

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: P195291

Luminaire Tested: **NAV-AF-03-D-UNV-T2-7060-600**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P195291
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24136)
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: LUMARK
Catalog Number: NAV-AF-03-D-UNV-T2-7060-600
Description: NAVION ROADWAY AND AREA LUMINAIRE
(3) 70 CRI, 5700K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11682 lumens
Efficiency: N/A
Efficacy: 121.7 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')
IES Classification: Type II - Medium - Full Cutoff
BUG Rating: B2 - U0 - G2

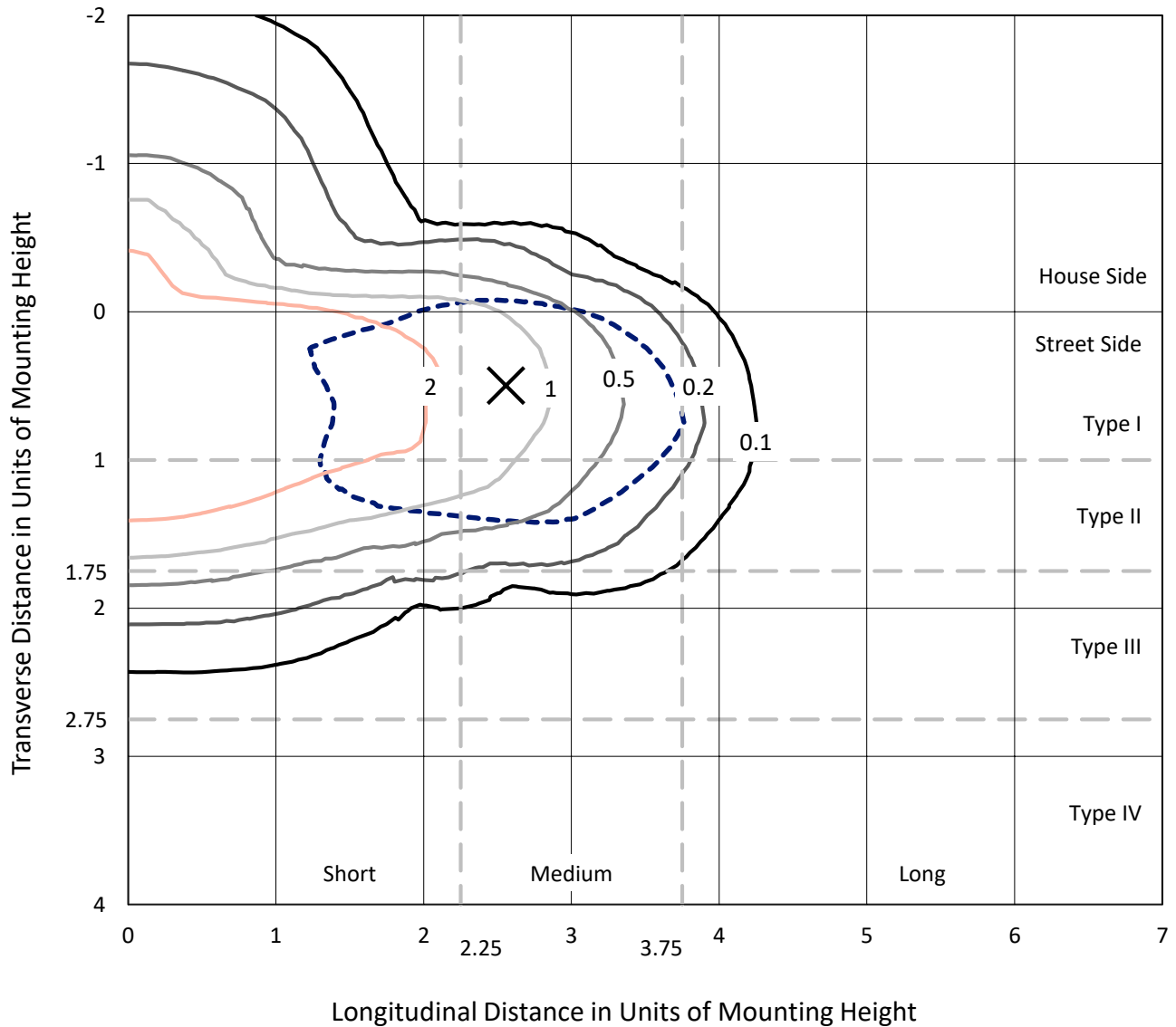
Input Watts (W): 96
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

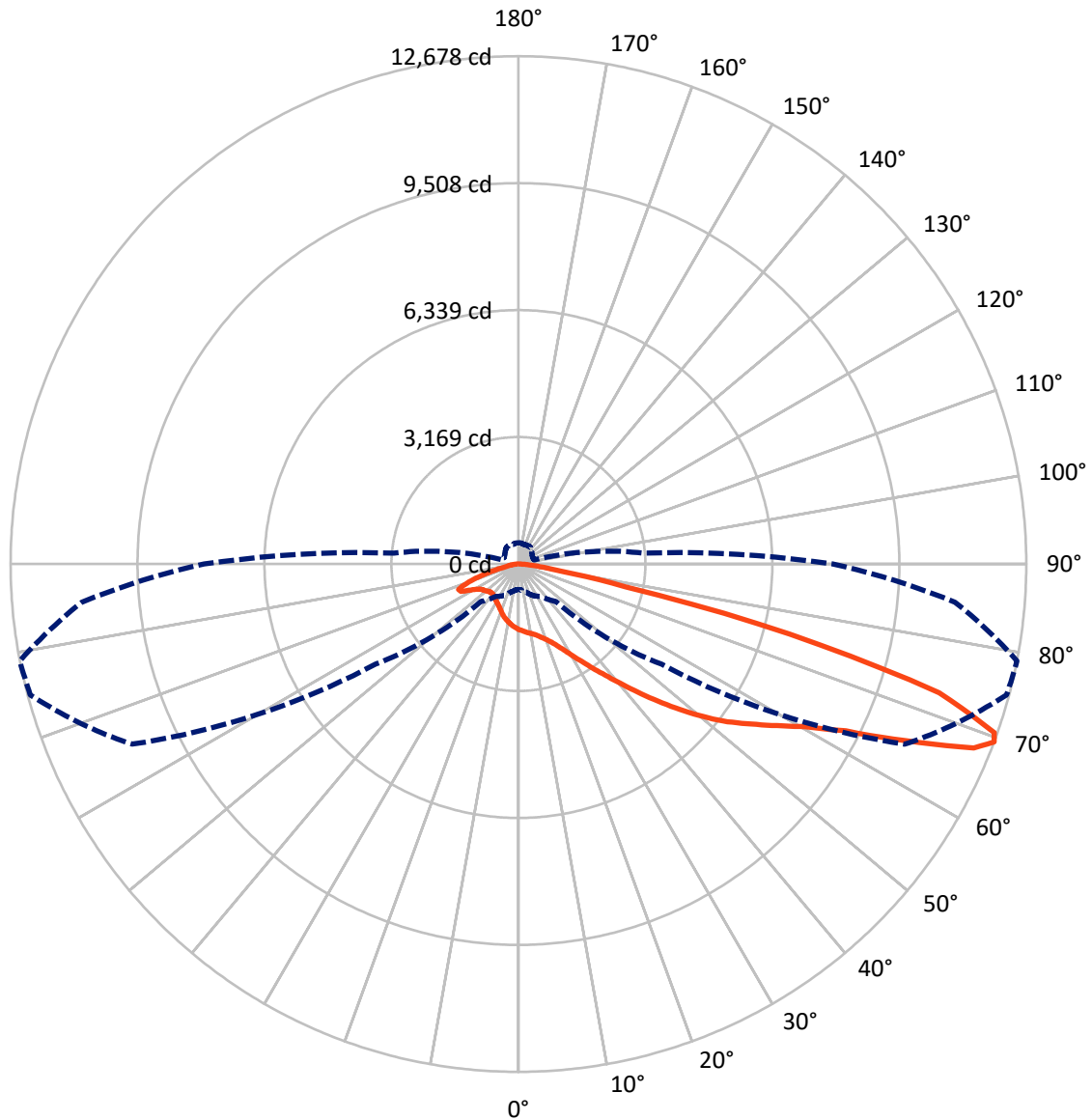
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 5 fc
 Type II - Medium - Full Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 79-Deg Lateral - - - Horizontal Cone Through 69-Deg Vertical

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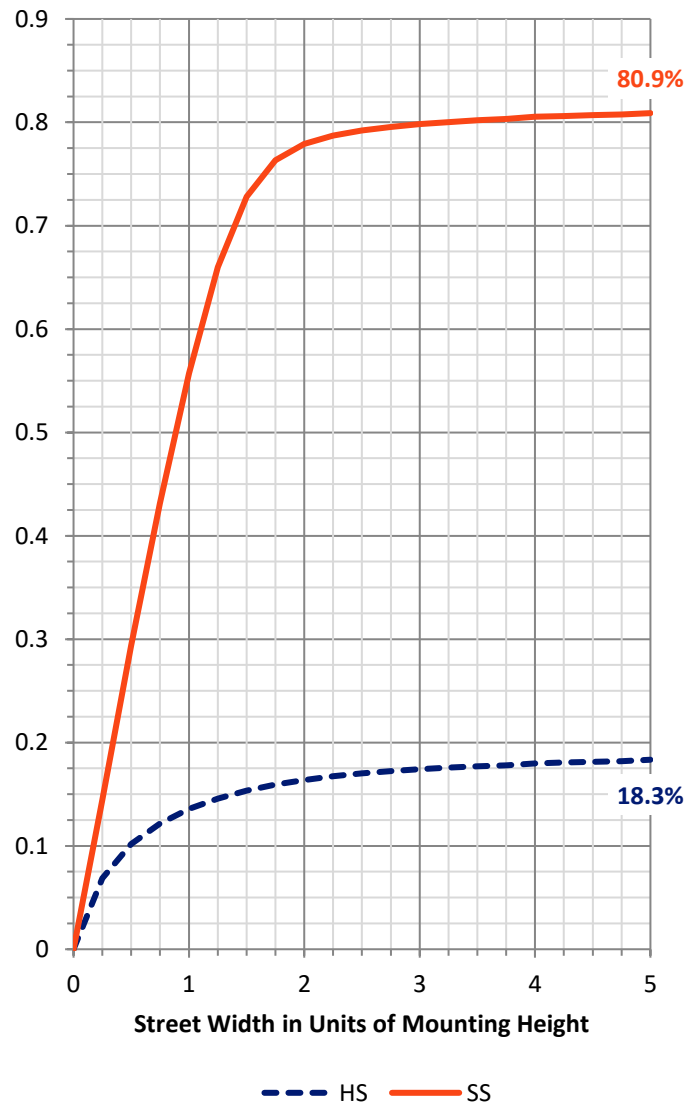
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2197.6 | 0.0 | 2197.6 |
| | % Fixture | 18.8 | 0.0 | 18.8 |
| Street Side | Lumens | 9484.4 | 0.0 | 9484.4 |
| | % Fixture | 81.2 | 0.0 | 81.2 |
| Total | Lumens | 11682.0 | 0.0 | 11682.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 152.0 | 1.3 |
| 10°-20° | 435.7 | 3.7 |
| 20°-30° | 720.0 | 6.2 |
