

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: LUMARK

Report Number: P197018

Luminaire Tested: **NAV-AF-02-D-UNV-SL2-8030-600-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P197018
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24258)
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: LUMARK
Catalog Number: NAV-AF-02-D-UNV-SL2-8030-600-HSS
Description: NAVION ROADWAY AND AREA LUMINAIRE
(2) 80 CRI, 3000K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II SPILL
LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5342 lumens
Efficiency: N/A
Efficacy: 80.9 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')
IES Classification: Type II - Medium - Semi-Cutoff
BUG Rating: B1 - U0 - G2

Input Watts (W): 66
Input Voltage (V): NR
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

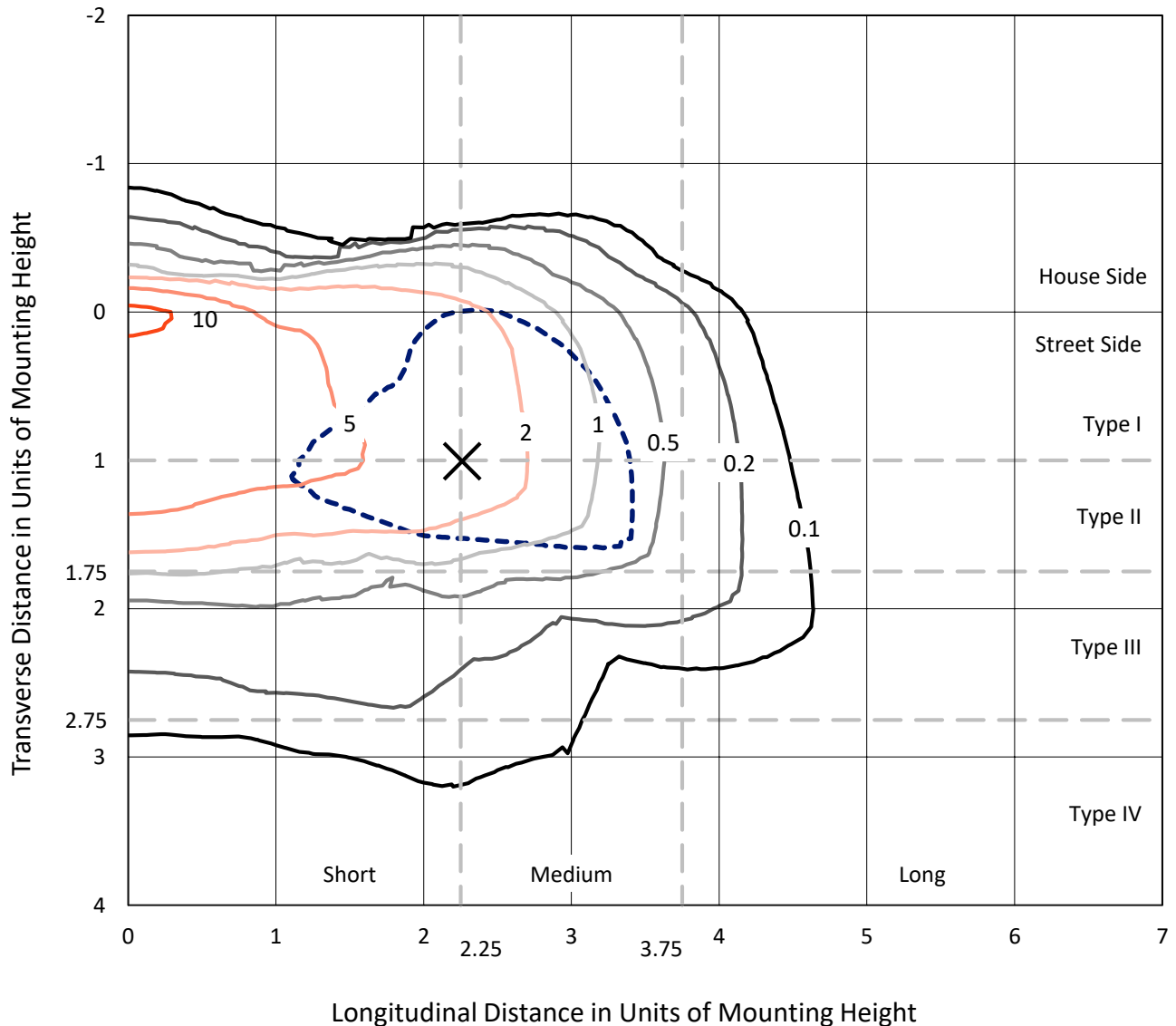


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Iso-Footcandle Lines of Horizontal Illumination

× Max cd
 - - - 1/2 Max cd

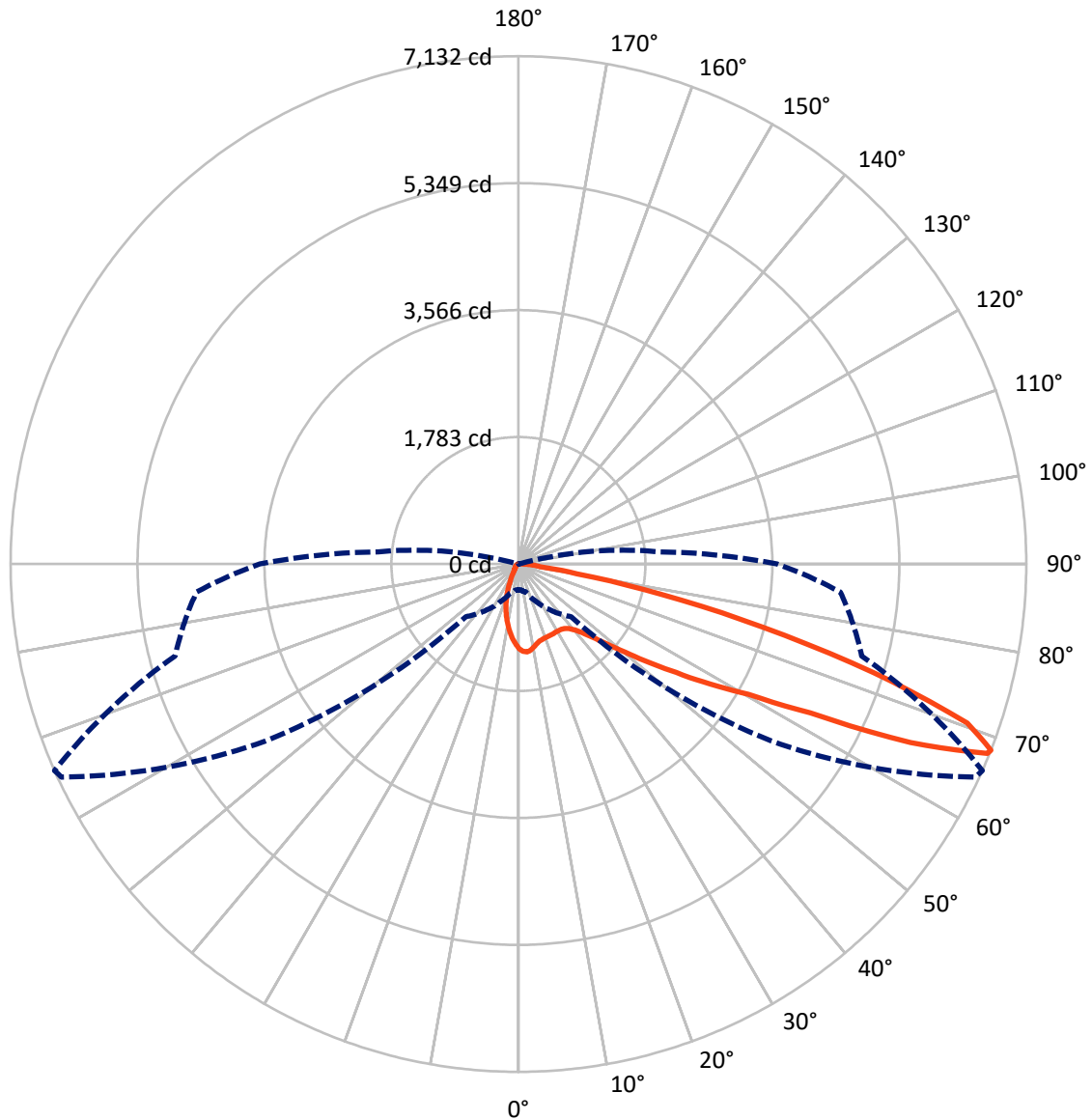


Based on 10 foot mounting height. Maximum calculated value = 11.9 fc
 Type II - Medium - Semi-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 66-Deg Lateral - - - Horizontal Cone Through 68-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 541.1 | 0.0 | 541.1 |
| | % Fixture | 10.1 | 0.0 | 10.1 |
| Street Side | Lumens | 4800.9 | 0.0 | 4800.9 |
