

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: P196165

Luminaire Tested: **NAV-AF-01-D-UNV-SL4-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196165
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24285)
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: LUMARK
Catalog Number: NAV-AF-01-D-UNV-SL4-HSS
Description: NAVION ROADWAY AND AREA LUMINAIRE
(1) 70 CRI, 4000K, 1050mA LIGHTSQUARE WITH 16 LEDS EACH AND TYPE IV SPILL
LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5092.3 lumens
Efficiency: N/A
Efficacy: 86.3 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B0 - U0 - G2

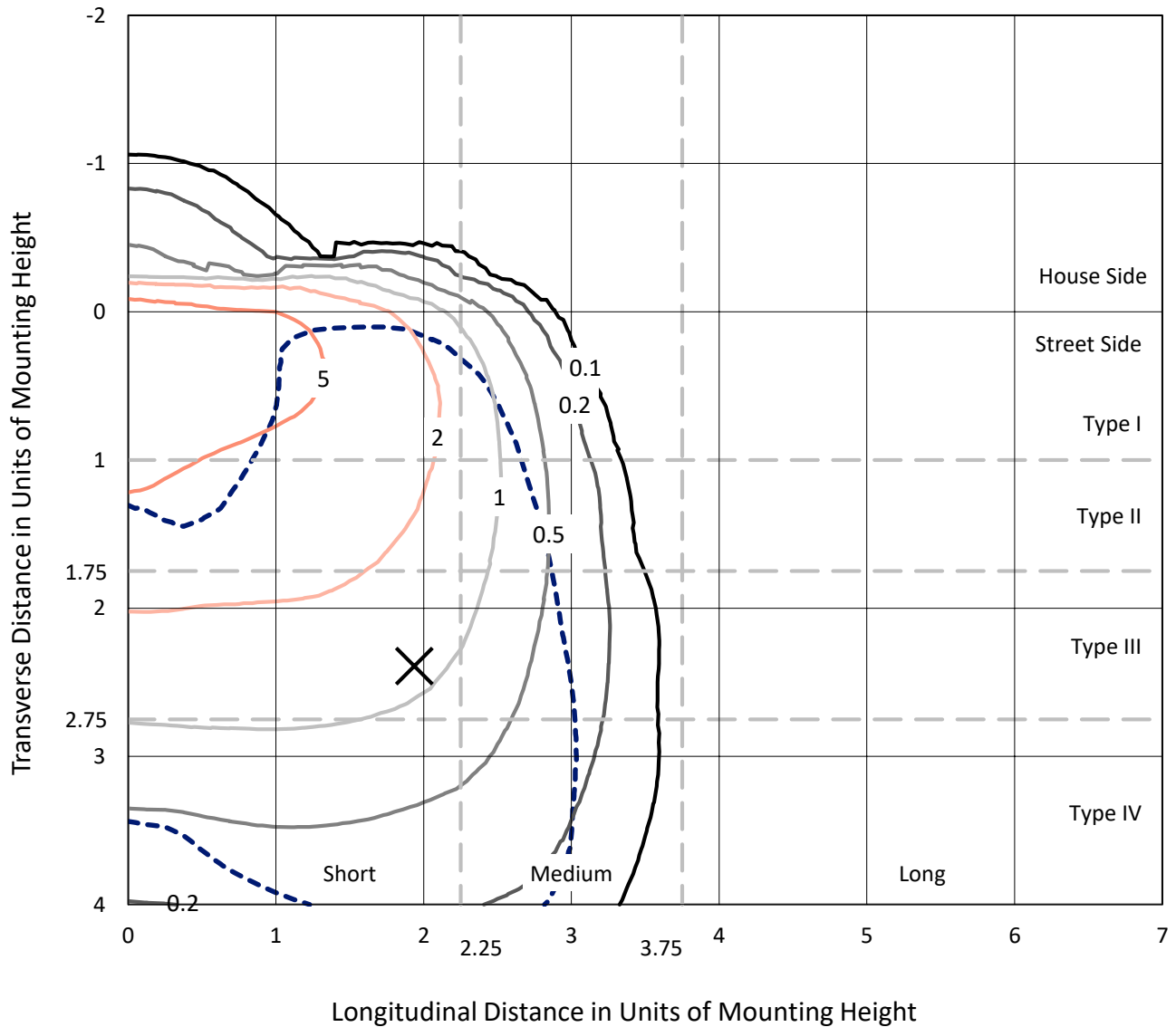
Input Watts (W): 59
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

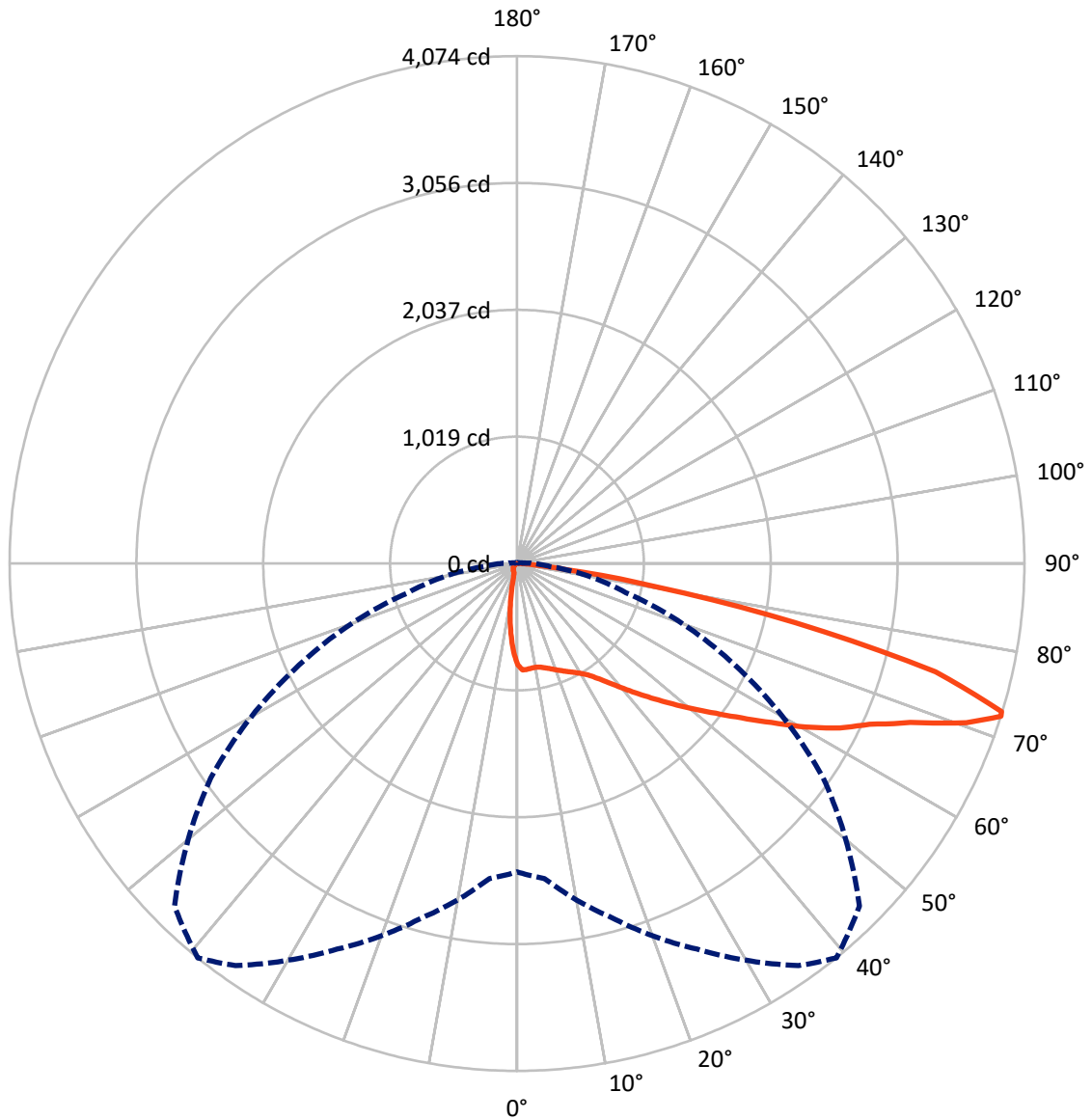
× Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 8.6 fc
 Type IV - Short - Non-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 39-Deg Lateral - - - Horizontal Cone Through 72-Deg Vertical

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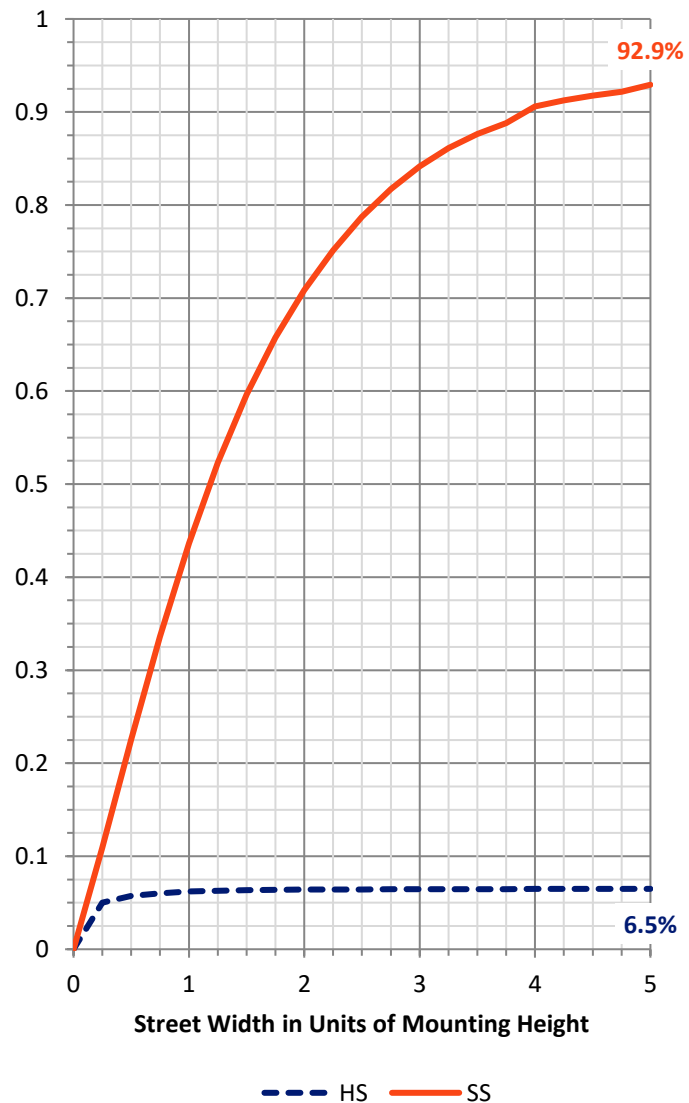
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 333.7 | 0.0 | 333.7 |
| | % Fixture | 6.6 | 0.0 | 6.6 |
| Street Side | Lumens | 4758.5 | 0.0 | 4758.5 |
| | % Fixture | 93.4 | 0.0 | 93.4 |
| Total | Lumens | 5092.3 | 0.0 | 5092.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 66.3 | 1.3 |