| 30°-40° | 1165.8 | 10.0 |
| 40°-50° | 1862.4 | 15.9 |
| 50°-60° | 2667.2 | 22.8 |
| 60°-70° | 2971.6 | 25.4 |
| 70°-80° | 1486.7 | 12.7 |
| 80°-90° | 220.6 | 1.9 |
| 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° | 11682.0 | 100.0 |
| 0°-180° | 11682.0 | 100.0 |



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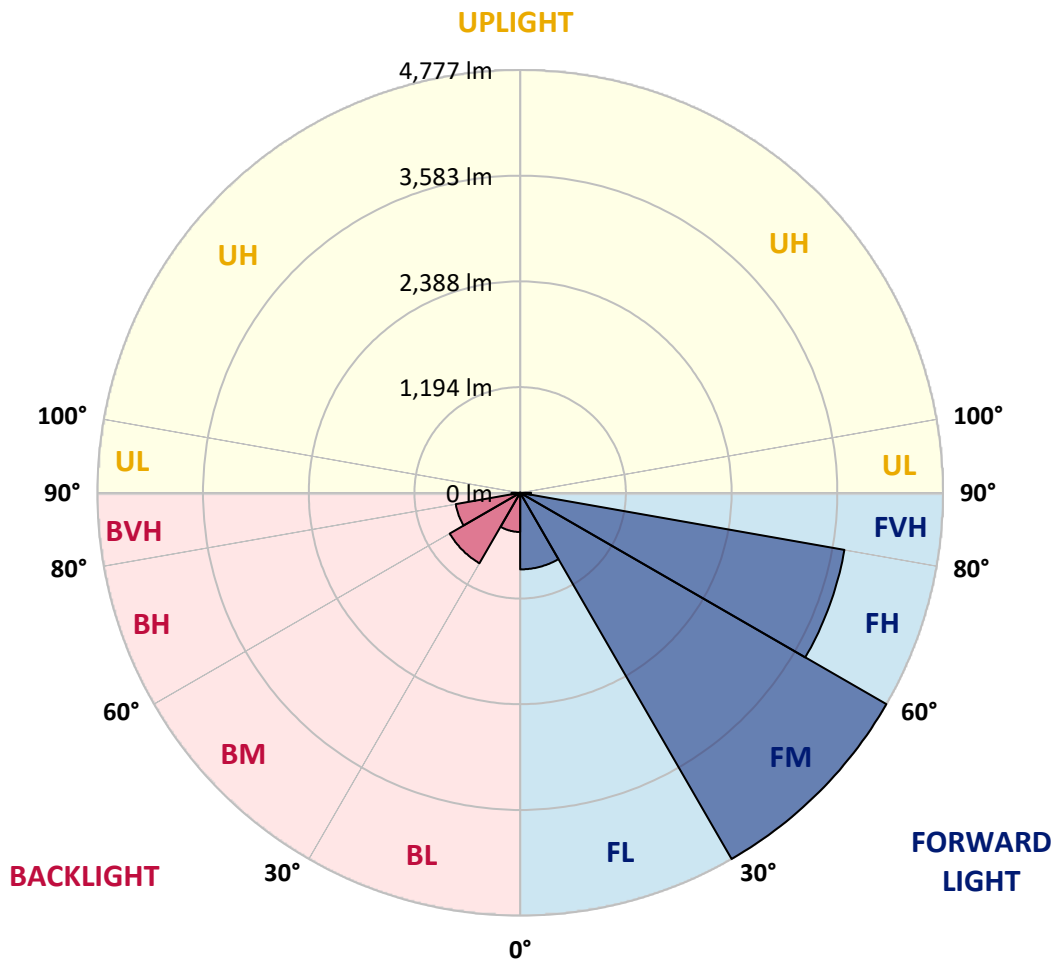
CATALOG NUMBER: NAV-AF-03-D-UNV-T2-7060-600

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 864.9 | 7.4 | | | |
| FM (30°-60°) | 4776.8 | 40.9 | | | |
| FH (60°-80°) | 3719.4 | 31.8 | | | G2/5000 |
| FVH (80°-90°) | 123.3 | 1.1 | | | G2/225 |
| BL (0°-30°) | 442.7 | 3.8 | B1/500 | | |
| BM (30°-60°) | 918.6 | 7.9 | B1/1000 | | |
| BH (60°-80°) | 738.9 | 6.3 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 97.3 | 0.8 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G2

Type II Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 79° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|
| 0° | 1639.4 | 1639.4 | 1639.4 | 1639.4 | 1639.4 | 1639.4 | 1639.4 | 1639.4 | 1639.4 | 1639.4 | 1639.4 |
| 2.5° | 1799.8 | 1796.0 | 1795.3 | 1783.8 | 1777.7 | 1764.7 | 1734.1 | 1702.8 | 1673.7 | 1658.5 | 1642.4 |
| 5° | 1950.4 | 1942.8 | 1938.9 | 1919.8 | 1903.0 | 1874.0 | 1825.8 | 1776.2 | 1724.2 | 1697.4 | 1665.3 |
| 7.5° | 2041.4 | 2042.1 | 2042.1 | 2026.8 | 2010.0 | 1974.9 | 1913.7 | 1845.7 | 1768.5 | 1733.4 | 1682.9 |
| 10° | 2049.0 | 2049.8 | 2061.2 | 2065.1 | 2068.9 | 2050.5 | 1994.0 | 1908.4 | 1809.0 | 1763.2 | 1697.4 |
