

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: P195423

Luminaire Tested: **NAV-AF-03-D-UNV-T4W-7060**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P195423
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24127)
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-T4W-7060
Description: NAVION ROADWAY AND AREA LUMINAIRE
(3) 70 CRI, 5700K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17900 lumens
Efficiency: N/A
Efficacy: 107.8 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')
IES Classification: Type IV - Short - Semi-Cutoff
BUG Rating: B3 - U0 - G3

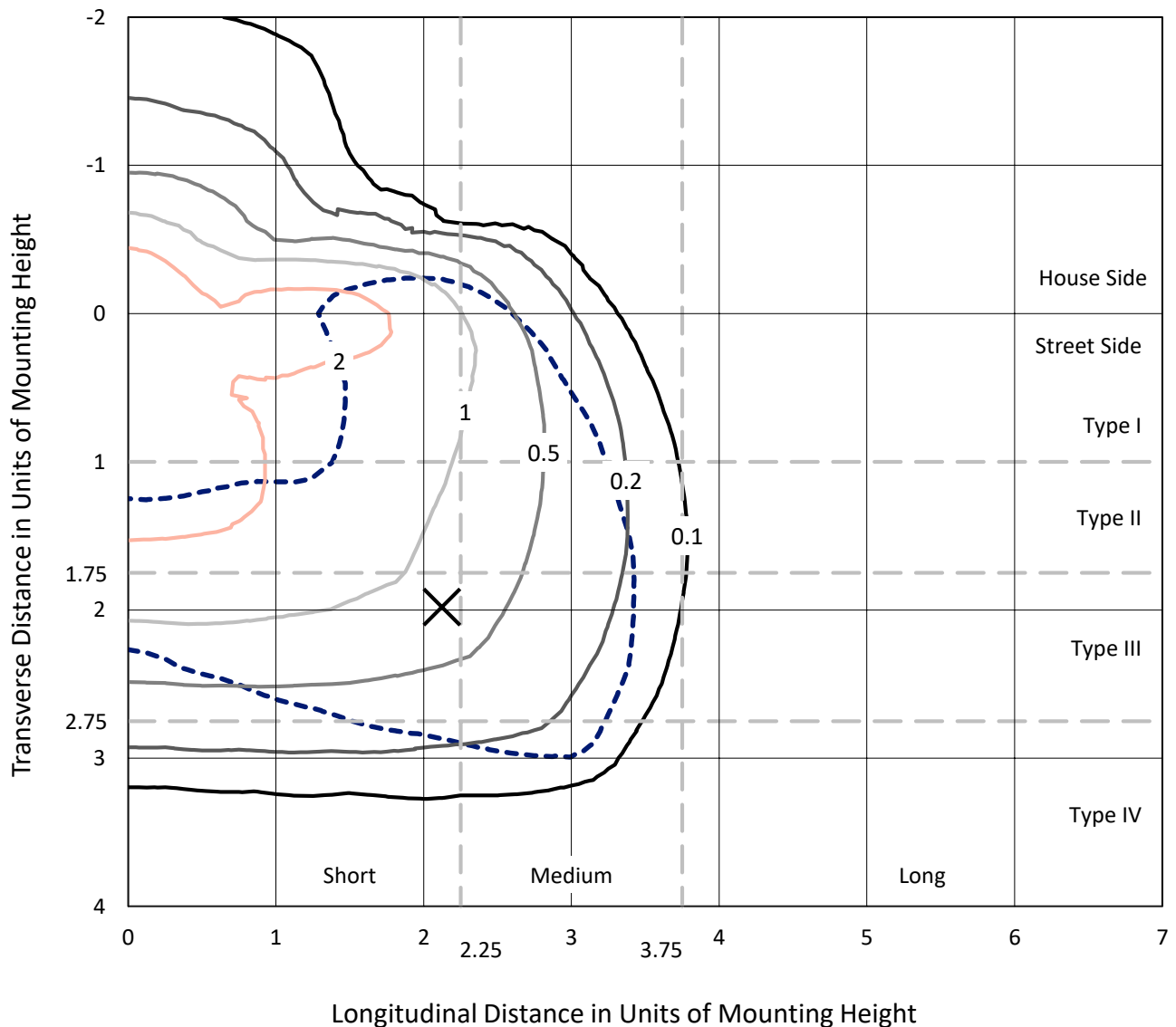
Input Watts (W): 166
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

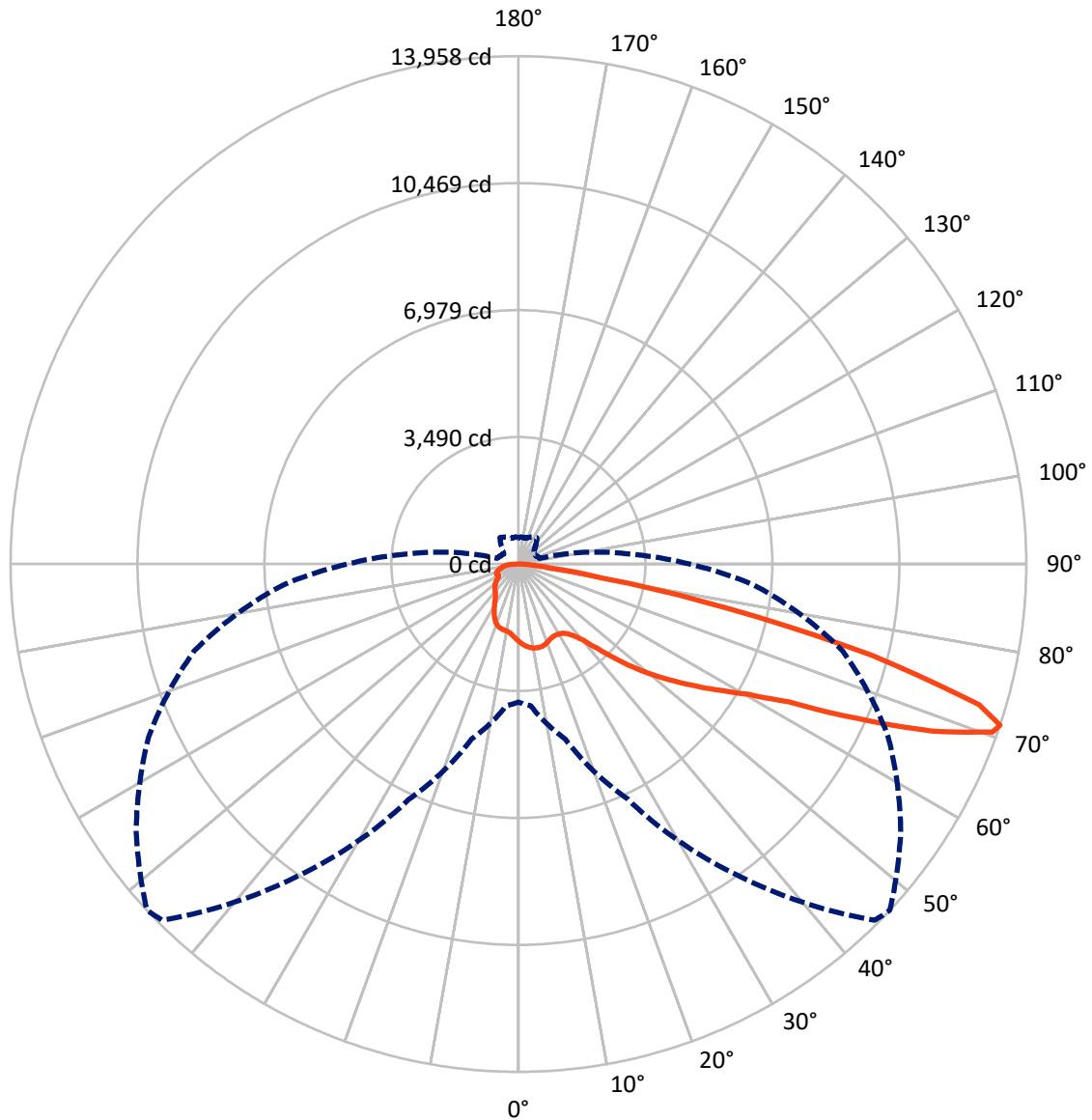
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 3.9 fc
 Type IV - Short - Semi-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 47-Deg Lateral - - - Horizontal Cone Through 71-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 3836.2 | 0.0 | 3836.2 |
| | % Fixture | 21.4 | 0.0 | 21.4 |
| Street Side | Lumens | 14063.8 | 0.0 | 14063.8 |
| | % Fixture | 78.6 | 0.0 | 78.6 |
| Total | Lumens | 17900.0 | 0.0 | 17900.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 203.2 | 1.1 |
| 10°-20° | 594.6 | 3.3 |
| 20°-30° | 883.5 | 4.9 |
| 30°-40° | 1268.6 | 7.1 |
| 40°-50° | 2249.3 | 12.6 |
| 50°-60° | 3848.9 | 21.5 |
| 60°-70° | 5464.1 | 30.5 |
| 70°-80° | 2992.6 | 16.7 |
| 80°-90° | 395.0 | 2.2 |
