

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: P196738

Luminaire Tested: **NAV-AF-04-D-UNV-T2-7030-800**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196738
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-04-D-UNV-T2-7030-800
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 3000K, 800mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18660.4 lumens
Efficiency: N/A
Efficacy: 109.1 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Medium - Full Cutoff
BUG Rating: B3 - U0 - G3

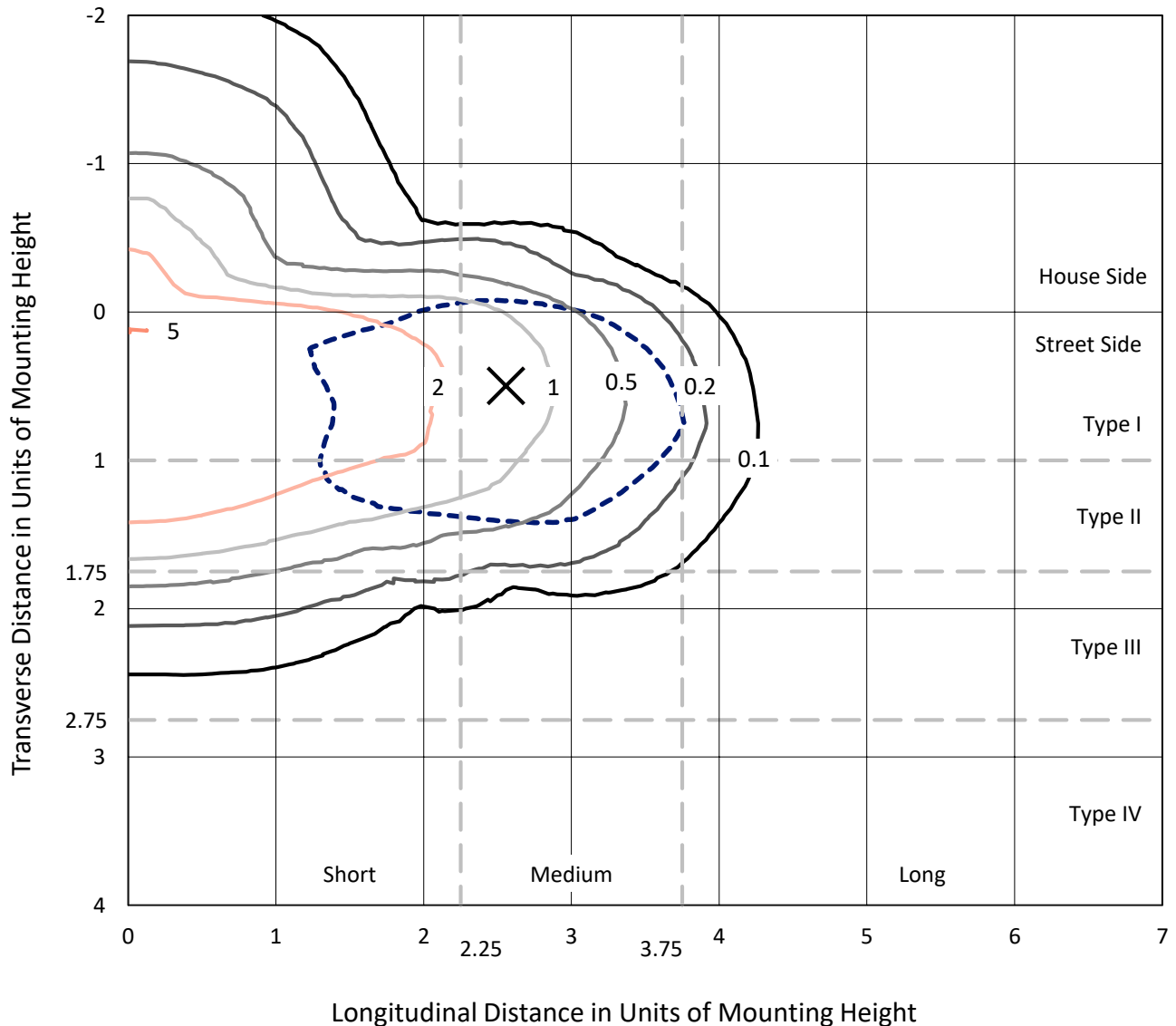
Input Watts (W): 171
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

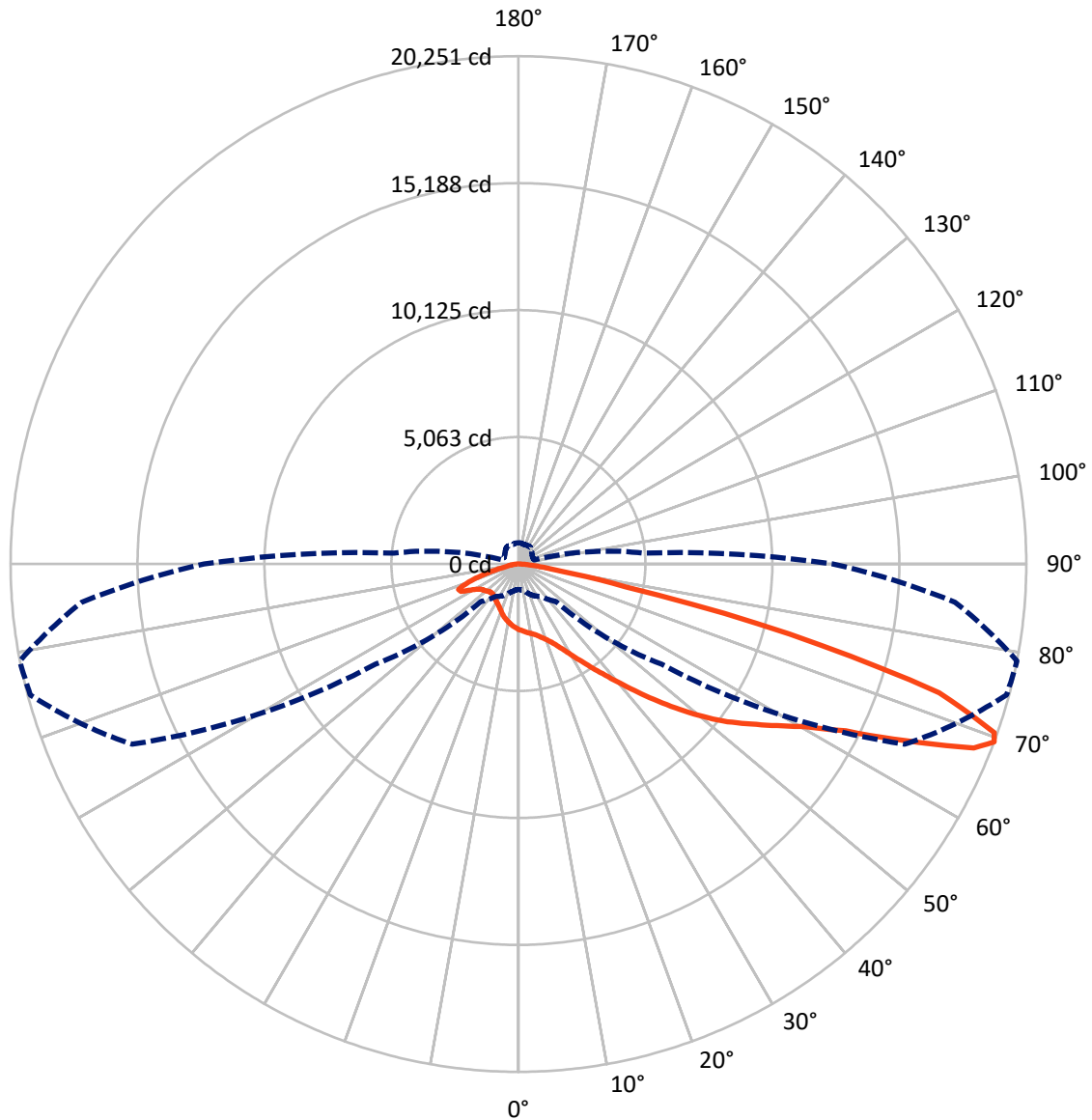
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 5.1 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 | 3510.4 | 0.0 | 3510.4 |
| | % Fixture | 18.8 | 0.0 | 18.8 |
| Street Side | Lumens | 15150.0 | 0.0 | 15150.0 |
| | % Fixture | 81.2 | 0.0 | 81.2 |
| Total | Lumens | 18660.4 | 0.0 | 18660.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 242.8 | 1.3 |
| 10°-20° | 696.0 | 3.7 |
| 20°-30° | 1150.1 | 6.2 |
| 30°-40° | 1862.3 | 10.0 |
| 40°-50° | 2974.9 | 15.9 |
| 50°-60° | 4260.4 | 22.8 |
| 60°-70° | 4746.8 | 25.4 |
| 70°-80° | 2374.7 | 12.7 |
| 80°-90° | 352.4 | 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° | 18660.4 | 100.0 |
| 0°-180° | 18660.4 | 100.0 |

Coefficient of Utilization