| 12.5° | 1973.3 | 1978.7 | 1997.8 | 2025.3 | 2064.3 | 2084.2 | 2059.7 | 1975.6 | 1861.0 | 1805.2 | 1725.0 |
| 15° | 1871.7 | 1877.0 | 1901.5 | 1943.5 | 2006.2 | 2072.7 | 2107.1 | 2052.8 | 1929.0 | 1863.3 | 1765.5 |
| 17.5° | 1822.0 | 1828.1 | 1844.9 | 1878.6 | 1939.7 | 2029.1 | 2132.3 | 2135.4 | 2009.3 | 1933.6 | 1813.6 |
| 20° | 1798.3 | 1802.9 | 1824.3 | 1851.8 | 1898.4 | 1984.0 | 2134.6 | 2222.5 | 2104.8 | 2016.9 | 1872.5 |
| 22.5° | 1852.6 | 1854.1 | 1864.8 | 1880.1 | 1911.4 | 1977.2 | 2133.1 | 2312.7 | 2224.0 | 2121.6 | 1948.1 |
| 25° | 2011.6 | 2001.6 | 1994.0 | 1974.9 | 1982.5 | 2029.1 | 2157.5 | 2409.0 | 2376.9 | 2259.2 | 2049.0 |
| 27.5° | 2199.6 | 2198.0 | 2178.2 | 2133.8 | 2105.6 | 2135.4 | 2227.1 | 2516.7 | 2564.1 | 2434.2 | 2181.2 |
| 30° | 2409.0 | 2409.7 | 2389.1 | 2334.8 | 2277.5 | 2280.6 | 2337.9 | 2641.3 | 2788.0 | 2645.1 | 2344.0 |
| 32.5° | 2628.3 | 2642.1 | 2603.9 | 2549.6 | 2480.0 | 2457.9 | 2496.9 | 2791.9 | 3047.1 | 2894.3 | 2532.8 |
| 35° | 2890.5 | 2892.8 | 2850.7 | 2771.2 | 2701.7 | 2666.5 | 2702.4 | 2979.9 | 3346.0 | 3187.0 | 2762.8 |
| 37.5° | 3162.5 | 3164.1 | 3120.5 | 3018.9 | 2931.0 | 2908.0 | 2947.8 | 3208.4 | 3662.4 | 3520.2 | 3033.4 |
| 40° | 3384.9 | 3401.0 | 3366.6 | 3271.1 | 3182.4 | 3168.7 | 3226.0 | 3482.0 | 4066.7 | 3914.6 | 3355.1 |
| 42.5° | 3637.1 | 3655.5 | 3614.2 | 3514.9 | 3444.6 | 3440.0 | 3529.4 | 3793.8 | 4468.7 | 4370.8 | 3719.7 |