| 10°-20° | 160.5 | 3.2 |
| 20°-30° | 266.6 | 5.2 |
| 30°-40° | 424.8 | 8.3 |
| 40°-50° | 701.3 | 13.8 |
| 50°-60° | 1059.0 | 20.8 |
| 60°-70° | 1379.5 | 27.1 |
| 70°-80° | 932.2 | 18.3 |
| 80°-90° | 102.1 | 2.0 |
| 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° | 5092.3 | 100.0 |
| 0°-180° | 5092.3 | 100.0 |



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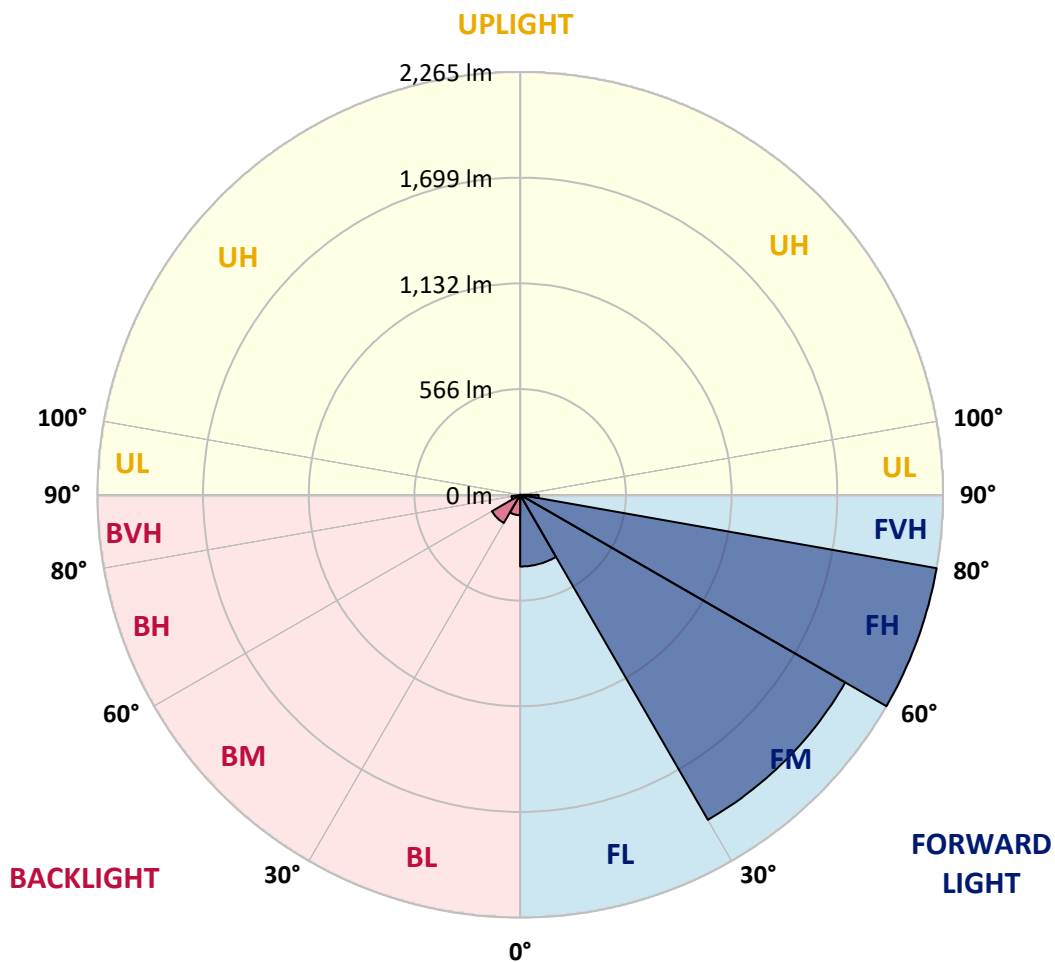
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|---------|
| | | | | B | U | G |
| FL | (0°-30°) | 384.1 | 7.5 | | | |
| FM | (30°-60°) | 2010.5 | 39.5 | | | |
| FH | (60°-80°) | 2264.8 | 44.5 | | | G2/5000 |
| FVH | (80°-90°) | 99.2 | 1.9 | | | G1/100 |
| BL | (0°-30°) | 109.3 | 2.1 | B0/110 | | |
| BM | (30°-60°) | 174.6 | 3.4 | B0/220 | | |
| BH | (60°-80°) | 46.9 | 0.9 | B0/110 | | G0/110 |
| BVH | (80°-90°) | 2.9 | 0.1 | | | G0/10 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B0-U0-G2

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 39° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 815.1 | 815.1 | 815.1 | 815.1 | 815.1 | 815.1 | 815.1 | 815.1 | 815.1 | 815.1 | 815.1 |
| 2.5° | 867.9 | 869.5 | 867.5 | 863.9 | 858.7 | 855.5 | 851.1 | 841.5 | 829.4 | 819.1 | 807.0 |
| 5° | 874.7 | 875.5 | 873.1 | 866.3 | 858.3 | 853.9 | 848.2 | 837.9 | 825.4 | 811.0 | 789.4 |