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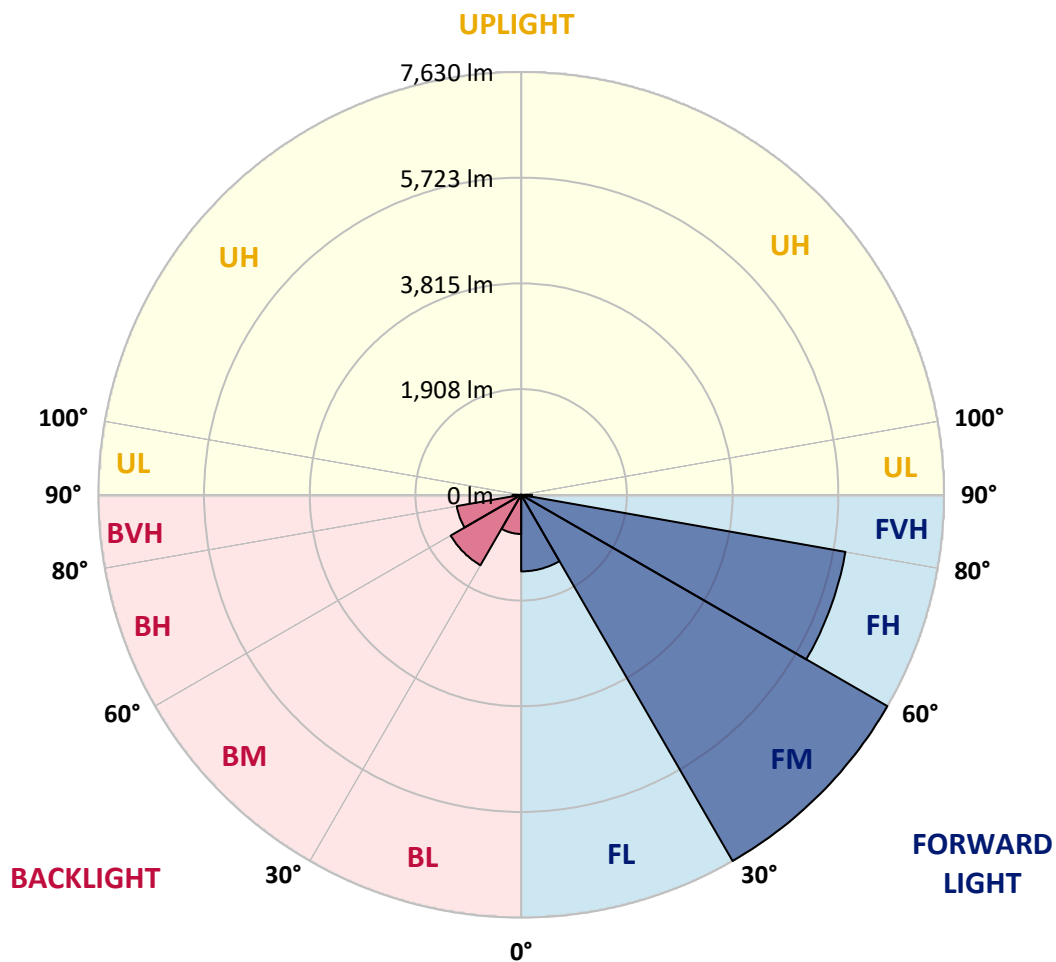
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|---------|
| | | | | B | U | G |
| FL | (0°-30°) | 1381.6 | 7.4 | | | |
| FM | (30°-60°) | 7630.3 | 40.9 | | | |
| FH | (60°-80°) | 5941.2 | 31.8 | | | G3/7500 |
| FVH | (80°-90°) | 196.9 | 1.1 | | | G2/225 |
| BL | (0°-30°) | 707.2 | 3.8 | B2/1000 | | |
| BM | (30°-60°) | 1467.4 | 7.9 | B2/2500 | | |
| BH | (60°-80°) | 1180.3 | 6.3 | B3/2500 | | G3/2500 |
| BVH | (80°-90°) | 155.5 | 0.8 | | | 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 II Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 79° | 85° |
|-------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| 0° | 2618.6 | 2618.6 | 2618.6 | 2618.6 | 2618.6 | 2618.6 | 2618.6 | 2618.6 | 2618.6 | 2618.6 | 2618.6 |
| 2.5° | 2875.0 | 2868.9 | 2867.7 | 2849.4 | 2839.6 | 2818.9 | 2770.0 | 2720.0 | 2673.6 | 2649.2 | 2623.6 |
| 5° | 3115.5 | 3103.3 | 3097.2 | 3066.7 | 3039.8 | 2993.4 | 2916.5 | 2837.1 | 2754.1 | 2711.4 | 2660.1 |
| 7.5° | 3260.9 | 3262.1 | 3262.1 | 3237.6 | 3210.7 | 3154.6 | 3057.0 | 2948.3 | 2825.0 | 2768.8 | 2688.3 |
| 10° | 3273.0 | 3274.2 | 3292.5 | 3298.6 | 3304.8 | 3275.5 | 3185.1 | 3048.4 | 2889.7 | 2816.3 | 2711.4 |
| 12.5° | 3152.1 | 3160.7 | 3191.3 | 3235.1 | 3297.5 | 3329.1 | 3290.2 | 3155.9 | 2972.7 | 2883.6 | 2755.4 |
| 15° | 2989.8 | 2998.3 | 3037.4 | 3104.5 | 3204.7 | 3310.9 | 3365.7 | 3279.1 | 3081.3 | 2976.3 | 2820.1 |