| 45° | 3921.5 | 3947.4 | 3890.1 | 3778.5 | 3718.9 | 3819.8 | 3825.2 | 4139.3 | 4931.8 | 4881.4 | 4130.1 |
| 47.5° | 4231.7 | 4253.1 | 4206.5 | 4086.5 | 4021.6 | 4167.6 | 4114.8 | 4513.0 | 5432.4 | 5428.6 | 4574.1 |
| 50° | 4471.0 | 4494.7 | 4499.2 | 4446.5 | 4378.5 | 4396.8 | 4432.8 | 4905.8 | 5931.5 | 5991.1 | 5033.5 |
| 52.5° | 4427.4 | 4450.3 | 4553.5 | 4691.8 | 4801.1 | 4753.7 | 4797.3 | 5323.1 | 6413.7 | 6539.8 | 5469.9 |
| 55° | 4075.8 | 4088.1 | 4281.4 | 4610.1 | 5075.5 | 5301.7 | 5304.8 | 5777.1 | 6872.3 | 7048.8 | 5884.1 |
| 57.5° | 3442.3 | 3443.8 | 3695.2 | 4179.8 | 4915.8 | 5657.1 | 6105.7 | 6347.2 | 7350.7 | 7611.3 | 6397.7 |
| 60° | 2435.7 | 2441.8 | 2734.5 | 3368.1 | 4343.3 | 5614.3 | 6967.1 | 7367.5 | 7904.8 | 8243.4 | 7059.5 |
| 62.5° | 1446.0 | 1459.8 | 1680.6 | 2188.9 | 3226.0 | 5064.0 | 7476.1 | 9182.7 | 8721.1 | 9170.4 | 8118.8 |
| 65° | 940.8 | 952.3 | 1084.5 | 1339.8 | 1906.1 | 3684.5 | 7308.7 | 10940.5 | 10265.6 | 10628.7 | 9641.2 |
| 67.5° | 724.5 | 733.7 | 837.6 | 992.0 | 1169.3 | 1991.7 | 5843.6 | 11308.9 | 12145.7 | 12258.9 | 10926.0 |
| 69° | 636.6 | 644.3 | 720.7 | 869.0 | 984.4 | 1318.4 | 4354.8 | 10640.1 | 12615.8 | 12677.7 | 10942.0 |
| 70° | 590.0 | 596.1 | 668.0 | 796.4 | 904.1 | 1052.4 | 3333.0 | 9863.6 | 12443.8 | 12602.0 | 10626.4 |
| 72.5° | 486.1 | 491.4 | 542.6 | 641.2 | 739.0 | 749.7 | 1476.6 | 7202.5 | 10478.1 | 10984.1 | 8992.4 |
| 75° | 405.8 | 408.9 | 442.5 | 514.4 | 598.4 | 596.9 | 754.3 | 4079.7 | 6393.9 | 6996.9 | 5552.4 |