| 7.5° | 876.7 | 876.3 | 873.5 | 865.1 | 852.6 | 847.1 | 837.5 | 824.7 | 811.8 | 798.6 | 774.2 |
| 10° | 875.9 | 875.9 | 873.9 | 865.9 | 851.9 | 846.7 | 835.9 | 822.2 | 806.3 | 793.0 | 767.0 |
| 12.5° | 873.1 | 874.7 | 873.5 | 869.1 | 858.7 | 854.7 | 845.1 | 831.5 | 816.2 | 802.6 | 775.0 |
| 15° | 876.7 | 879.1 | 881.5 | 879.9 | 873.9 | 870.3 | 861.5 | 847.5 | 835.0 | 820.6 | 791.0 |
| 17.5° | 891.1 | 896.3 | 901.9 | 902.3 | 895.9 | 889.5 | 879.5 | 865.1 | 853.0 | 839.8 | 807.8 |
| 20° | 918.3 | 922.3 | 932.7 | 934.8 | 921.9 | 912.7 | 898.8 | 881.9 | 869.9 | 858.7 | 823.5 |
| 22.5° | 958.8 | 963.2 | 971.6 | 968.7 | 947.2 | 936.3 | 918.7 | 899.5 | 887.1 | 880.7 | 841.5 |
| 25° | 1020.0 | 1021.2 | 1023.3 | 1010.8 | 975.2 | 963.2 | 941.5 | 919.9 | 909.9 | 909.1 | 867.1 |
| 27.5° | 1092.1 | 1093.6 | 1084.8 | 1057.2 | 1006.4 | 990.8 | 966.4 | 946.7 | 941.9 | 948.0 | 899.5 |
| 30° | 1174.6 | 1175.0 | 1150.5 | 1105.7 | 1042.4 | 1025.2 | 1000.0 | 978.4 | 982.7 | 997.6 | 941.1 |
| 32.5° | 1259.0 | 1255.0 | 1221.4 | 1162.9 | 1091.7 | 1070.8 | 1049.2 | 1027.7 | 1040.4 | 1070.4 | 1002.0 |
| 35° | 1336.3 | 1334.6 | 1295.1 | 1226.9 | 1155.7 | 1137.3 | 1121.7 | 1098.9 | 1119.7 | 1168.5 | 1084.8 |
| 37.5° | 1413.5 | 1412.3 | 1367.1 | 1296.2 | 1234.6 | 1221.4 | 1209.7 | 1192.1 | 1226.2 | 1297.8 | 1195.7 |
| 40° | 1498.8 | 1496.8 | 1441.1 | 1373.1 | 1326.3 | 1319.1 | 1312.2 | 1304.7 | 1362.7 | 1462.4 | 1333.8 |
