

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: P709189

Luminaire Tested: **4APN-28-30L935-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709189
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-28-30L935-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient and Exam Light
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

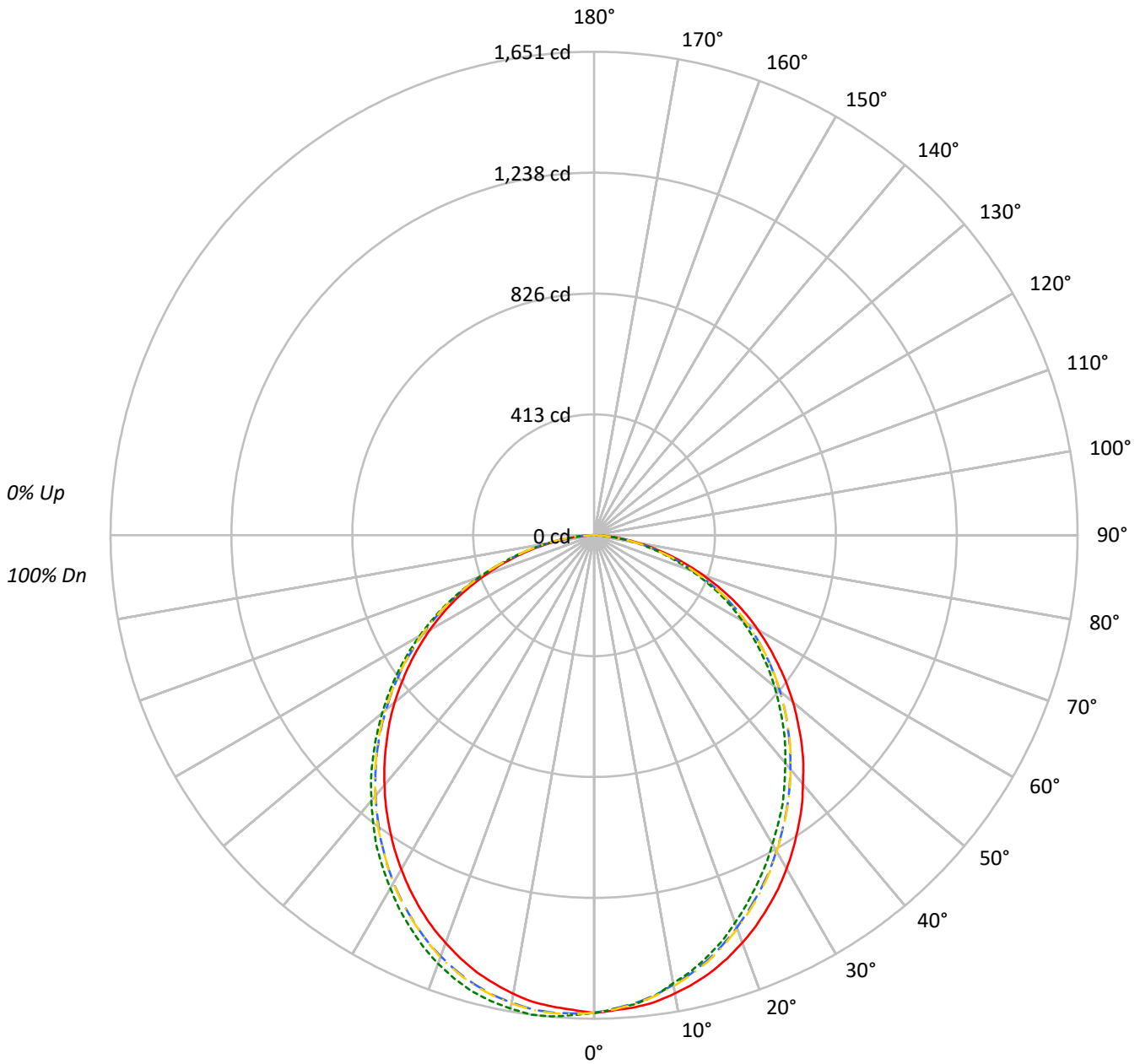
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4312.0 lumens
Efficiency: N/A
Efficacy: 66.3 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

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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°	15051	15051	15051	15051
5°	14984	14886	14966	15277
10°	14888	14556	14897	15373
15°	14749	14237	14758	15398
20°	14540	13825	14549	15292
25°	14286	13389	14315	15076
30°	14011	12971	14032	14828
35°	13691	12634	13723	14587
40°	13359	12229	13406	14248
45°	13073	11898	13086	13923
50°	12731	11549	12759	13557
55°	12326	11171	12373	13174
60°	11931	10782	11948	12692
65°	11439	10309	11439	12129
70°	10620	9536	10593	11265
75°	9628	8637	9561	10142
80°	8294	7433	8145	8703
85°	6383	5674	6182	6997



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	154.1	3.6
10°-20°	436.2	10.1
20°-30°	645.8	15.0
30°-40°	757.6	17.6
40°-50°	767.8	17.8
50°-60°	681.5	15.8
60°-70°	511.6	11.9
70°-80°	284.1	6.6
80°-90°	73.4	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°	1236.0	28.7
0°-40°	1993.6	46.2
0°-60°	3443.0	79.8
0°-90°	4312.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4312.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1631	1631	1631	1631	1631	
5°	1618	1607	1616	1650	1618	154
15°	1544	1490	1545	1612	1544	435
25°	1403	1315	1406	1481	1403	647
35°	1216	1122	1218	1295	1216	761
45°	1002	912	1003	1067	1002	772
55°	766	694	769	819	766	686
65°	524	472	524	556	524	517
75°	270	242	268	284	270	287
85°	60	54	58	66	60	73
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°	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3
2.5°	1623.6	1627.4	1632.2	1627.4	1619.8	1615.9	1615.9	1615.0	1617.9	1618.8	1617.9
5°	1617.9	1619.8	1620.7	1615.0	1606.4	1601.6	1599.7	1598.7	1602.5	1607.3	1602.5
7.5°	1607.3	1606.4	1605.4	1597.7	1588.2	1581.5	1578.6	1577.6	1581.5	1586.3	1582.4
10°	1589.1	1588.2	1585.3	1575.7	1563.3	1554.6	1551.8	1548.9	1551.8	1553.7	1551.8