| 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° | 17900.0 | 100.0 |
| 0°-180° | 17900.0 | 100.0 |

Coefficient of Utilization



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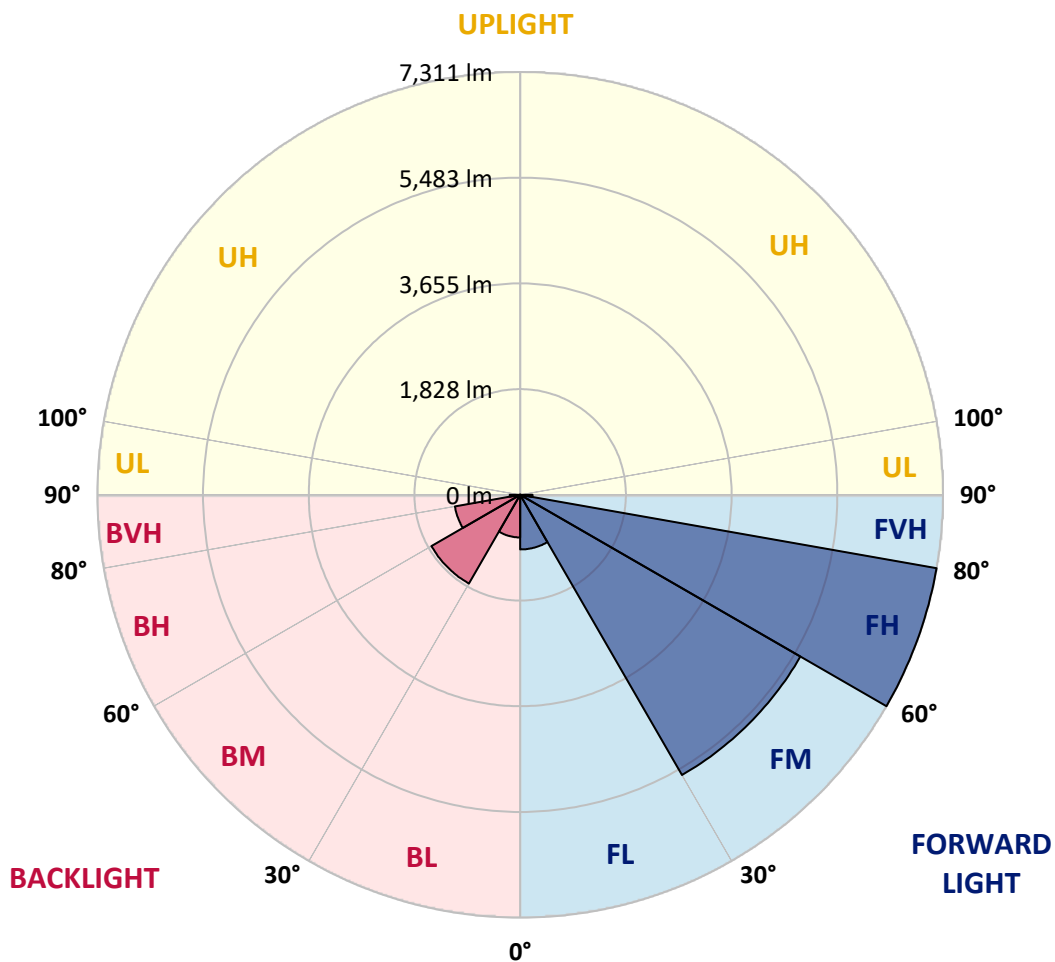
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|---------|
| | | | | B | U | G |
| FL | (0°-30°) | 944.7 | 5.3 | | | |
| FM | (30°-60°) | 5594.3 | 31.3 | | | |
| FH | (60°-80°) | 7310.5 | 40.8 | | | G3/7500 |
| FVH | (80°-90°) | 214.3 | 1.2 | | | G2/225 |
| BL | (0°-30°) | 736.7 | 4.1 | B2/1000 | | |
| BM | (30°-60°) | 1772.6 | 9.9 | B2/2500 | | |
| BH | (60°-80°) | 1146.2 | 6.4 | B3/2500 | | G3/2500 |
| BVH | (80°-90°) | 180.8 | 1.0 | | | G2/225 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G3

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 47° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 2128.6 | 2128.6 | 2128.6 | 2128.6 | 2128.6 | 2128.6 | 2128.6 | 2128.6 | 2128.6 | 2128.6 | 2128.6 |
| 2.5° | 2258.5 | 2253.9 | 2256.2 | 2248.1 | 2228.4 | 2207.5 | 2207.5 | 2185.5 | 2162.2 | 2139.0 | 2113.5 |
| 5° | 2398.9 | 2391.9 | 2386.1 | 2360.6 | 2322.3 | 2279.4 | 2272.5 | 2228.4 | 2180.8 | 2133.2 | 2086.8 |
| 7.5° | 2516.1 | 2509.1 | 2491.7 | 2445.3 | 2389.6 | 2325.8 | 2317.7 | 2259.7 | 2197.1 | 2130.9 | 2066.0 |
| 10° | 2599.6 | 2594.9 | 2561.3 | 2502.1 | 2437.2 | 2361.8 | 2347.9 | 2288.7 | 2214.5 | 2132.1 | 2049.7 |
| 12.5° | 2646.0 | 2639.0 | 2598.4 | 2528.8 | 2452.3 | 2375.7 | 2361.8 | 2304.9 | 2220.3 | 2129.8 | 2033.5 |