| 77.5° | 338.6 | 340.9 | 363.0 | 407.4 | 472.3 | 470.0 | 531.2 | 1760.9 | 2823.2 | 2723.8 | 1911.4 |
| 80° | 298.8 | 300.4 | 311.8 | 323.3 | 364.6 | 362.3 | 393.6 | 808.6 | 1148.7 | 1061.6 | 723.0 |
| 82.5° | 227.0 | 230.0 | 288.1 | 293.5 | 282.8 | 272.8 | 274.4 | 470.8 | 588.5 | 535.8 | 388.2 |
| 85° | 128.4 | 129.2 | 185.0 | 216.3 | 246.1 | 185.0 | 178.1 | 243.0 | 290.4 | 254.5 | 169.7 |
| 87.5° | 57.3 | 59.6 | 88.7 | 102.4 | 133.0 | 108.5 | 101.6 | 103.2 | 125.3 | 103.9 | 67.3 |
| 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° | 1639.4 | 1639.4 | 1639.4 | 1639.4 | 1639.4 | 1639.4 | 1639.4 | 1639.4 | 1639.4 | 1639.4 | 1639.4 |
| 2.5° | 1627.1 | 1614.1 | 1583.6 | 1552.2 | 1520.9 | 1501.0 | 1480.4 | 1461.3 | 1453.6 | 1452.9 | 1438.4 |
| 5° | 1634.0 | 1603.4 | 1533.9 | 1457.5 | 1384.9 | 1328.3 | 1280.9 | 1250.3 | 1220.5 | 1215.2 | 1202.2 |
| 7.5° | 1636.3 | 1586.6 | 1473.5 | 1351.2 | 1240.4 | 1162.5 | 1115.1 | 1094.4 | 1079.9 | 1076.1 | 1071.5 |
| 10° | 1635.5 | 1565.2 | 1406.3 | 1238.9 | 1112.8 | 1053.9 | 1036.3 | 1040.9 | 1047.0 | 1050.1 | 1050.1 |
| 12.5° | 1647.8 | 1555.3 | 1339.0 | 1133.4 | 1030.2 | 1002.0 | 1015.7 | 1039.4 | 1057.7 | 1065.4 | 1066.9 |
| 15° | 1669.9 | 1549.2 | 1264.9 | 1041.7 | 972.1 | 979.0 | 1012.7 | 1047.0 | 1073.0 | 1084.5 | 1087.6 |
| 17.5° | 1697.4 | 1540.8 | 1179.3 | 966.0 | 938.5 | 962.2 | 1005.8 | 1049.3 | 1080.7 | 1095.2 | 1097.5 |