| | % Fixture | 89.9 | 0.0 | 89.9 |
| Total | Lumens | 5342.0 | 0.0 | 5342.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 97.6 | 1.8 |
| 10°-20° | 209.9 | 3.9 |
| 20°-30° | 304.2 | 5.7 |
| 30°-40° | 465.7 | 8.7 |
| 40°-50° | 796.5 | 14.9 |
| 50°-60° | 1246.0 | 23.3 |
| 60°-70° | 1434.7 | 26.9 |
| 70°-80° | 717.9 | 13.4 |
| 80°-90° | 69.5 | 1.3 |
| 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°-90° | 5342.0 | 100.0 |
| 0°-180° | 5342.0 | 100.0 |



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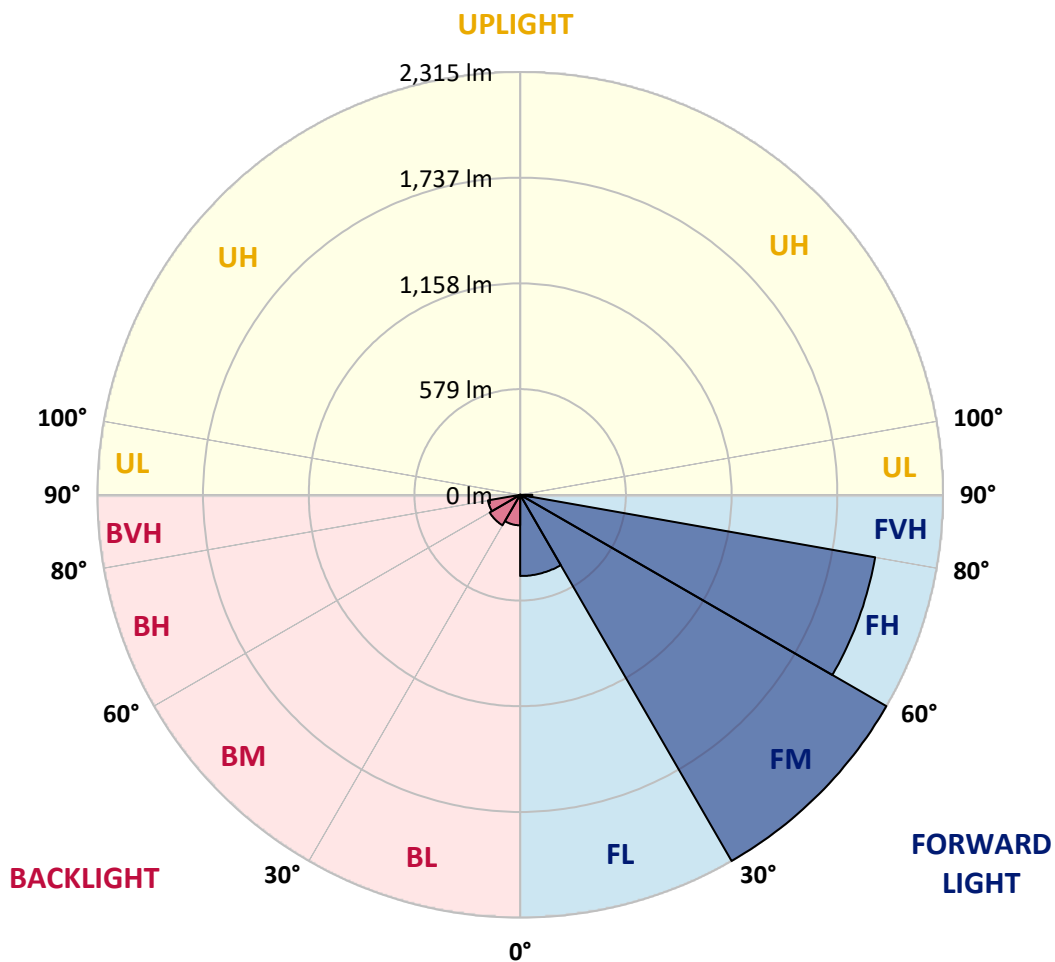
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 444.7 | 8.3 | | | |
| FM (30°-60°) | 2315.5 | 43.3 | | | |
| FH (60°-80°) | 1973.9 | 36.9 | | | G2/5000 |
| FVH (80°-90°) | 66.9 | 1.3 | | | G1/100 |
| BL (0°-30°) | 167.0 | 3.1 | B1/500 | | |
| BM (30°-60°) | 192.7 | 3.6 | B0/220 | | |
| BH (60°-80°) | 178.8 | 3.3 | B1/500 | | G1/500 |
| BVH (80°-90°) | 2.6 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type II Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 66° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1190.1 | 1190.1 | 1190.1 | 1190.1 | 1190.1 | 1190.1 | 1190.1 | 1190.1 | 1190.1 | 1190.1 | 1190.1 |
| 2.5° | 1251.8 | 1252.6 | 1252.2 | 1253.5 | 1252.6 | 1246.3 | 1239.6 | 1225.4 | 1226.6 | 1208.2 | 1187.6 |
| 5° | 1163.7 | 1170.9 | 1178.0 | 1185.1 | 1202.3 | 1217.4 | 1235.4 | 1239.6 | 1239.6 | 1223.7 | 1193.5 |