12.5°	1569.0	1565.2	1561.4	1550.8	1537.4	1527.8	1523.0	1519.2	1523.0	1525.9	1524.0
15°	1544.1	1538.4	1531.7	1520.2	1506.8	1496.2	1490.5	1486.6	1489.5	1490.5	1490.5
17.5°	1514.4	1507.7	1501.0	1486.6	1470.4	1458.9	1452.2	1447.4	1451.2	1453.1	1453.1
20°	1480.9	1473.2	1464.6	1449.3	1432.0	1419.6	1411.9	1406.2	1407.1	1408.1	1408.1
22.5°	1444.5	1434.9	1424.4	1408.1	1389.9	1376.5	1368.8	1362.1	1362.1	1363.1	1363.1
25°	1403.3	1392.8	1382.2	1365.9	1346.8	1332.4	1322.8	1316.1	1316.1	1315.2	1317.1
27.5°	1361.2	1349.7	1339.1	1321.9	1301.8	1287.4	1277.8	1271.1	1270.2	1269.2	1271.1
30°	1315.2	1301.8	1290.3	1272.1	1252.9	1238.5	1229.0	1221.3	1219.4	1217.5	1219.4
32.5°	1266.3	1253.9	1241.4	1222.3	1203.1	1188.7	1179.2	1171.5	1170.5	1169.6	1171.5
35°	1215.6	1202.1	1190.6	1172.4	1153.3	1138.9	1128.4	1121.7	1121.7	1121.7	1121.7
37.5°	1165.7	1152.3	1139.9	1121.7	1102.5	1088.2	1077.6	1070.9	1069.0	1068.0	1069.0
40°	1109.2	1097.7	1086.2	1069.0	1049.8	1035.5	1026.9	1019.2	1017.3	1015.4	1018.2
42.5°	1057.5	1046.0	1033.6	1017.3	998.1	983.7	974.2	967.5	966.5	965.5	966.5
45°	1001.9	988.5	976.1	960.8	943.5	930.1	920.5	913.8	912.9	911.9	912.9
47.5°	943.5	933.0	922.4	907.1	889.9	876.5	867.8	860.2	858.3	856.3	858.3
50°	887.0	875.5	865.0	850.6	834.3	821.9	814.2	807.5	805.6	804.6	805.6
52.5°	827.6	817.1	807.5	793.1	779.7	767.3	758.6	752.9	751.9	751.0	751.9
55°	766.3	756.7	748.1	736.6	723.2	711.7	704.0	697.3	696.4	694.5	696.4
57.5°	706.9	699.3	690.6	678.2	665.7	655.2	648.5	642.7	641.8	640.8	641.8
60°	646.6	638.9	631.2	620.7	608.3	597.7	592.0	587.2	585.3	584.3	585.3
62.5°	586.2	578.6	572.8	562.3	550.8	542.2	536.4	531.6	529.7	528.8	529.7
65°	524.0	517.3	510.6	501.0	492.4	485.6	479.9	475.1	473.2	472.2	472.2
67.5°	457.9	452.1	447.3	438.7	429.1	422.4	416.7	412.8	410.9	410.0	410.9
70°	393.7	388.9	384.1	377.4	369.7	364.0	360.2	356.3	354.4	353.5	353.5
72.5°	332.4	328.6	323.8	318.0	312.3	306.5	302.7	299.8	297.9	296.9	296.9
75°	270.1	266.3	264.4	259.6	253.8	250.0	246.2	244.3	242.3	242.3	242.3
77.5°	211.7	209.8	207.9	203.1	199.2	195.4	192.5	191.6	189.7	189.7	189.7
80°	156.1	155.2	154.2	151.3	147.5	143.7	141.8	140.8	139.9	139.9	139.9
82.5°	105.4	105.4	104.4	101.5	98.7	97.7	95.8	94.8	94.8	94.8	94.8
85°	60.3	60.3	60.3	59.4	57.5	57.5	55.6	54.6	53.6	53.6	53.6
87.5°	23.9	24.9	25.9	24.9	23.0	23.0	23.0	23.0	23.0	23.0	23.0
