

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: P196869

Luminaire Tested: **NAV-AF-03-D-UNV-T4W-7030-1200**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196869
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-7030-1200
Description: NAVION ROADWAY AND AREA LUMINAIRE
(3) 70 CRI, 3000K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18991.4 lumens
Efficiency: N/A
Efficacy: 99.4 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 - G4

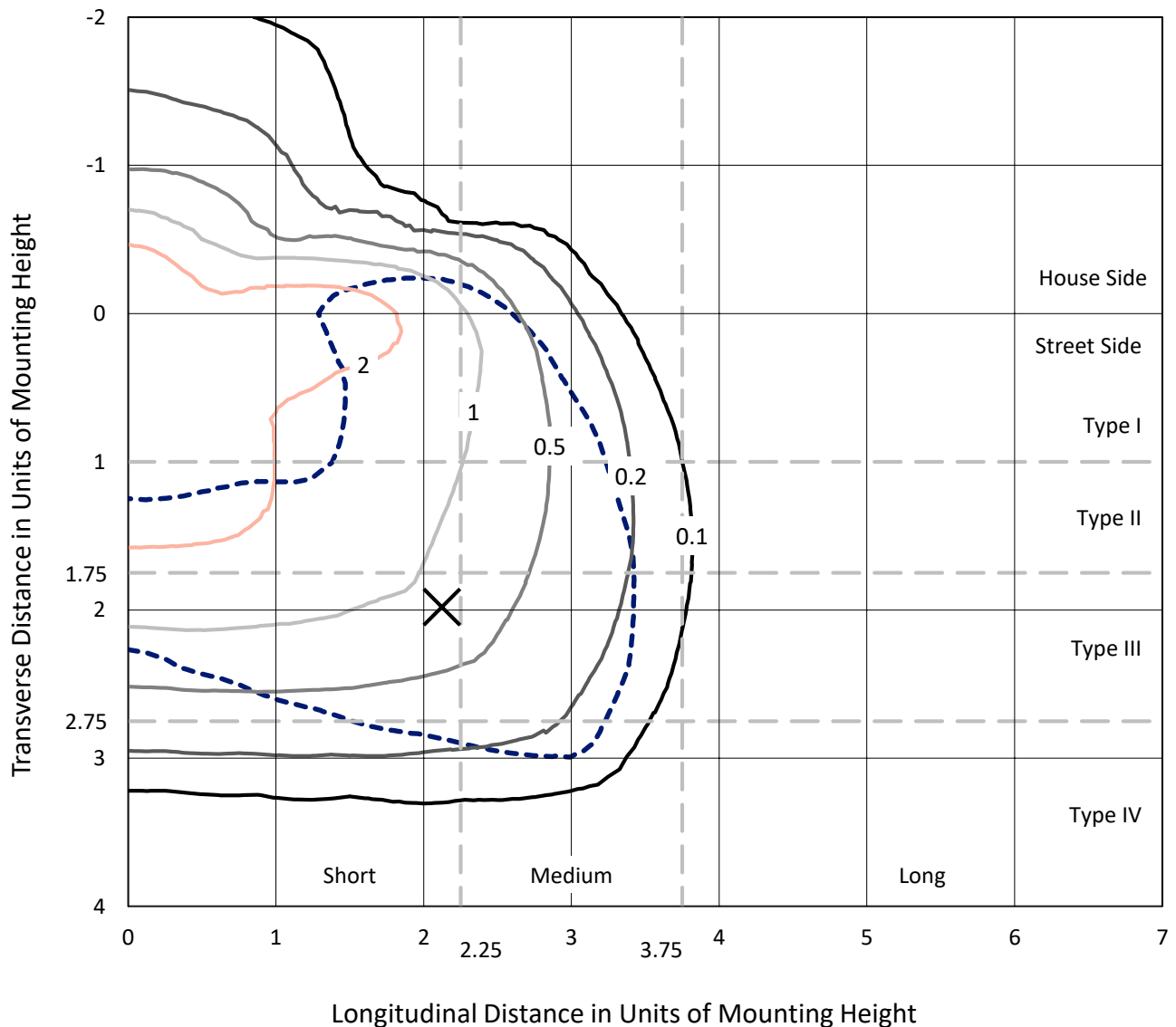
Input Watts (W): 191
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

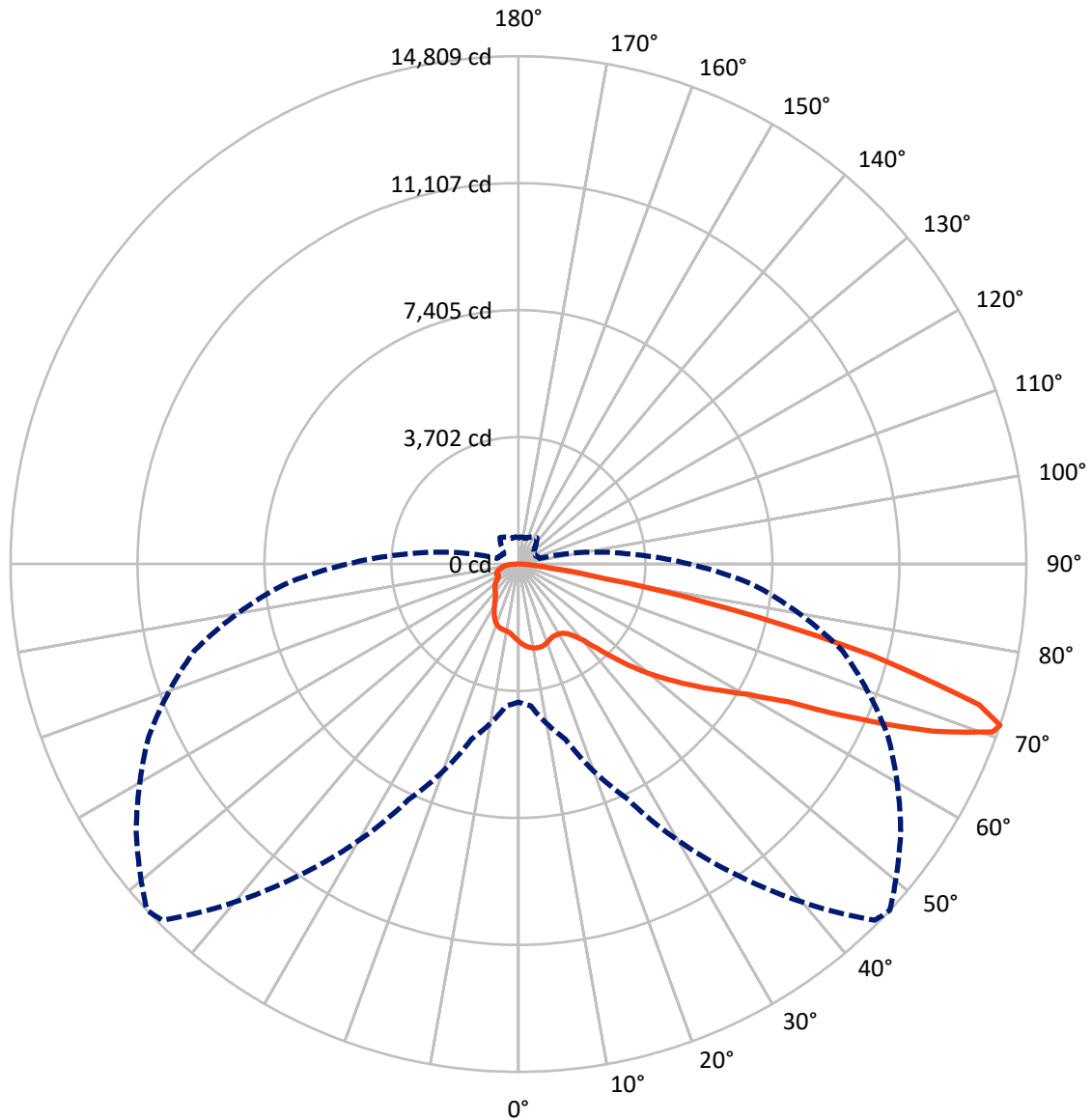
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 4.1 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 | 4070.1 | 0.0 | 4070.1 |
| | % Fixture | 21.4 | 0.0 | 21.4 |
| Street Side | Lumens | 14921.3 | 0.0 | 14921.3 |
| | % Fixture | 78.6 | 0.0 | 78.6 |
| Total | Lumens | 18991.4 | 0.0 | 18991.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 215.6 | 1.1 |
| 10°-20° | 630.8 | 3.3 |
| 20°-30° | 937.4 | 4.9 |
| 30°-40° | 1346.0 | 7.1 |
| 40°-50° | 2386.5 | 12.6 |
| 50°-60° | 4083.6 | 21.5 |
| 60°-70° | 5797.3 | 30.5 |
| 70°-80° | 3175.1 | 16.7 |
| 80°-90° | 419.1 | 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° | 18991.4 | 100.0 |
| 0°-180° | 18991.4 | 100.0 |



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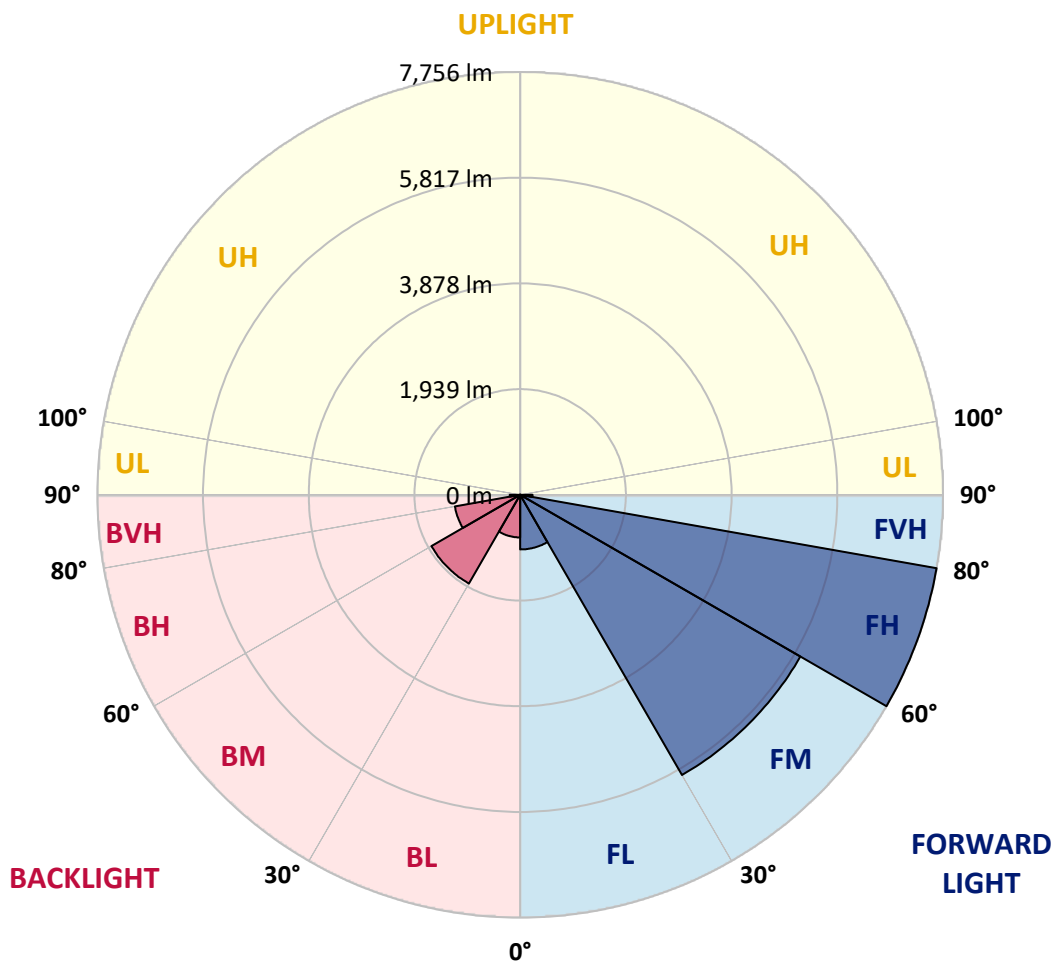