| 42.5° | 1604.1 | 1595.3 | 1519.6 | 1456.8 | 1427.1 | 1429.2 | 1429.6 | 1437.1 | 1528.0 | 1658.1 | 1496.8 |
| 45° | 1725.0 | 1705.4 | 1598.5 | 1546.4 | 1538.0 | 1550.1 | 1562.0 | 1593.7 | 1720.6 | 1883.5 | 1676.9 |
| 47.5° | 1842.2 | 1810.6 | 1689.3 | 1642.9 | 1660.1 | 1684.9 | 1713.7 | 1775.4 | 1936.8 | 2119.2 | 1840.3 |
| 50° | 1943.1 | 1910.7 | 1779.4 | 1741.0 | 1795.8 | 1832.6 | 1883.9 | 1977.2 | 2164.9 | 2318.6 | 1943.1 |
| 52.5° | 2022.4 | 1996.8 | 1874.7 | 1849.1 | 1946.4 | 1996.8 | 2077.2 | 2199.8 | 2380.3 | 2450.0 | 2015.2 |
| 55° | 2080.9 | 2068.0 | 1966.0 | 1969.6 | 2113.7 | 2186.6 | 2286.6 | 2425.1 | 2562.1 | 2552.1 | 2069.2 |
| 57.5° | 2146.9 | 2136.9 | 2061.7 | 2111.7 | 2315.0 | 2409.2 | 2524.8 | 2636.1 | 2694.1 | 2634.1 | 2122.1 |
| 60° | 2214.6 | 2217.8 | 2177.8 | 2283.8 | 2564.0 | 2668.2 | 2769.0 | 2796.6 | 2807.4 | 2717.4 | 2177.8 |
| 62.5° | 2265.8 | 2279.4 | 2283.0 | 2469.6 | 2819.5 | 2908.4 | 2951.9 | 2932.3 | 2929.9 | 2829.1 | 2173.4 |
| 65° | 2324.7 | 2360.3 | 2419.5 | 2673.3 | 3051.7 | 3110.1 | 3141.3 | 3169.7 | 3109.7 | 2862.3 | 1959.6 |
| 67.5° | 2426.3 | 2482.4 | 2615.7 | 2923.1 | 3319.9 | 3406.3 | 3494.8 | 3464.7 | 3136.5 | 2524.8 | 1492.8 |
| 70° | 2563.2 | 2631.6 | 2867.1 | 3249.4 | 3683.7 | 3828.6 | 3902.7 | 3441.1 | 2662.9 | 1744.5 | 787.5 |