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):

	110°	120°	130°	140°	150°	160°	170°	180°	190°	200°	210°
0°	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3
2.5°	1615.0	1616.9	1617.9	1622.7	1628.4	1632.2	1627.4	1622.7	1630.3	1638.9	1638.9
5°	1598.7	1600.6	1603.5	1609.2	1616.9	1621.7	1619.8	1615.9	1627.4	1637.0	1638.0
7.5°	1578.6	1580.5	1584.3	1590.1	1599.7	1606.4	1606.4	1607.3	1617.9	1629.4	1632.2
10°	1548.9	1553.7	1559.4	1568.1	1577.6	1586.3	1589.1	1590.1	1603.5	1615.9	1619.8
12.5°	1521.1	1525.9	1531.7	1541.2	1552.7	1562.3	1565.2	1569.0	1583.4	1597.7	1603.5
15°	1489.5	1494.3	1501.0	1510.6	1523.0	1533.6	1539.3	1545.1	1559.4	1574.8	1581.5
17.5°	1452.2	1456.9	1463.6	1475.1	1489.5	1502.0	1508.7	1515.4	1531.7	1547.9	1554.6
20°	1408.1	1414.8	1424.4	1435.9	1452.2	1466.5	1474.2	1481.8	1499.1	1515.4	1523.0
22.5°	1363.1	1370.7	1381.3	1394.7	1411.9	1427.2	1436.8	1446.4	1463.6	1479.9	1488.6
25°	1318.0	1326.7	1337.2	1351.6	1367.9	1383.2	1394.7	1406.2	1423.4	1440.7	1449.3
27.5°	1272.1	1279.7	1290.3	1304.6	1322.8	1339.1	1350.6	1363.1	1380.3	1398.5	1407.1
30°	1221.3	1229.9	1239.5	1253.9	1274.0	1292.2	1303.7	1317.1	1334.3	1352.5	1361.2
32.5°	1172.4	1180.1	1189.7	1204.1	1224.2	1243.3	1255.8	1269.2	1286.4	1304.6	1312.3
35°	1121.7	1129.3	1139.9	1154.2	1174.4	1192.6	1205.0	1218.4	1234.7	1252.0	1260.6
37.5°	1071.9	1079.5	1090.1	1104.4	1123.6	1141.8	1154.2	1167.7	1183.9	1200.2	1207.9
40°	1020.1	1027.8	1036.4	1050.8	1070.0	1088.2	1099.7	1113.1	1129.3	1146.6	1154.2
42.5°	967.5	975.1	985.7	1000.0	1018.2	1034.5	1047.0	1059.4	1074.7	1090.1	1097.7
45°	914.8	921.5	932.0	945.4	962.7	978.0	990.5	1002.9	1017.3	1031.6	1039.3
47.5°	860.2	867.8	876.5	889.9	907.1	923.4	935.9	947.3	960.8	975.1	981.8
50°	807.5	814.2	822.8	835.3	851.6	866.9	877.4	888.9	901.4	914.8	920.5
52.5°	752.9	759.6	768.2	780.7	794.1	808.5	818.0	828.6	841.0	853.5	859.2
55°	697.3	702.1	709.8	721.3	735.7	749.1	758.6	769.2	779.7	790.3	797.0
57.5°	642.7	648.5	656.2	666.7	679.1	691.6	700.2	708.8	719.4	729.9	734.7
60°	587.2	592.0	597.7	607.3	619.8	630.3	638.9	647.5	656.2	665.7	670.5
62.5°	530.7	535.5	541.2	550.8	561.3	570.9	578.6	586.2	593.9	602.5	607.3
65°	474.2	478.9	484.7	491.4	500.0	508.6	516.3	524.0	529.7	535.5	540.2
67.5°	412.8	417.6	423.4	429.1	436.8	445.4	451.2	457.9	463.6	470.3	473.2