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|----------|
| | | | | B | U | G |
| FL | (0°-30°) | 1002.3 | 5.3 | | | |
| FM | (30°-60°) | 5935.4 | 31.3 | | | |
| FH | (60°-80°) | 7756.3 | 40.8 | | | G4/12000 |
| FVH | (80°-90°) | 227.3 | 1.2 | | | G3/500 |
| BL | (0°-30°) | 781.6 | 4.1 | B2/1000 | | |
| BM | (30°-60°) | 1880.6 | 9.9 | B2/2500 | | |
| BH | (60°-80°) | 1216.1 | 6.4 | B3/2500 | | G3/2500 |
| BVH | (80°-90°) | 191.8 | 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-G4

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 47° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 2258.4 | 2258.4 | 2258.4 | 2258.4 | 2258.4 | 2258.4 | 2258.4 | 2258.4 | 2258.4 | 2258.4 | 2258.4 |
| 2.5° | 2396.3 | 2391.3 | 2393.8 | 2385.1 | 2364.3 | 2342.1 | 2342.1 | 2318.7 | 2294.1 | 2269.5 | 2242.4 |
| 5° | 2545.2 | 2537.8 | 2531.6 | 2504.5 | 2463.9 | 2418.4 | 2411.1 | 2364.3 | 2313.8 | 2263.3 | 2214.1 |
| 7.5° | 2669.4 | 2662.1 | 2643.6 | 2594.4 | 2535.4 | 2467.6 | 2459.0 | 2397.4 | 2331.0 | 2260.9 | 2192.0 |
| 10° | 2758.0 | 2753.2 | 2717.5 | 2654.7 | 2585.7 | 2505.8 | 2491.0 | 2428.3 | 2349.5 | 2262.1 | 2174.7 |
| 12.5° | 2807.3 | 2799.9 | 2756.8 | 2683.0 | 2601.8 | 2520.5 | 2505.8 | 2445.4 | 2355.6 | 2259.6 | 2157.5 |
| 15° | 2787.6 | 2783.9 | 2743.3 | 2668.2 | 2587.0 | 2516.9 | 2504.5 | 2443.0 | 2352.0 | 2251.1 | 2141.5 |
| 17.5° | 2703.9 | 2712.6 | 2680.5 | 2606.7 | 2540.3 | 2491.0 | 2477.5 | 2419.6 | 2333.4 | 2230.1 | 2116.9 |
