7	61.5	63.4
87.5°	21.4	21.4	22.4	22.4	23.3	23.3	22.4	21.4	23.3	26.1	27.0
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°	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2	1587.2
2.5°	1591.0	1590.0	1592.8	1593.8	1595.6	1595.6	1596.6	1596.6	1594.7	1591.9	1592.8
5°	1591.9	1591.9	1594.7	1597.5	1601.2	1605.0	1602.2	1599.4	1597.5	1594.7	1593.8
7.5°	1587.2	1589.1	1591.9	1596.6	1601.2	1606.8	1603.1	1599.4	1594.7	1591.0	1589.1
10°	1576.1	1577.9	1582.6	1587.2	1591.9	1596.6	1592.8	1589.1	1585.4	1580.7	1578.9
12.5°	1562.1	1564.9	1570.5	1575.1	1579.8	1585.4	1580.7	1576.1	1571.4	1566.7	1563.9
15°	1541.6	1545.3	1551.8	1557.4	1563.9	1568.6	1564.9	1561.2	1555.6	1549.0	1544.4
17.5°	1515.5	1521.1	1527.6	1534.1	1539.7	1544.4	1541.6	1537.8	1531.3	1523.9	1518.3
20°	1486.6	1492.2	1497.8	1504.3	1510.8	1515.5	1511.8	1507.1	1500.6	1495.0	1489.4
22.5°	1453.0	1458.6	1465.2	1470.7	1476.3	1481.0	1476.3	1470.7	1465.2	1459.6	1454.0
25°	1414.8	1420.4	1427.9	1433.5	1437.2	1440.9	1437.2	1432.5	1426.9	1421.3	1415.8
27.5°	1374.7	1380.3	1387.8	1393.4	1397.1	1400.8	1397.1	1392.5	1386.9	1381.3	1375.7
30°	1330.0	1335.6	1343.1	1348.6	1351.4	1354.2	1350.5	1346.8	1342.1	1336.5	1330.9
32.5°	1282.5	1288.1	1293.7	1299.3	1303.9	1307.6	1303.9	1300.2	1294.6	1287.1	1281.5
35°	1232.1	1237.7	1244.3	1249.9	1255.4	1260.1	1254.5	1248.0	1243.3	1238.7	1234.0
37.5°	1179.0	1185.5	1193.0	1199.5	1201.4	1205.1	1201.4	1197.7	1193.0	1188.3	1182.7
40°	1126.8	1132.4	1138.9	1145.5	1148.3	1151.1	1147.3	1143.6	1138.0	1133.3	1127.8
42.5°	1072.8	1078.4	1084.0	1089.5	1093.3	1097.0	1093.3	1087.7	1084.0	1080.2	1075.6
45°	1016.8	1022.4	1027.1	1032.7	1035.5	1038.3	1034.6	1029.9	1026.2	1023.4	1018.7
47.5°	960.0	964.7	969.3	974.0	975.8	978.6	974.9	972.1	969.3	966.5	962.8
50°	900.3	905.0	910.6	915.3	916.2	919.0	915.3	912.5	909.7	906.9	904.1
52.5°	841.6	845.4	850.0	854.7	856.5	858.4	854.7	850.9	848.1	846.3	843.5
55°	780.1	783.8	788.5	792.2	795.0	796.9	793.2	789.4	786.6	785.7	782.9
57.5°	718.6	722.3	727.0	730.7	732.6	734.4	730.7	727.0	725.1	723.3	721.4
60°	656.1	659.9	663.6	666.4	668.3	669.2	665.5	662.7	661.7	660.8	658.9
62.5°	594.6	596.5	600.2	602.1	604.0	604.9	602.1	600.2	599.3	598.4	597.4
65°	530.3	535.0	537.8	539.6	539.6	540.6	537.8	536.8	535.9	535.0	533.1
67.5°	464.2	467.9	469.7	471.6	471.6	471.6	471.6	471.6	470.7	468.8	466.9
70°	400.8	403.6	405.4	406.4	406.4	406.4	404.5	403.6	404.5	404.5	403.6
72.5°	336.5	338.3	339.3	340.2	339.3	339.3	339.3	341.1	341.1	340.2	338.3
75°	274.0	275.9	276.8	277.7	276.8	276.8	276.8	278.7	277.7	277.7	276.8
77.5°	215.3	216.2	216.2	217.2	216.2	216.2	217.2	219.0	218.1	218.1	218.1
80°	159.4	159.4	159.4	160.3	159.4	159.4	160.3	162.2	161.2	161.2	161.2
82.5°	108.1	109.0	109.0	109.0	110.0	110.9	110.9	110.9	110.9	110.9	110.0
85°	64.3	65.2	64.3	64.3	64.3	64.3	65.2	66.2	66.2	66.2	66.2
87.5°	28.0	28.9	28.0	27.0	26.1	26.1	28.0	29.8	29.8	28.9	28.9
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):

	330°	340°	350°	360°
0°	1587.2	1587.2	1587.2	1587.2
2.5°	1596.6	1596.6	1588.2	1579.8
5°	1595.6	1593.8	1584.5	1574.2
7.5°	1590.0	1587.2	1575.1	1563.9
10°	1577.0	1573.3	1560.2	1546.2
12.5°	1561.2	1555.6	1540.6	1526.7
15°	1540.6	1534.1	1518.3	1502.4
17.5°	1513.6	1506.2	1490.3	1473.5
20°	1484.7	1476.3	1458.6	1440.9
22.5°	1449.3	1441.9	1423.2	1405.5
25°	1411.1	1402.7	1384.1	1365.4
27.5°	1370.1	1360.8	1342.1	1324.4
30°	1325.3	1316.0	1297.4	1279.7
32.5°	1277.8	1270.4	1251.7	1232.1
35°	1229.3	1220.0	1201.4	1182.7
37.5°	1178.1	1169.7	1152.0	1134.3
40°	1124.0	1115.6	1097.0	1079.3
42.5°	1070.9	1063.4	1045.7	1029.0
45°	1014.0	1006.6	989.8	974.9
47.5°	957.2	949.7	933.9	918.0
50°	899.4	892.0	877.0	863.1
52.5°	838.8	833.2	819.3	805.3
55°	778.2	771.7	757.7	745.6
57.5°	717.7	713.0	700.0	687.8
60°	655.2	649.6	639.4	629.1
62.5°	594.6	590.0	579.7	570.4
65°	530.3	526.6	518.2	509.8
67.5°	464.2	461.4	453.0	445.5
70°	400.8	396.1	389.6	383.1
72.5°	336.5	334.6	329.0	323.4
75°	274.9	273.1	267.5	262.8
77.5°	217.2	215.3	210.6	206.0
80°	160.3	159.4	155.6	151.9
82.5°	110.0	109.0	106.3	102.5
85°	66.2	64.3	61.5	58.7
87.5°	28.9	28.0	25.2	23.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)