| 7.5° | 1074.0 | 1074.4 | 1082.4 | 1092.0 | 1115.1 | 1142.8 | 1184.7 | 1222.4 | 1223.3 | 1227.5 | 1194.3 |
| 10° | 1006.5 | 1008.6 | 1014.0 | 1024.5 | 1047.6 | 1074.8 | 1121.8 | 1180.9 | 1185.5 | 1216.6 | 1186.0 |
| 12.5° | 954.0 | 956.6 | 962.4 | 974.6 | 995.6 | 1023.7 | 1073.1 | 1140.7 | 1147.0 | 1206.1 | 1183.4 |
| 15° | 913.8 | 917.1 | 921.8 | 933.9 | 956.6 | 986.3 | 1040.4 | 1113.8 | 1121.4 | 1201.9 | 1191.4 |
| 17.5° | 897.0 | 897.0 | 896.6 | 905.0 | 927.6 | 957.8 | 1014.4 | 1099.6 | 1109.2 | 1205.2 | 1204.8 |
| 20° | 904.1 | 902.9 | 894.1 | 892.0 | 905.8 | 936.0 | 993.9 | 1090.3 | 1101.2 | 1211.5 | 1221.2 |
| 22.5° | 941.9 | 939.4 | 919.7 | 903.3 | 899.1 | 919.2 | 980.0 | 1084.0 | 1097.0 | 1224.5 | 1243.0 |
| 25° | 1022.0 | 1014.4 | 987.2 | 950.3 | 917.1 | 915.0 | 970.4 | 1080.7 | 1094.5 | 1239.6 | 1266.9 |
| 27.5° | 1126.0 | 1123.9 | 1080.3 | 1030.8 | 967.0 | 928.9 | 967.5 | 1078.2 | 1092.0 | 1250.5 | 1286.2 |
| 30° | 1255.1 | 1256.0 | 1205.7 | 1141.1 | 1044.6 | 967.9 | 976.7 | 1076.9 | 1091.2 | 1251.4 | 1294.6 |
| 32.5° | 1388.5 | 1389.3 | 1347.4 | 1278.2 | 1150.7 | 1035.0 | 1002.7 | 1082.8 | 1095.8 | 1248.0 | 1294.1 |
| 35° | 1516.8 | 1518.1 | 1492.9 | 1437.2 | 1292.5 | 1128.1 | 1051.8 | 1102.9 | 1112.1 | 1250.1 | 1293.3 |
| 37.5° | 1679.1 | 1684.2 | 1653.1 | 1601.1 | 1470.3 | 1264.8 | 1131.9 | 1143.6 | 1151.1 | 1267.3 | 1299.6 |