| 20° | 2588.3 | 2598.0 | 2582.2 | 2507.1 | 2468.8 | 2436.8 | 2429.5 | 2382.7 | 2302.7 | 2199.3 | 2087.3 |
| 22.5° | 2465.2 | 2473.7 | 2475.0 | 2404.9 | 2392.6 | 2380.2 | 2374.1 | 2340.9 | 2275.7 | 2180.9 | 2067.6 |
| 25° | 2380.2 | 2390.0 | 2392.6 | 2331.0 | 2338.3 | 2342.1 | 2340.9 | 2317.5 | 2270.7 | 2180.9 | 2070.1 |
| 27.5° | 2358.2 | 2363.1 | 2360.5 | 2304.0 | 2317.5 | 2338.3 | 2339.7 | 2334.8 | 2290.4 | 2205.5 | 2104.6 |
| 30° | 2434.4 | 2436.8 | 2406.1 | 2321.2 | 2334.8 | 2361.7 | 2363.1 | 2360.5 | 2332.2 | 2269.5 | 2182.1 |
| 32.5° | 2764.3 | 2761.7 | 2655.9 | 2436.8 | 2390.0 | 2400.0 | 2403.6 | 2425.8 | 2428.3 | 2375.3 | 2294.1 |
| 35° | 3266.5 | 3265.1 | 3142.1 | 2768.0 | 2547.6 | 2495.9 | 2500.8 | 2535.4 | 2566.1 | 2530.5 | 2483.6 |
| 37.5° | 3818.9 | 3822.7 | 3747.6 | 3240.5 | 2887.2 | 2671.9 | 2667.0 | 2692.8 | 2748.2 | 2760.6 | 2766.7 |
| 40° | 4431.9 | 4450.3 | 4446.7 | 3783.3 | 3363.6 | 2972.2 | 2923.0 | 2893.5 | 3000.6 | 3068.2 | 3155.6 |
| 42.5° | 5132.1 | 5127.2 | 5129.7 | 4379.0 | 3907.5 | 3444.8 | 3353.7 | 3215.9 | 3340.2 | 3457.2 | 3649.2 |
| 45° | 5734.0 | 5753.7 | 5768.5 | 5012.9 | 4516.8 | 3985.1 | 3892.8 | 3641.7 | 3753.7 | 3928.5 | 4221.4 |
| 47.5° | 6339.6 | 6305.1 | 6332.1 | 5718.0 | 5194.9 | 4601.7 | 4482.4 | 4143.8 | 4248.5 | 4494.6 | 4940.1 |
| 50° | 7044.7 | 7028.7 | 6905.6 | 6638.6 | 6014.6 | 5227.0 | 5070.6 | 4668.2 | 4820.8 | 5149.4 | 5827.6 |