| 15° | 2627.4 | 2623.9 | 2585.7 | 2514.9 | 2438.3 | 2372.2 | 2360.6 | 2302.6 | 2216.8 | 2121.6 | 2018.4 |
| 17.5° | 2548.5 | 2556.7 | 2526.5 | 2456.9 | 2394.3 | 2347.9 | 2335.1 | 2280.6 | 2199.4 | 2101.9 | 1995.2 |
| 20° | 2439.5 | 2448.8 | 2433.7 | 2362.9 | 2327.0 | 2296.8 | 2289.9 | 2245.8 | 2170.4 | 2072.9 | 1967.4 |
| 22.5° | 2323.5 | 2331.6 | 2332.8 | 2266.7 | 2255.1 | 2243.5 | 2237.7 | 2206.3 | 2144.8 | 2055.5 | 1948.8 |
| 25° | 2243.5 | 2252.7 | 2255.1 | 2197.1 | 2204.0 | 2207.5 | 2206.3 | 2184.3 | 2140.2 | 2055.5 | 1951.1 |
| 27.5° | 2222.6 | 2227.2 | 2224.9 | 2171.5 | 2184.3 | 2204.0 | 2205.2 | 2200.5 | 2158.8 | 2078.7 | 1983.6 |
| 30° | 2294.5 | 2296.8 | 2267.8 | 2187.8 | 2200.5 | 2226.1 | 2227.2 | 2224.9 | 2198.2 | 2139.0 | 2056.7 |
| 32.5° | 2605.4 | 2603.1 | 2503.3 | 2296.8 | 2252.7 | 2262.0 | 2265.5 | 2286.4 | 2288.7 | 2238.8 | 2162.2 |
| 35° | 3078.7 | 3077.5 | 2961.5 | 2608.9 | 2401.2 | 2352.5 | 2357.1 | 2389.6 | 2418.6 | 2385.0 | 2340.9 |
| 37.5° | 3599.5 | 3603.0 | 3532.2 | 3054.3 | 2721.4 | 2518.4 | 2513.7 | 2538.1 | 2590.3 | 2601.9 | 2607.7 |
| 40° | 4177.2 | 4194.6 | 4191.1 | 3565.9 | 3170.3 | 2801.4 | 2755.0 | 2727.2 | 2828.1 | 2891.9 | 2974.3 |
| 42.5° | 4837.2 | 4832.6 | 4834.9 | 4127.3 | 3683.0 | 3246.9 | 3161.0 | 3031.1 | 3148.3 | 3258.5 | 3439.4 |
| 45° | 5404.5 | 5423.0 | 5436.9 | 4724.7 | 4257.2 | 3756.1 | 3669.1 | 3432.5 | 3538.0 | 3702.7 | 3978.8 |