| 72° | 2476.8 | 2538.9 | 2944.8 | 3415.9 | 3941.5 | 4074.4 | 3889.1 | 3001.5 | 1930.3 | 904.3 | 263.8 |
| 72.5° | 2392.7 | 2456.7 | 2919.9 | 3413.9 | 3967.1 | 4068.8 | 3800.6 | 2828.3 | 1708.1 | 703.8 | 181.8 |
| 75° | 1660.1 | 1741.0 | 2503.2 | 3068.9 | 3582.5 | 3470.8 | 2907.9 | 1712.5 | 618.9 | 120.9 | 60.0 |
| 77.5° | 858.3 | 920.8 | 1518.4 | 2168.6 | 2496.8 | 2286.6 | 1718.6 | 743.0 | 171.3 | 64.0 | 39.6 |
| 80° | 532.0 | 562.8 | 710.1 | 1068.5 | 1297.0 | 1134.5 | 758.2 | 300.2 | 109.7 | 38.1 | 31.6 |
| 82.5° | 275.4 | 299.0 | 447.1 | 431.2 | 479.2 | 398.3 | 279.8 | 251.4 | 67.6 | 23.6 | 32.4 |
| 85° | 90.4 | 96.1 | 274.7 | 286.6 | 205.0 | 137.7 | 124.1 | 239.8 | 19.6 | 15.2 | 27.6 |
| 87.5° | 12.0 | 14.0 | 96.5 | 164.1 | 100.9 | 62.4 | 74.5 | 84.5 | 6.9 | 8.4 | 7.6 |
| 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° | 815.1 | 815.1 | 815.1 | 815.1 | 815.1 | 815.1 | 815.1 | 815.1 | 815.1 | 815.1 | 815.1 |
| 2.5° | 799.0 | 793.8 | 777.4 | 761.0 | 742.2 | 725.0 | 711.4 | 702.6 | 706.6 | 693.4 | 695.4 |
| 5° | 776.2 | 763.0 | 727.0 | 688.1 | 646.1 | 606.9 | 575.6 | 552.4 | 548.0 | 528.0 | 528.9 |
| 7.5° | 754.2 | 732.5 | 674.1 | 610.1 | 540.4 | 484.0 | 432.7 | 387.9 | 371.9 | 355.5 | 345.9 |
| 10° | 742.2 | 712.6 | 629.7 | 536.4 | 438.3 | 355.5 | 283.5 | 227.0 | 203.4 | 186.2 | 177.8 |
| 12.5° | 745.8 | 706.6 | 596.5 | 469.5 | 340.6 | 235.4 | 160.1 | 118.9 | 104.4 | 96.5 | 93.7 |