| 52.5° | 7677.3 | 7591.3 | 7495.1 | 7362.2 | 6820.7 | 5859.6 | 5661.4 | 5213.5 | 5494.0 | 5901.4 | 6929.0 |
| 55° | 7908.7 | 7850.9 | 7966.5 | 8138.8 | 7673.6 | 6504.4 | 6283.0 | 5849.7 | 6253.4 | 6761.6 | 8225.0 |
| 57.5° | 8154.9 | 8174.6 | 8435.5 | 8783.8 | 8481.0 | 7192.4 | 6952.3 | 6602.9 | 7086.5 | 7724.1 | 9673.6 |
| 60° | 8277.9 | 8356.7 | 8877.4 | 9530.8 | 9249.1 | 7946.9 | 7716.8 | 7468.1 | 8010.9 | 8787.5 | 11118.4 |
| 62.5° | 8298.9 | 8404.7 | 9141.9 | 9793.0 | 10306.2 | 9102.5 | 8836.7 | 8567.1 | 9165.3 | 9962.8 | 12164.6 |
| 65° | 7914.8 | 8077.3 | 9118.6 | 10115.4 | 11269.9 | 11033.5 | 10865.0 | 10394.8 | 10711.1 | 10997.8 | 12343.0 |
| 67.5° | 6786.3 | 6963.5 | 8216.4 | 9982.5 | 12042.8 | 13037.2 | 13005.2 | 12311.0 | 11904.9 | 11397.8 | 11020.0 |
| 70° | 4980.8 | 5123.6 | 6327.2 | 8533.9 | 11705.5 | 14610.0 | 14666.6 | 13552.8 | 12238.4 | 10548.7 | 8194.2 |
| 71° | 4028.2 | 4151.3 | 5286.0 | 7576.4 | 11048.3 | 14691.3 | 14809.4 | 13608.2 | 11891.3 | 9781.9 | 6860.2 |
| 72.5° | 2507.1 | 2575.9 | 3510.1 | 5718.0 | 9513.6 | 13854.4 | 14053.8 | 12899.3 | 10798.5 | 8268.0 | 4849.2 |
| 75° | 946.4 | 973.5 | 1302.2 | 2521.8 | 5678.6 | 10408.4 | 10649.6 | 9748.6 | 7586.3 | 4719.9 | 2029.5 |
| 77.5° | 508.3 | 521.8 | 646.2 | 1048.6 | 2275.7 | 5966.6 | 6276.7 | 5560.4 | 3639.3 | 1651.7 | 829.5 |
| 80° | 340.9 | 349.5 | 446.8 | 621.5 | 1046.1 | 2271.9 | 2530.5 | 2232.6 | 1362.5 | 942.8 | 590.8 |