| 17.5° | 2910.4 | 2920.2 | 2947.0 | 3000.8 | 3098.4 | 3241.2 | 3406.0 | 3411.0 | 3209.5 | 3088.6 | 2897.0 |
| 20° | 2872.5 | 2879.8 | 2914.1 | 2957.9 | 3032.5 | 3169.2 | 3409.8 | 3550.2 | 3362.1 | 3221.7 | 2991.0 |
| 22.5° | 2959.3 | 2961.7 | 2978.7 | 3003.2 | 3053.2 | 3158.2 | 3407.2 | 3694.2 | 3552.6 | 3389.0 | 3111.8 |
| 25° | 3213.2 | 3197.3 | 3185.1 | 3154.6 | 3166.8 | 3241.2 | 3446.4 | 3848.0 | 3796.8 | 3608.8 | 3273.0 |
| 27.5° | 3513.4 | 3511.0 | 3479.4 | 3408.6 | 3363.3 | 3411.0 | 3557.5 | 4020.0 | 4095.8 | 3888.3 | 3484.2 |
| 30° | 3848.0 | 3849.2 | 3816.2 | 3729.6 | 3638.0 | 3642.9 | 3734.5 | 4219.1 | 4453.5 | 4225.3 | 3744.2 |
| 32.5° | 4198.4 | 4220.3 | 4159.3 | 4072.6 | 3961.5 | 3926.1 | 3988.4 | 4459.6 | 4867.4 | 4623.2 | 4045.8 |
| 35° | 4617.1 | 4620.8 | 4553.6 | 4426.6 | 4315.5 | 4259.4 | 4316.9 | 4760.0 | 5344.8 | 5090.8 | 4413.2 |
| 37.5° | 5051.7 | 5054.2 | 4984.6 | 4822.1 | 4681.9 | 4645.1 | 4708.6 | 5125.1 | 5850.2 | 5623.0 | 4845.4 |
| 40° | 5407.0 | 5432.6 | 5377.6 | 5225.1 | 5083.5 | 5061.4 | 5153.0 | 5562.1 | 6495.9 | 6253.0 | 5359.3 |
| 42.5° | 5809.9 | 5839.2 | 5773.3 | 5614.5 | 5502.2 | 5494.8 | 5637.7 | 6060.1 | 7138.1 | 6981.7 | 5941.7 |
| 45° | 6264.0 | 6305.5 | 6213.9 | 6035.7 | 5940.4 | 6101.6 | 6110.3 | 6612.0 | 7877.9 | 7797.3 | 6597.3 |
| 47.5° | 6759.7 | 6793.8 | 6719.3 | 6527.7 | 6423.9 | 6657.0 | 6572.8 | 7208.9 | 8677.5 | 8671.5 | 7306.6 |