70°	355.4	359.2	365.0	369.7	376.4	382.2	387.0	392.7	396.6	402.3	407.1
72.5°	298.9	302.7	307.5	312.3	316.1	320.9	326.6	331.4	336.2	342.0	343.9
75°	244.3	246.2	250.0	253.8	257.7	261.5	264.4	268.2	272.0	275.9	278.7
77.5°	190.6	192.5	196.4	199.2	202.1	205.0	206.9	208.8	212.7	215.5	218.4
80°	139.9	141.8	144.6	147.5	150.4	153.3	153.3	153.3	158.1	161.9	162.8
82.5°	94.8	95.8	97.7	99.6	101.5	103.5	103.5	102.5	105.4	108.2	110.2
85°	54.6	55.6	57.5	57.5	58.4	58.4	58.4	58.4	60.3	63.2	65.1
87.5°	22.0	22.0	23.0	23.0	23.9	23.9	23.0	22.0	23.9	26.8	27.8
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°	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3	1631.3
2.5°	1635.1	1634.1	1637.0	1638.0	1639.9	1639.9	1640.9	1640.9	1638.9	1636.1	1637.0
5°	1636.1	1636.1	1638.9	1641.8	1645.6	1649.5	1646.6	1643.7	1641.8	1638.9	1638.0
7.5°	1631.3	1633.2	1636.1	1640.9	1645.6	1651.4	1647.6	1643.7	1638.9	1635.1	1633.2
10°	1619.8	1621.7	1626.5	1631.3	1636.1	1640.9	1637.0	1633.2	1629.4	1624.6	1622.7
12.5°	1605.4	1608.3	1614.0	1618.8	1623.6	1629.4	1624.6	1619.8	1615.0	1610.2	1607.3
15°	1584.3	1588.2	1594.9	1600.6	1607.3	1612.1	1608.3	1604.5	1598.7	1592.0	1587.2
17.5°	1557.5	1563.3	1570.0	1576.7	1582.4	1587.2	1584.3	1580.5	1573.8	1566.1	1560.4
20°	1527.8	1533.6	1539.3	1546.0	1552.7	1557.5	1553.7	1548.9	1542.2	1536.4	1530.7
22.5°	1493.3	1499.1	1505.8	1511.5	1517.3	1522.1	1517.3	1511.5	1505.8	1500.0	1494.3
25°	1454.1	1459.8	1467.5	1473.2	1477.1	1480.9	1477.1	1472.3	1466.5	1460.8	1455.0
27.5°	1412.9	1418.6	1426.3	1432.0	1435.9	1439.7	1435.9	1431.1	1425.3	1419.6	1413.8
30°	1366.9	1372.6	1380.3	1386.1	1388.9	1391.8	1388.0	1384.1	1379.4	1373.6	1367.9
32.5°	1318.0	1323.8	1329.5	1335.3	1340.1	1343.9	1340.1	1336.2	1330.5	1322.8	1317.1
35°	1266.3	1272.1	1278.8	1284.5	1290.3	1295.1	1289.3	1282.6	1277.8	1273.0	1268.2
37.5°	1211.7	1218.4	1226.1	1232.8	1234.7	1238.5	1234.7	1230.9	1226.1	1221.3	1215.6
40°	1158.1	1163.8	1170.5	1177.2	1180.1	1183.0	1179.2	1175.3	1169.6	1164.8	1159.0
42.5°	1102.5	1108.3	1114.0	1119.8	1123.6	1127.4	1123.6	1117.9	1114.0	1110.2	1105.4
45°	1045.1	1050.8	1055.6	1061.3	1064.2	1067.1	1063.3	1058.5	1054.6	1051.8	1047.0
47.5°	986.6	991.4	996.2	1001.0	1002.9	1005.8	1001.9	999.1	996.2	993.3	989.5
50°	925.3	930.1	935.9	940.6	941.6	944.5	940.6	937.8	934.9	932.0	929.1
52.5°	865.0	868.8	873.6	878.4	880.3	882.2	878.4	874.5	871.7	869.8	866.9