| 40° | 1955.9 | 1949.2 | 1860.3 | 1772.2 | 1663.2 | 1431.3 | 1247.6 | 1213.6 | 1216.1 | 1311.8 | 1323.5 |
| 42.5° | 2278.4 | 2270.0 | 2117.8 | 1966.0 | 1861.5 | 1632.2 | 1395.6 | 1321.0 | 1320.6 | 1386.4 | 1375.5 |
| 45° | 2556.0 | 2551.0 | 2390.8 | 2188.2 | 2081.3 | 1854.0 | 1578.1 | 1475.7 | 1470.7 | 1515.6 | 1470.3 |
| 47.5° | 2753.1 | 2748.9 | 2627.7 | 2424.7 | 2335.4 | 2098.1 | 1805.8 | 1686.7 | 1676.2 | 1684.6 | 1624.2 |
| 50° | 2772.4 | 2767.8 | 2725.4 | 2595.0 | 2632.3 | 2456.2 | 2087.2 | 1963.0 | 1949.6 | 1936.6 | 1856.9 |
| 52.5° | 2592.1 | 2591.7 | 2613.9 | 2605.5 | 2840.3 | 2917.1 | 2432.3 | 2304.8 | 2288.9 | 2255.7 | 2176.5 |
| 55° | 2223.5 | 2221.4 | 2305.6 | 2428.1 | 2835.7 | 3392.6 | 2958.6 | 2711.6 | 2690.6 | 2624.4 | 2520.4 |
| 57.5° | 1624.6 | 1613.7 | 1789.8 | 2049.4 | 2636.5 | 3600.6 | 3794.4 | 3216.9 | 3182.1 | 2972.0 | 2811.8 |
| 60° | 897.0 | 901.2 | 1127.7 | 1435.1 | 2164.7 | 3559.5 | 4563.5 | 3806.1 | 3714.7 | 3271.9 | 3110.4 |
| 62.5° | 502.8 | 513.3 | 681.9 | 932.7 | 1380.1 | 3226.1 | 4976.1 | 4820.1 | 4600.0 | 3621.6 | 3487.8 |
| 65° | 380.4 | 386.7 | 471.4 | 719.6 | 870.2 | 2254.5 | 5042.0 | 6238.0 | 6048.0 | 4151.7 | 4088.8 |
| 67.5° | 358.1 | 363.2 | 404.7 | 596.8 | 792.6 | 1169.2 | 4546.3 | 7076.7 | 7100.6 | 4874.7 | 4554.3 |
| 68° | 360.7 | 366.9 | 408.5 | 574.1 | 791.3 | 1045.9 | 4334.9 | 7080.9 | 7131.7 | 4991.2 | 4538.3 |