| 47.5° | 5975.2 | 5942.7 | 5968.2 | 5389.4 | 4896.4 | 4337.3 | 4224.7 | 3905.7 | 4004.3 | 4236.3 | 4656.3 |
| 50° | 6639.9 | 6624.8 | 6508.8 | 6257.1 | 5668.9 | 4926.5 | 4779.2 | 4399.9 | 4543.7 | 4853.5 | 5492.6 |
| 52.5° | 7236.1 | 7154.9 | 7064.4 | 6939.2 | 6428.7 | 5522.8 | 5336.0 | 4913.8 | 5178.3 | 5562.2 | 6530.8 |
| 55° | 7454.2 | 7399.7 | 7508.7 | 7671.1 | 7232.6 | 6130.6 | 5921.8 | 5513.5 | 5894.0 | 6373.1 | 7752.3 |
| 57.5° | 7686.2 | 7704.8 | 7950.7 | 8279.0 | 7993.6 | 6779.1 | 6552.9 | 6223.4 | 6679.3 | 7280.2 | 9117.6 |
| 60° | 7802.2 | 7876.4 | 8367.1 | 8983.1 | 8717.4 | 7490.2 | 7273.2 | 7038.9 | 7550.5 | 8282.4 | 10479.5 |
| 62.5° | 7821.9 | 7921.7 | 8616.5 | 9230.2 | 9713.9 | 8579.4 | 8328.8 | 8074.8 | 8638.6 | 9390.2 | 11465.5 |
| 65° | 7460.0 | 7613.1 | 8594.5 | 9534.1 | 10622.2 | 10399.4 | 10240.5 | 9797.4 | 10095.5 | 10365.8 | 11633.7 |
| 67.5° | 6396.3 | 6563.3 | 7744.2 | 9408.8 | 11350.7 | 12287.9 | 12257.8 | 11603.5 | 11220.7 | 10742.8 | 10386.7 |
| 70° | 4694.5 | 4829.1 | 5963.6 | 8043.5 | 11032.8 | 13770.4 | 13823.8 | 12774.0 | 11535.1 | 9942.4 | 7723.3 |
| 71° | 3796.7 | 3912.7 | 4982.2 | 7141.0 | 10413.4 | 13847.0 | 13958.3 | 12826.2 | 11208.0 | 9219.7 | 6465.9 |
| 72.5° | 2362.9 | 2427.9 | 3308.3 | 5389.4 | 8966.8 | 13058.2 | 13246.1 | 12158.0 | 10177.9 | 7792.9 | 4570.4 |
| 75° | 892.0 | 917.6 | 1227.3 | 2376.9 | 5352.3 | 9810.2 | 10037.5 | 9188.4 | 7150.3 | 4448.6 | 1912.8 |