| 15° | 757.8 | 707.8 | 566.4 | 404.3 | 247.8 | 142.5 | 94.1 | 80.5 | 79.3 | 78.9 | 78.5 |
| 17.5° | 769.1 | 709.0 | 534.8 | 336.2 | 165.7 | 90.8 | 75.7 | 74.5 | 74.5 | 74.5 | 74.5 |
| 20° | 780.6 | 709.3 | 500.0 | 265.0 | 108.8 | 74.5 | 71.3 | 70.5 | 71.3 | 71.3 | 71.3 |
| 22.5° | 794.2 | 712.2 | 466.4 | 195.8 | 80.5 | 70.1 | 68.0 | 67.6 | 68.0 | 68.0 | 67.6 |
| 25° | 811.0 | 718.2 | 429.9 | 140.1 | 72.8 | 67.2 | 65.3 | 64.9 | 65.3 | 64.9 | 64.9 |
| 27.5° | 833.5 | 726.2 | 387.5 | 100.5 | 69.7 | 64.4 | 62.4 | 62.4 | 62.4 | 62.1 | 62.1 |
| 30° | 862.2 | 735.8 | 330.6 | 79.3 | 66.5 | 61.7 | 60.0 | 60.0 | 59.6 | 59.2 | 59.2 |
| 32.5° | 903.5 | 751.4 | 268.6 | 71.6 | 62.8 | 58.0 | 56.5 | 56.9 | 56.5 | 56.1 | 55.6 |
| 35° | 962.0 | 775.8 | 207.4 | 67.6 | 59.2 | 54.4 | 52.9 | 52.9 | 52.9 | 52.1 | 52.1 |
| 37.5° | 1044.8 | 813.0 | 155.3 | 63.6 | 55.6 | 50.8 | 48.8 | 48.8 | 48.5 | 47.7 | 48.1 |
| 40° | 1147.3 | 859.9 | 112.5 | 60.0 | 52.1 | 46.9 | 45.2 | 44.4 | 43.7 | 42.9 | 42.9 |
| 42.5° | 1270.6 | 905.5 | 84.5 | 56.5 | 48.5 | 43.7 | 41.6 | 40.8 | 39.3 | 38.5 | 38.1 |
| 45° | 1408.7 | 954.0 | 70.1 | 52.1 | 44.4 | 40.0 | 38.5 | 36.8 | 34.8 | 33.7 | 33.2 |
| 47.5° | 1525.2 | 983.6 | 62.4 | 47.7 | 40.4 | 36.4 | 34.8 | 32.4 | 30.1 | 29.3 | 29.3 |
| 50° | 1595.3 | 971.2 | 56.1 | 43.3 | 36.4 | 32.8 | 30.8 | 27.6 | 26.0 | 25.3 | 24.9 |