| 20° | 1728.0 | 1528.5 | 1090.6 | 909.5 | 908.7 | 938.5 | 982.1 | 1031.0 | 1064.6 | 1080.7 | 1079.9 |
| 22.5° | 1769.3 | 1517.1 | 1008.1 | 868.2 | 875.9 | 903.4 | 939.3 | 983.6 | 1014.9 | 1029.5 | 1026.4 |
| 25° | 1824.3 | 1506.4 | 933.9 | 831.5 | 838.4 | 856.7 | 882.0 | 915.6 | 937.8 | 945.4 | 940.0 |
| 27.5° | 1898.4 | 1498.0 | 875.9 | 797.9 | 797.1 | 805.5 | 820.8 | 839.2 | 849.9 | 847.6 | 839.2 |
| 30° | 1989.4 | 1489.6 | 833.1 | 768.1 | 757.4 | 756.6 | 763.5 | 774.2 | 781.1 | 767.3 | 760.4 |
| 32.5° | 2091.0 | 1475.0 | 794.8 | 742.1 | 723.0 | 716.1 | 719.2 | 733.7 | 762.0 | 748.2 | 742.9 |
| 35° | 2211.0 | 1458.2 | 756.6 | 713.8 | 699.3 | 686.3 | 688.6 | 719.9 | 805.5 | 795.6 | 790.3 |
| 37.5° | 2355.5 | 1442.9 | 721.5 | 683.3 | 682.5 | 666.4 | 664.9 | 702.4 | 817.0 | 795.6 | 791.0 |
| 40° | 2529.0 | 1439.9 | 690.1 | 649.6 | 661.9 | 655.7 | 650.4 | 673.3 | 753.6 | 710.0 | 701.6 |
| 42.5° | 2738.4 | 1453.6 | 667.2 | 617.5 | 638.2 | 652.7 | 642.7 | 648.1 | 681.0 | 642.0 | 635.1 |
| 45° | 2982.9 | 1491.1 | 650.4 | 589.3 | 612.9 | 650.4 | 638.9 | 634.3 | 639.7 | 618.3 | 613.7 |
| 47.5° | 3268.0 | 1557.6 | 638.9 | 565.6 | 589.3 | 644.3 | 637.4 | 628.2 | 625.9 | 613.7 | 610.6 |
| 50° | 3573.0 | 1647.0 | 631.3 | 544.2 | 567.9 | 633.6 | 636.6 | 623.6 | 619.8 | 614.5 | 612.9 |
| 52.5° | 3875.6 | 1744.1 | 622.1 | 525.8 | 550.3 | 620.6 | 637.4 | 619.1 | 613.7 | 610.6 | 609.1 |
| 55° | 4176.7 | 1844.9 | 605.3 | 509.8 | 537.3 | 605.3 | 636.6 | 612.9 | 606.8 | 606.8 | 606.8 |