| 77.5° | 479.1 | 491.8 | 609.0 | 988.3 | 2144.8 | 5623.7 | 5916.0 | 5240.9 | 3430.1 | 1556.7 | 781.8 |
| 80° | 321.3 | 329.4 | 421.1 | 585.8 | 986.0 | 2141.4 | 2385.0 | 2104.2 | 1284.1 | 888.6 | 556.8 |
| 82.5° | 207.6 | 212.3 | 286.5 | 385.1 | 636.8 | 752.8 | 859.6 | 897.8 | 801.6 | 636.8 | 336.4 |
| 85° | 136.9 | 140.4 | 189.1 | 245.9 | 394.4 | 371.2 | 380.5 | 497.6 | 546.4 | 419.9 | 171.7 |
| 87.5° | 78.9 | 81.2 | 113.7 | 126.4 | 177.5 | 139.2 | 150.8 | 236.6 | 324.8 | 273.8 | 98.6 |
| 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° | 2128.6 | 2128.6 | 2128.6 | 2128.6 | 2128.6 | 2128.6 | 2128.6 | 2128.6 | 2128.6 | 2128.6 | 2128.6 |
| 2.5° | 2101.9 | 2092.6 | 2071.8 | 2059.0 | 2053.2 | 2050.9 | 2048.6 | 2053.2 | 2053.2 | 2050.9 | 2046.2 |
| 5° | 2063.6 | 2046.2 | 2011.4 | 1987.1 | 1974.3 | 1970.8 | 1975.5 | 1981.3 | 1984.8 | 1984.8 | 1981.3 |
| 7.5° | 2035.8 | 2010.3 | 1963.9 | 1930.2 | 1910.5 | 1904.7 | 1917.5 | 1938.4 | 1952.3 | 1959.2 | 1960.4 |
| 10° | 2012.6 | 1977.8 | 1926.8 | 1892.0 | 1875.7 | 1873.4 | 1889.6 | 1916.3 | 1945.3 | 1958.1 | 1960.4 |
| 12.5° | 1991.7 | 1952.3 | 1896.6 | 1864.1 | 1852.5 | 1858.3 | 1880.4 | 1904.7 | 1938.4 | 1956.9 | 1958.1 |
| 15° | 1972.0 | 1931.4 | 1872.2 | 1838.6 | 1836.3 | 1845.6 | 1866.4 | 1886.2 | 1911.7 | 1934.9 | 1934.9 |
| 17.5° | 1948.8 | 1904.7 | 1843.2 | 1811.9 | 1811.9 | 1820.0 | 1834.0 | 1844.4 | 1860.6 | 1882.7 | 1881.5 |
| 20° | 1921.0 | 1875.7 | 1813.1 | 1780.6 | 1773.6 | 1769.0 | 1769.0 | 1771.3 | 1785.2 | 1805.0 | 1808.4 |