| 70° | 331.3 | 333.0 | 431.9 | 563.2 | 767.0 | 824.0 | 3136.0 | 6595.7 | 6686.7 | 5130.0 | 4119.8 |
| 72.5° | 126.6 | 127.1 | 193.7 | 487.7 | 803.5 | 828.7 | 1579.7 | 5213.1 | 5217.7 | 4464.5 | 3211.9 |
| 75° | 65.8 | 55.4 | 60.8 | 152.6 | 767.4 | 807.7 | 792.6 | 3559.5 | 3537.3 | 3019.4 | 1968.1 |
| 77.5° | 45.3 | 38.6 | 40.7 | 52.8 | 319.1 | 807.3 | 572.4 | 2046.9 | 2042.3 | 1284.5 | 561.5 |
| 80° | 25.6 | 22.2 | 24.3 | 44.5 | 112.0 | 757.8 | 533.4 | 879.8 | 829.1 | 225.6 | 91.0 |
| 82.5° | 13.0 | 10.9 | 13.0 | 37.3 | 69.6 | 476.8 | 518.7 | 345.1 | 307.4 | 53.7 | 59.1 |
| 85° | 3.4 | 3.4 | 6.3 | 26.0 | 43.2 | 156.4 | 465.1 | 249.1 | 223.9 | 23.5 | 41.9 |
| 87.5° | 0.8 | 0.4 | 2.5 | 9.6 | 15.5 | 34.0 | 257.9 | 138.8 | 119.5 | 12.2 | 24.3 |
| 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):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1190.1 | 1190.1 | 1190.1 | 1190.1 | 1190.1 | 1190.1 | 1190.1 | 1190.1 | 1190.1 | 1190.1 | 1190.1 |
| 2.5° | 1179.2 | 1167.5 | 1144.4 | 1118.4 | 1100.0 | 1079.9 | 1068.1 | 1053.9 | 1043.0 | 1033.3 | 1040.4 |
| 5° | 1175.1 | 1152.4 | 1101.2 | 1043.8 | 995.6 | 949.4 | 915.0 | 882.3 | 857.6 | 842.1 | 848.4 |
| 7.5° | 1164.1 | 1130.6 | 1047.6 | 957.8 | 879.0 | 804.8 | 744.4 | 690.3 | 648.3 | 625.7 | 632.8 |
| 10° | 1145.7 | 1098.3 | 986.8 | 862.2 | 751.9 | 647.1 | 557.3 | 476.8 | 416.0 | 387.5 | 394.2 |