| 50° | 7141.7 | 7179.7 | 7187.0 | 7102.7 | 6994.0 | 7023.3 | 7080.8 | 7836.4 | 9474.8 | 9569.9 | 8040.3 |
| 52.5° | 7072.2 | 7108.7 | 7273.6 | 7494.5 | 7669.1 | 7593.4 | 7663.0 | 8503.0 | 10245.0 | 10446.5 | 8737.4 |
| 55° | 6510.5 | 6530.1 | 6839.0 | 7364.0 | 8107.4 | 8468.8 | 8473.7 | 9228.1 | 10977.5 | 11259.6 | 9399.0 |
| 57.5° | 5498.6 | 5500.9 | 5902.6 | 6676.7 | 7852.3 | 9036.5 | 9753.0 | 10138.8 | 11741.8 | 12158.1 | 10219.4 |
| 60° | 3890.7 | 3900.4 | 4368.0 | 5380.2 | 6937.9 | 8968.1 | 11128.9 | 11768.7 | 12626.9 | 13167.7 | 11276.6 |
| 62.5° | 2309.7 | 2331.7 | 2684.6 | 3496.4 | 5153.0 | 8089.1 | 11942.0 | 14668.0 | 13930.7 | 14648.5 | 12968.6 |
| 65° | 1502.9 | 1521.1 | 1732.3 | 2140.1 | 3044.7 | 5885.6 | 11674.7 | 17475.9 | 16397.9 | 16977.8 | 15400.5 |
| 67.5° | 1157.4 | 1172.1 | 1338.0 | 1584.6 | 1867.9 | 3181.4 | 9334.3 | 18064.4 | 19401.1 | 19581.9 | 17452.7 |
| 69° | 1016.9 | 1029.1 | 1151.3 | 1388.0 | 1572.5 | 2105.9 | 6956.2 | 16996.2 | 20152.0 | 20250.8 | 17478.4 |
| 70° | 942.5 | 952.2 | 1067.0 | 1272.1 | 1444.2 | 1681.1 | 5323.9 | 15755.8 | 19877.3 | 20129.9 | 16974.2 |
| 72.5° | 776.4 | 785.0 | 866.8 | 1024.3 | 1180.5 | 1197.6 | 2358.6 | 11504.9 | 16737.3 | 17545.5 | 14364.1 |
| 75° | 648.2 | 653.2 | 706.8 | 821.6 | 955.9 | 953.5 | 1204.9 | 6516.7 | 10213.3 | 11176.5 | 8869.2 |
| 77.5° | 540.9 | 544.4 | 579.8 | 650.6 | 754.4 | 750.8 | 848.5 | 2812.8 | 4509.6 | 4350.9 | 3053.2 |