| 22.5° | 1900.1 | 1853.7 | 1787.6 | 1748.1 | 1716.8 | 1686.6 | 1673.9 | 1669.2 | 1682.0 | 1700.6 | 1705.2 |
| 25° | 1900.1 | 1853.7 | 1779.4 | 1713.3 | 1636.8 | 1578.8 | 1554.4 | 1547.4 | 1560.2 | 1577.6 | 1584.6 |
| 27.5° | 1931.4 | 1885.0 | 1798.0 | 1682.0 | 1541.6 | 1448.8 | 1419.8 | 1414.0 | 1425.6 | 1439.6 | 1446.5 |
| 30° | 2004.5 | 1959.2 | 1851.4 | 1646.0 | 1436.1 | 1314.3 | 1281.8 | 1276.0 | 1281.8 | 1287.6 | 1295.7 |
| 32.5° | 2126.3 | 2088.0 | 1938.4 | 1613.6 | 1329.4 | 1192.5 | 1153.0 | 1143.8 | 1146.1 | 1147.2 | 1154.2 |
| 35° | 2324.7 | 2307.3 | 2054.4 | 1575.3 | 1228.4 | 1092.7 | 1052.1 | 1033.6 | 1032.4 | 1038.2 | 1046.3 |
| 37.5° | 2628.6 | 2639.0 | 2204.0 | 1519.6 | 1144.9 | 1022.0 | 981.4 | 962.8 | 953.5 | 965.1 | 974.4 |
| 40° | 3057.8 | 3082.1 | 2376.9 | 1444.2 | 1076.5 | 980.2 | 937.3 | 919.9 | 907.1 | 903.6 | 908.3 |
| 42.5° | 3615.7 | 3608.8 | 2553.2 | 1347.9 | 1002.2 | 952.4 | 907.1 | 888.6 | 867.7 | 841.0 | 835.2 |
| 45° | 4276.9 | 4177.2 | 2700.5 | 1229.6 | 917.6 | 925.7 | 879.3 | 853.8 | 821.3 | 781.8 | 777.2 |
| 47.5° | 5057.6 | 4782.7 | 2791.0 | 1103.2 | 838.7 | 890.9 | 848.0 | 808.5 | 761.0 | 735.4 | 732.0 |
| 50° | 5998.4 | 5491.5 | 2854.8 | 974.4 | 767.9 | 846.8 | 803.9 | 751.7 | 705.3 | 698.3 | 697.2 |
| 52.5° | 7112.0 | 6327.8 | 2933.7 | 858.4 | 712.2 | 790.0 | 759.8 | 706.4 | 669.3 | 672.8 | 672.8 |
| 55° | 8296.4 | 7193.2 | 2936.0 | 766.8 | 663.5 | 723.8 | 727.3 | 684.4 | 655.4 | 667.0 | 670.5 |