| 12.5° | 1132.3 | 1069.8 | 923.9 | 769.9 | 624.8 | 476.0 | 356.9 | 264.6 | 217.2 | 188.7 | 191.2 |
| 15° | 1126.4 | 1047.6 | 865.1 | 672.7 | 486.0 | 305.7 | 192.9 | 139.6 | 123.3 | 117.4 | 117.8 |
| 17.5° | 1127.2 | 1030.0 | 809.4 | 571.6 | 346.0 | 175.7 | 118.3 | 106.5 | 104.0 | 102.7 | 102.7 |
| 20° | 1129.3 | 1012.3 | 751.5 | 466.3 | 221.4 | 113.2 | 98.5 | 94.8 | 93.5 | 91.8 | 92.3 |
| 22.5° | 1135.6 | 998.9 | 693.2 | 360.7 | 136.3 | 92.3 | 87.2 | 83.9 | 81.8 | 79.3 | 79.7 |
| 25° | 1145.3 | 988.9 | 635.8 | 259.6 | 96.0 | 80.5 | 75.9 | 71.3 | 67.5 | 64.6 | 65.0 |
| 27.5° | 1151.1 | 974.6 | 574.5 | 177.0 | 79.7 | 70.5 | 64.2 | 57.9 | 53.7 | 51.2 | 50.7 |
| 30° | 1147.0 | 951.5 | 504.9 | 116.2 | 70.5 | 60.8 | 53.3 | 46.1 | 41.9 | 39.8 | 39.8 |
| 32.5° | 1135.6 | 921.8 | 428.2 | 84.7 | 62.5 | 52.4 | 43.2 | 36.9 | 34.0 | 32.7 | 33.1 |
| 35° | 1122.6 | 890.7 | 346.4 | 71.7 | 56.2 | 44.5 | 35.2 | 30.2 | 28.9 | 28.5 | 28.5 |
| 37.5° | 1115.5 | 863.9 | 268.0 | 65.0 | 50.3 | 36.9 | 28.9 | 26.0 | 24.7 | 24.7 | 24.7 |
| 40° | 1123.5 | 843.3 | 198.4 | 60.0 | 44.5 | 30.6 | 24.3 | 22.2 | 21.8 | 21.8 | 21.8 |
| 42.5° | 1157.4 | 836.2 | 145.1 | 55.8 | 38.6 | 25.6 | 21.0 | 19.3 | 18.9 | 19.3 | 19.3 |
| 45° | 1223.7 | 851.7 | 109.9 | 51.6 | 33.1 | 21.0 | 18.0 | 16.8 | 16.8 | 17.2 | 17.2 |
| 47.5° | 1336.1 | 891.6 | 90.2 | 47.4 | 27.7 | 17.6 | 15.5 | 14.7 | 14.7 | 15.1 | 15.1 |
| 50° | 1510.5 | 965.4 | 80.9 | 42.8 | 23.1 | 15.1 | 13.0 | 12.6 | 12.6 | 13.0 | 13.4 |