| 80° | 477.4 | 479.7 | 498.1 | 516.4 | 582.4 | 578.6 | 628.7 | 1291.7 | 1834.9 | 1695.7 | 1154.9 |
| 82.5° | 362.6 | 367.4 | 460.2 | 468.8 | 451.7 | 435.8 | 438.2 | 752.0 | 940.0 | 855.8 | 620.1 |
| 85° | 205.1 | 206.3 | 295.4 | 345.5 | 393.2 | 295.4 | 284.4 | 388.2 | 464.0 | 406.6 | 271.1 |
| 87.5° | 91.6 | 95.3 | 141.6 | 163.6 | 212.4 | 173.4 | 162.4 | 164.8 | 200.2 | 166.1 | 107.4 |
| 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° | 2618.6 | 2618.6 | 2618.6 | 2618.6 | 2618.6 | 2618.6 | 2618.6 | 2618.6 | 2618.6 | 2618.6 | 2618.6 |
| 2.5° | 2599.1 | 2578.4 | 2529.6 | 2479.4 | 2429.4 | 2397.7 | 2364.7 | 2334.3 | 2322.0 | 2320.7 | 2297.6 |
| 5° | 2610.1 | 2561.2 | 2450.1 | 2328.1 | 2212.1 | 2121.9 | 2046.1 | 1997.3 | 1949.6 | 1941.1 | 1920.3 |
| 7.5° | 2613.8 | 2534.4 | 2353.8 | 2158.4 | 1981.4 | 1856.9 | 1781.2 | 1748.2 | 1724.9 | 1718.8 | 1711.5 |
| 10° | 2612.5 | 2500.2 | 2246.3 | 1978.9 | 1777.5 | 1683.4 | 1655.4 | 1662.7 | 1672.5 | 1677.3 | 1677.3 |
| 12.5° | 2632.0 | 2484.3 | 2138.9 | 1810.4 | 1645.7 | 1600.5 | 1622.5 | 1660.3 | 1689.5 | 1701.8 | 1704.2 |
| 15° | 2667.4 | 2474.6 | 2020.4 | 1664.0 | 1552.9 | 1563.8 | 1617.6 | 1672.5 | 1714.1 | 1732.3 | 1737.2 |
| 17.5° | 2711.4 | 2461.2 | 1883.7 | 1543.1 | 1499.1 | 1537.0 | 1606.5 | 1676.1 | 1726.2 | 1749.5 | 1753.1 |
| 20° | 2760.2 | 2441.6 | 1742.1 | 1452.8 | 1451.5 | 1499.1 | 1568.8 | 1646.9 | 1700.6 | 1726.2 | 1724.9 |