| 57.5° | 9376.3 | 7949.5 | 2705.1 | 701.8 | 617.1 | 671.6 | 716.9 | 692.5 | 670.5 | 711.1 | 714.6 |
| 60° | 10318.2 | 8531.8 | 2208.7 | 648.4 | 578.8 | 651.9 | 740.1 | 742.4 | 737.8 | 848.0 | 856.1 |
| 62.5° | 10662.8 | 8537.6 | 1568.3 | 603.2 | 558.0 | 663.5 | 788.8 | 792.3 | 792.3 | 894.4 | 909.4 |
| 65° | 10180.2 | 7826.6 | 1044.0 | 576.5 | 544.0 | 689.0 | 828.2 | 813.2 | 777.2 | 848.0 | 831.7 |
| 67.5° | 8479.6 | 6092.3 | 763.3 | 559.1 | 524.3 | 690.2 | 863.0 | 824.8 | 763.3 | 823.6 | 795.8 |
| 70° | 5827.9 | 3876.7 | 639.2 | 542.9 | 501.1 | 660.0 | 881.6 | 821.3 | 742.4 | 767.9 | 730.8 |
| 71° | 4691.1 | 3093.7 | 606.7 | 537.1 | 491.8 | 642.6 | 883.9 | 816.6 | 732.0 | 748.2 | 714.6 |
| 72.5° | 3090.3 | 1905.9 | 567.2 | 524.3 | 477.9 | 612.5 | 878.1 | 806.2 | 718.0 | 719.2 | 697.2 |
| 75° | 1219.2 | 790.0 | 510.4 | 495.3 | 438.5 | 563.8 | 852.6 | 784.2 | 691.4 | 668.2 | 658.9 |
| 77.5° | 616.0 | 516.2 | 448.9 | 454.7 | 392.1 | 513.9 | 816.6 | 748.2 | 654.2 | 622.9 | 616.0 |
| 80° | 450.1 | 392.1 | 384.0 | 394.4 | 339.9 | 465.2 | 771.4 | 699.5 | 606.7 | 639.2 | 625.2 |
| 82.5° | 273.8 | 239.0 | 300.4 | 326.0 | 284.2 | 415.3 | 718.0 | 642.6 | 546.4 | 503.4 | 487.2 |
| 85° | 129.9 | 140.4 | 216.9 | 240.1 | 210.0 | 331.8 | 656.6 | 580.0 | 476.8 | 411.8 | 418.8 |
| 87.5° | 63.8 | 77.7 | 124.1 | 143.8 | 138.0 | 243.6 | 495.3 | 450.1 | 375.8 | 309.7 | 302.8 |
| 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)