| 57.5° | 4567.3 | 1998.6 | 583.1 | 496.8 | 520.5 | 585.4 | 626.7 | 606.1 | 597.7 | 598.4 | 599.2 |
| 60° | 5131.3 | 2256.1 | 558.7 | 482.3 | 498.3 | 562.5 | 611.4 | 593.8 | 583.9 | 587.0 | 587.7 |
| 62.5° | 6073.6 | 2706.3 | 525.1 | 461.6 | 475.4 | 538.0 | 591.5 | 577.0 | 567.9 | 573.2 | 574.0 |
| 65° | 7330.1 | 3251.2 | 480.7 | 435.6 | 451.7 | 510.5 | 566.3 | 557.2 | 547.2 | 560.2 | 559.4 |
| 67.5° | 8096.6 | 3410.9 | 434.1 | 408.1 | 428.8 | 481.5 | 535.0 | 531.2 | 524.3 | 547.2 | 545.7 |
| 69° | 7845.2 | 3122.0 | 407.4 | 390.5 | 412.7 | 461.6 | 515.1 | 513.6 | 508.2 | 530.4 | 528.9 |
| 70° | 7454.7 | 2852.2 | 390.5 | 379.1 | 404.3 | 449.4 | 502.1 | 502.1 | 496.8 | 515.9 | 512.1 |
| 72.5° | 5988.0 | 2115.5 | 351.6 | 350.0 | 375.3 | 415.8 | 467.0 | 470.8 | 467.7 | 474.6 | 470.8 |
| 75° | 3515.6 | 1274.8 | 313.3 | 317.9 | 340.1 | 379.8 | 428.0 | 431.0 | 428.0 | 427.2 | 428.0 |
| 77.5° | 1219.0 | 571.7 | 276.7 | 283.5 | 302.6 | 343.2 | 385.2 | 391.3 | 386.7 | 381.4 | 382.9 |
| 80° | 476.9 | 332.5 | 236.9 | 246.9 | 262.9 | 301.9 | 342.4 | 346.2 | 339.3 | 338.6 | 332.5 |
| 82.5° | 286.6 | 202.5 | 184.2 | 200.2 | 220.1 | 262.1 | 295.8 | 294.2 | 288.9 | 320.2 | 280.5 |
| 85° | 124.6 | 112.3 | 134.5 | 150.6 | 160.5 | 196.4 | 249.9 | 243.0 | 230.0 | 202.5 | 197.9 |
| 87.5° | 50.4 | 58.1 | 74.1 | 89.4 | 96.3 | 126.9 | 171.2 | 165.1 | 167.4 | 137.6 | 136.8 |
| 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)