| 22.5° | 2826.2 | 2423.3 | 1610.3 | 1386.8 | 1399.1 | 1443.0 | 1500.3 | 1571.1 | 1621.2 | 1644.5 | 1639.6 |
| 25° | 2914.1 | 2406.2 | 1491.8 | 1328.3 | 1339.2 | 1368.6 | 1408.8 | 1462.6 | 1498.0 | 1510.2 | 1501.5 |
| 27.5° | 3032.5 | 2392.8 | 1399.1 | 1274.5 | 1273.3 | 1286.7 | 1311.1 | 1340.5 | 1357.5 | 1353.8 | 1340.5 |
| 30° | 3177.8 | 2379.3 | 1330.7 | 1226.9 | 1209.8 | 1208.6 | 1219.6 | 1236.7 | 1247.6 | 1225.7 | 1214.8 |
| 32.5° | 3340.2 | 2356.1 | 1269.6 | 1185.5 | 1154.9 | 1144.0 | 1148.8 | 1172.1 | 1217.1 | 1195.2 | 1186.7 |
| 35° | 3531.8 | 2329.3 | 1208.6 | 1140.2 | 1117.0 | 1096.3 | 1099.9 | 1150.0 | 1286.7 | 1270.9 | 1262.3 |
| 37.5° | 3762.6 | 2305.0 | 1152.4 | 1091.4 | 1090.2 | 1064.5 | 1062.1 | 1121.9 | 1305.1 | 1270.9 | 1263.6 |
| 40° | 4039.7 | 2300.0 | 1102.4 | 1037.8 | 1057.2 | 1047.5 | 1038.9 | 1075.5 | 1203.7 | 1134.1 | 1120.7 |
| 42.5° | 4374.2 | 2322.0 | 1065.8 | 986.4 | 1019.4 | 1042.6 | 1026.7 | 1035.2 | 1087.7 | 1025.5 | 1014.5 |
| 45° | 4764.8 | 2381.9 | 1038.9 | 941.3 | 979.1 | 1038.9 | 1020.6 | 1013.3 | 1021.8 | 987.6 | 980.3 |
| 47.5° | 5220.2 | 2488.1 | 1020.6 | 903.3 | 941.3 | 1029.1 | 1018.2 | 1003.5 | 999.8 | 980.3 | 975.4 |
| 50° | 5707.2 | 2630.9 | 1008.4 | 869.2 | 907.1 | 1012.1 | 1016.9 | 996.2 | 990.1 | 981.5 | 979.1 |
| 52.5° | 6190.7 | 2785.9 | 993.7 | 839.8 | 879.0 | 991.3 | 1018.2 | 988.9 | 980.3 | 975.4 | 973.0 |
| 55° | 6671.7 | 2947.0 | 966.8 | 814.3 | 858.2 | 966.8 | 1016.9 | 979.1 | 969.3 | 969.3 | 969.3 |