| 52.5° | 1775.6 | 1105.9 | 76.3 | 38.2 | 18.9 | 12.6 | 10.9 | 10.5 | 10.9 | 11.3 | 11.3 |
| 55° | 2070.4 | 1285.8 | 70.9 | 33.5 | 15.9 | 10.5 | 8.8 | 8.8 | 9.2 | 10.1 | 10.1 |
| 57.5° | 2345.1 | 1459.4 | 65.8 | 27.7 | 13.8 | 8.4 | 7.1 | 7.1 | 8.0 | 8.8 | 8.8 |
| 60° | 2635.3 | 1629.6 | 59.1 | 22.2 | 11.7 | 6.7 | 5.9 | 5.9 | 7.1 | 8.0 | 8.4 |
| 62.5° | 2993.8 | 1827.6 | 50.3 | 17.6 | 9.2 | 5.0 | 4.2 | 5.5 | 6.7 | 8.0 | 8.0 |
| 65° | 3512.2 | 2073.7 | 39.4 | 13.8 | 7.1 | 3.8 | 3.4 | 5.0 | 6.3 | 7.5 | 8.0 |
| 67.5° | 3700.4 | 2042.3 | 29.8 | 11.3 | 5.5 | 2.9 | 2.9 | 4.6 | 6.3 | 7.5 | 7.5 |
| 68° | 3631.7 | 1973.5 | 28.5 | 10.9 | 5.0 | 2.9 | 2.9 | 4.6 | 6.3 | 7.5 | 7.5 |
| 70° | 3164.5 | 1613.3 | 23.5 | 8.4 | 4.2 | 2.5 | 2.5 | 4.2 | 6.3 | 7.1 | 7.5 |
| 72.5° | 2369.4 | 1071.9 | 20.1 | 5.5 | 3.8 | 2.5 | 2.1 | 4.2 | 5.9 | 7.1 | 7.1 |
| 75° | 1359.1 | 444.9 | 17.2 | 4.2 | 3.4 | 2.1 | 2.1 | 3.8 | 5.9 | 7.1 | 7.1 |
| 77.5° | 384.1 | 104.0 | 13.8 | 3.4 | 2.9 | 2.1 | 1.7 | 3.8 | 5.5 | 6.7 | 6.7 |
| 80° | 70.5 | 31.0 | 10.9 | 2.9 | 2.5 | 2.1 | 1.7 | 3.8 | 5.5 | 6.7 | 6.7 |
| 82.5° | 46.5 | 14.7 | 8.0 | 2.9 | 2.5 | 2.1 | 1.7 | 3.4 | 5.0 | 6.3 | 6.3 |
| 85° | 34.8 | 10.5 | 5.0 | 2.9 | 2.5 | 2.1 | 1.7 | 3.4 | 5.0 | 6.3 | 6.3 |
| 87.5° | 19.3 | 4.6 | 3.8 | 3.4 | 2.9 | 2.1 | 1.7 | 2.9 | 4.6 | 5.9 | 5.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)