| 82.5° | 220.2 | 225.2 | 304.0 | 408.6 | 675.7 | 798.8 | 912.0 | 952.6 | 850.5 | 675.7 | 356.9 |
| 85° | 145.2 | 148.9 | 200.6 | 260.9 | 418.5 | 393.9 | 403.7 | 527.9 | 579.7 | 445.6 | 182.1 |
| 87.5° | 83.7 | 86.2 | 120.6 | 134.2 | 188.3 | 147.7 | 159.9 | 251.1 | 344.6 | 290.4 | 104.6 |
| 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° | 2258.4 | 2258.4 | 2258.4 | 2258.4 | 2258.4 | 2258.4 | 2258.4 | 2258.4 | 2258.4 | 2258.4 | 2258.4 |
| 2.5° | 2230.1 | 2220.2 | 2198.1 | 2184.5 | 2178.4 | 2175.9 | 2173.5 | 2178.4 | 2178.4 | 2175.9 | 2171.0 |
| 5° | 2189.4 | 2171.0 | 2134.1 | 2108.2 | 2094.7 | 2091.0 | 2095.9 | 2102.1 | 2105.8 | 2105.8 | 2102.1 |
| 7.5° | 2159.9 | 2132.8 | 2083.7 | 2047.9 | 2027.0 | 2020.9 | 2034.4 | 2056.6 | 2071.3 | 2078.7 | 2080.0 |
| 10° | 2135.4 | 2098.5 | 2044.2 | 2007.3 | 1990.0 | 1987.7 | 2004.9 | 2033.2 | 2063.9 | 2077.4 | 2080.0 |
| 12.5° | 2113.2 | 2071.3 | 2012.2 | 1977.8 | 1965.5 | 1971.7 | 1995.1 | 2020.9 | 2056.6 | 2076.3 | 2077.4 |
| 15° | 2092.2 | 2049.1 | 1986.5 | 1950.8 | 1948.2 | 1958.2 | 1980.3 | 2001.2 | 2028.3 | 2052.9 | 2052.9 |
| 17.5° | 2067.6 | 2020.9 | 1955.6 | 1922.4 | 1922.4 | 1931.0 | 1945.8 | 1956.9 | 1974.1 | 1997.5 | 1996.2 |
| 20° | 2038.1 | 1990.0 | 1923.6 | 1889.2 | 1881.8 | 1876.8 | 1876.8 | 1879.4 | 1894.1 | 1915.0 | 1918.7 |
| 22.5° | 2016.0 | 1966.6 | 1896.5 | 1854.6 | 1821.5 | 1789.4 | 1775.9 | 1771.0 | 1784.5 | 1804.3 | 1809.3 |