55°	801.7	805.6	810.4	814.2	817.1	819.0	815.2	811.3	808.5	807.5	804.6
57.5°	738.5	742.4	747.1	751.0	752.9	754.8	751.0	747.1	745.2	743.3	741.4
60°	674.3	678.2	682.0	684.9	686.8	687.8	683.9	681.1	680.1	679.1	677.2
62.5°	611.1	613.0	616.9	618.8	620.7	621.7	618.8	616.9	615.9	615.0	614.0
65°	545.0	549.8	552.7	554.6	554.6	555.6	552.7	551.7	550.8	549.8	547.9
67.5°	477.0	480.9	482.8	484.7	484.7	484.7	484.7	484.7	483.7	481.8	479.9
70°	411.9	414.8	416.7	417.6	417.6	417.6	415.7	414.8	415.7	415.7	414.8
72.5°	345.8	347.7	348.7	349.6	348.7	348.7	348.7	350.6	350.6	349.6	347.7
75°	281.6	283.5	284.5	285.4	284.5	284.5	284.5	286.4	285.4	285.4	284.5
77.5°	221.3	222.2	222.2	223.2	222.2	222.2	223.2	225.1	224.1	224.1	224.1
80°	163.8	163.8	163.8	164.8	163.8	163.8	164.8	166.7	165.7	165.7	165.7
82.5°	111.1	112.1	112.1	112.1	113.0	114.0	114.0	114.0	114.0	114.0	113.0
85°	66.1	67.1	66.1	66.1	66.1	66.1	67.1	68.0	68.0	68.0	68.0
87.5°	28.7	29.7	28.7	27.8	26.8	26.8	28.7	30.7	30.7	29.7	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



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CANDELA DISTRIBUTION (continued):

	330°	340°	350°	360°
0°	1631.3	1631.3	1631.3	1631.3
2.5°	1640.9	1640.9	1632.2	1623.6
5°	1639.9	1638.0	1628.4	1617.9
7.5°	1634.1	1631.3	1618.8	1607.3
10°	1620.7	1616.9	1603.5	1589.1
12.5°	1604.5	1598.7	1583.4	1569.0
15°	1583.4	1576.7	1560.4	1544.1
17.5°	1555.6	1547.9	1531.7	1514.4
20°	1525.9	1517.3	1499.1	1480.9
22.5°	1489.5	1481.8	1462.7	1444.5
25°	1450.2	1441.6	1422.5	1403.3
27.5°	1408.1	1398.5	1379.4	1361.2
30°	1362.1	1352.5	1333.4	1315.2
32.5°	1313.3	1305.6	1286.4	1266.3
35°	1263.4	1253.9	1234.7	1215.6
37.5°	1210.8	1202.1	1183.9	1165.7
40°	1155.2	1146.6	1127.4	1109.2
42.5°	1100.6	1092.9	1074.7	1057.5
45°	1042.2	1034.5	1017.3	1001.9
47.5°	983.7	976.1	959.8	943.5
50°	924.4	916.7	901.4	887.0
52.5°	862.1	856.3	842.0	827.6
55°	799.8	793.1	778.8	766.3
57.5°	737.6	732.8	719.4	706.9
60°	673.4	667.6	657.1	646.6
62.5°	611.1	606.3	595.8	586.2
65°	545.0	541.2	532.6	524.0
67.5°	477.0	474.2	465.5	457.9
70°	411.9	407.1	400.4	393.7
72.5°	345.8	343.9	338.1	332.4
75°	282.6	280.7	274.9	270.1
77.5°	223.2	221.3	216.5	211.7
80°	164.8	163.8	160.0	156.1
82.5°	113.0	112.1	109.2	105.4
85°	68.0	66.1	63.2	60.3
87.5°	29.7	28.7	25.9	23.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)