| 52.5° | 1634.5 | 934.4 | 50.8 | 39.6 | 32.8 | 28.8 | 26.0 | 23.2 | 22.4 | 21.6 | 21.6 |
| 55° | 1661.3 | 881.1 | 45.2 | 36.0 | 29.7 | 25.3 | 22.0 | 20.0 | 19.2 | 18.8 | 18.4 |
| 57.5° | 1686.9 | 816.2 | 40.0 | 32.8 | 26.4 | 22.4 | 18.8 | 18.0 | 16.4 | 16.1 | 16.1 |
| 60° | 1694.5 | 727.0 | 35.2 | 29.3 | 23.6 | 19.6 | 16.4 | 15.2 | 13.6 | 13.2 | 13.2 |
| 62.5° | 1597.6 | 578.5 | 31.2 | 24.9 | 20.8 | 16.8 | 14.4 | 12.8 | 11.3 | 11.3 | 11.3 |
| 65° | 1335.1 | 392.7 | 26.8 | 21.6 | 18.4 | 14.4 | 12.4 | 10.4 | 9.6 | 9.6 | 9.6 |
| 67.5° | 930.0 | 219.0 | 22.8 | 18.4 | 15.7 | 12.0 | 10.4 | 8.8 | 8.4 | 8.8 | 8.8 |
| 70° | 419.1 | 86.8 | 19.2 | 15.2 | 12.8 | 10.0 | 8.8 | 7.6 | 8.4 | 8.4 | 8.4 |
| 72° | 125.7 | 46.4 | 16.1 | 12.4 | 10.4 | 8.8 | 7.6 | 7.2 | 8.0 | 8.4 | 8.4 |
| 72.5° | 93.3 | 41.6 | 15.2 | 12.0 | 10.4 | 8.4 | 7.2 | 7.2 | 8.0 | 8.4 | 8.4 |
| 75° | 48.1 | 28.4 | 11.6 | 8.8 | 7.6 | 6.9 | 6.0 | 6.9 | 8.0 | 8.0 | 8.0 |
| 77.5° | 37.6 | 23.2 | 9.6 | 6.9 | 6.4 | 6.0 | 5.6 | 6.4 | 7.2 | 7.2 | 7.2 |
| 80° | 35.2 | 15.2 | 7.6 | 6.4 | 5.6 | 5.2 | 5.2 | 5.6 | 6.4 | 6.9 | 6.9 |
| 82.5° | 35.6 | 12.4 | 6.9 | 6.0 | 5.2 | 4.8 | 4.8 | 5.2 | 6.0 | 6.4 | 6.4 |
| 85° | 22.8 | 8.4 | 6.0 | 5.2 | 4.8 | 4.4 | 4.4 | 4.8 | 5.6 | 6.0 | 6.0 |
| 87.5° | 7.6 | 6.4 | 5.2 | 4.8 | 4.0 | 4.0 | 4.0 | 4.0 | 4.8 | 5.2 | 5.6 |
| 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)