| 25° | 2016.0 | 1966.6 | 1888.0 | 1817.7 | 1736.5 | 1675.1 | 1649.2 | 1641.8 | 1655.4 | 1673.9 | 1681.2 |
| 27.5° | 2049.1 | 2000.0 | 1907.6 | 1784.5 | 1635.6 | 1537.2 | 1506.4 | 1500.2 | 1512.5 | 1527.3 | 1534.8 |
| 30° | 2126.7 | 2078.7 | 1964.3 | 1746.4 | 1523.6 | 1394.4 | 1360.0 | 1353.8 | 1360.0 | 1366.1 | 1374.7 |
| 32.5° | 2255.9 | 2215.3 | 2056.6 | 1712.0 | 1410.4 | 1265.2 | 1223.3 | 1213.6 | 1215.9 | 1217.1 | 1224.6 |
| 35° | 2466.4 | 2448.0 | 2179.6 | 1671.3 | 1303.4 | 1159.4 | 1116.3 | 1096.6 | 1095.4 | 1101.6 | 1110.1 |
| 37.5° | 2788.9 | 2799.9 | 2338.3 | 1612.2 | 1214.8 | 1084.3 | 1041.2 | 1021.5 | 1011.6 | 1024.0 | 1033.8 |
| 40° | 3244.2 | 3270.0 | 2521.8 | 1532.3 | 1142.1 | 1039.9 | 994.5 | 976.0 | 962.5 | 958.7 | 963.6 |
| 42.5° | 3836.2 | 3828.8 | 2708.9 | 1430.1 | 1063.3 | 1010.4 | 962.5 | 942.8 | 920.6 | 892.3 | 886.1 |
| 45° | 4537.7 | 4431.9 | 2865.1 | 1304.5 | 973.5 | 982.1 | 932.8 | 905.9 | 871.4 | 829.5 | 824.6 |
| 47.5° | 5366.0 | 5074.3 | 2961.2 | 1170.3 | 889.8 | 945.2 | 899.6 | 857.8 | 807.3 | 780.3 | 776.7 |
| 50° | 6364.2 | 5826.4 | 3028.8 | 1033.8 | 814.7 | 898.4 | 852.9 | 797.5 | 748.3 | 740.9 | 739.6 |
| 52.5° | 7545.7 | 6713.7 | 3112.6 | 910.7 | 755.6 | 838.1 | 806.2 | 749.5 | 710.1 | 713.8 | 713.8 |
| 55° | 8802.3 | 7631.8 | 3115.0 | 813.6 | 703.9 | 768.0 | 771.7 | 726.1 | 695.3 | 707.7 | 711.4 |