| 57.5° | 7295.6 | 3192.4 | 931.4 | 793.6 | 831.4 | 935.1 | 1001.1 | 968.1 | 954.7 | 955.9 | 957.1 |
| 60° | 8196.5 | 3603.8 | 892.4 | 770.4 | 796.0 | 898.5 | 976.7 | 948.6 | 932.7 | 937.6 | 938.7 |
| 62.5° | 9701.7 | 4322.9 | 838.7 | 737.4 | 759.4 | 859.5 | 944.9 | 921.7 | 907.1 | 915.6 | 916.8 |
| 65° | 11708.8 | 5193.3 | 767.9 | 695.9 | 721.5 | 815.5 | 904.6 | 890.0 | 874.1 | 894.9 | 893.6 |
| 67.5° | 12933.2 | 5448.4 | 693.5 | 651.9 | 684.8 | 769.0 | 854.5 | 848.5 | 837.5 | 874.1 | 871.7 |
| 69° | 12531.6 | 4987.0 | 650.6 | 623.9 | 659.3 | 737.4 | 822.8 | 820.4 | 811.8 | 847.2 | 844.8 |
| 70° | 11907.8 | 4556.1 | 623.9 | 605.6 | 645.8 | 717.9 | 802.1 | 802.1 | 793.6 | 824.1 | 818.0 |
| 72.5° | 9565.1 | 3379.2 | 561.6 | 559.1 | 599.4 | 664.1 | 745.9 | 752.0 | 747.2 | 758.1 | 752.0 |
| 75° | 5615.7 | 2036.3 | 500.5 | 507.8 | 543.2 | 606.7 | 683.6 | 688.6 | 683.6 | 682.5 | 683.6 |
| 77.5° | 1947.2 | 913.2 | 442.0 | 452.9 | 483.5 | 548.2 | 615.2 | 625.1 | 617.8 | 609.2 | 611.7 |
| 80° | 761.7 | 531.0 | 378.5 | 394.3 | 420.0 | 482.3 | 547.0 | 553.1 | 542.0 | 540.9 | 531.0 |
| 82.5° | 457.8 | 323.5 | 294.2 | 319.8 | 351.6 | 418.8 | 472.4 | 470.1 | 461.5 | 511.6 | 448.1 |
| 85° | 199.0 | 179.5 | 214.9 | 240.5 | 256.3 | 313.8 | 399.3 | 388.2 | 367.4 | 323.5 | 316.2 |
| 87.5° | 80.6 | 92.8 | 118.4 | 142.8 | 153.8 | 202.6 | 273.4 | 263.7 | 267.3 | 219.7 | 218.5 |
| 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)