| 57.5° | 9948.0 | 8434.3 | 2870.0 | 744.6 | 654.8 | 712.6 | 760.6 | 734.8 | 711.4 | 754.4 | 758.1 |
| 60° | 10947.4 | 9052.0 | 2343.3 | 688.0 | 614.1 | 691.7 | 785.2 | 787.6 | 782.8 | 899.6 | 908.3 |
| 62.5° | 11312.9 | 9058.2 | 1663.9 | 639.9 | 591.9 | 703.9 | 836.9 | 840.6 | 840.6 | 948.9 | 964.9 |
| 65° | 10801.0 | 8303.8 | 1107.7 | 611.7 | 577.2 | 731.1 | 878.8 | 862.7 | 824.6 | 899.6 | 882.5 |
| 67.5° | 8996.7 | 6463.8 | 809.8 | 593.2 | 556.2 | 732.2 | 915.7 | 875.0 | 809.8 | 873.8 | 844.2 |
| 70° | 6183.2 | 4113.2 | 678.2 | 576.1 | 531.6 | 700.3 | 935.4 | 871.4 | 787.6 | 814.7 | 775.4 |
| 71° | 4977.1 | 3282.3 | 643.6 | 569.8 | 521.8 | 681.8 | 937.8 | 866.4 | 776.7 | 793.9 | 758.1 |
| 72.5° | 3278.7 | 2022.1 | 601.8 | 556.2 | 507.1 | 649.9 | 931.7 | 855.4 | 761.9 | 763.0 | 739.6 |
| 75° | 1293.5 | 838.1 | 541.5 | 525.5 | 465.2 | 598.0 | 904.5 | 832.0 | 733.5 | 708.9 | 699.0 |
| 77.5° | 653.5 | 547.7 | 476.3 | 482.5 | 415.9 | 545.2 | 866.4 | 793.9 | 694.2 | 660.9 | 653.5 |
| 80° | 477.6 | 415.9 | 407.4 | 418.5 | 360.5 | 493.6 | 818.5 | 742.1 | 643.6 | 678.2 | 663.3 |
| 82.5° | 290.4 | 253.5 | 318.7 | 345.8 | 301.5 | 440.7 | 761.9 | 681.8 | 579.7 | 534.2 | 516.9 |
| 85° | 137.8 | 148.9 | 230.1 | 254.8 | 222.8 | 352.1 | 696.6 | 615.3 | 505.9 | 436.9 | 444.2 |
| 87.5° | 67.7 | 82.5 | 131.6 | 152.6 | 146.4 | 258.5 | 525.5 | 477.6 | 398.8 | 328.7 | 321.2 |
| 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)