

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: P270521

Luminaire Tested: **NAV-AF-04-D-UNV-SL4-7027**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P270521
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24284)
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-SL4-7027
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 2700K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV
SPILL LIGHT ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 20220.5 lumens
Efficiency: N/A
Efficacy: 89.9 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B2 - U0 - G4

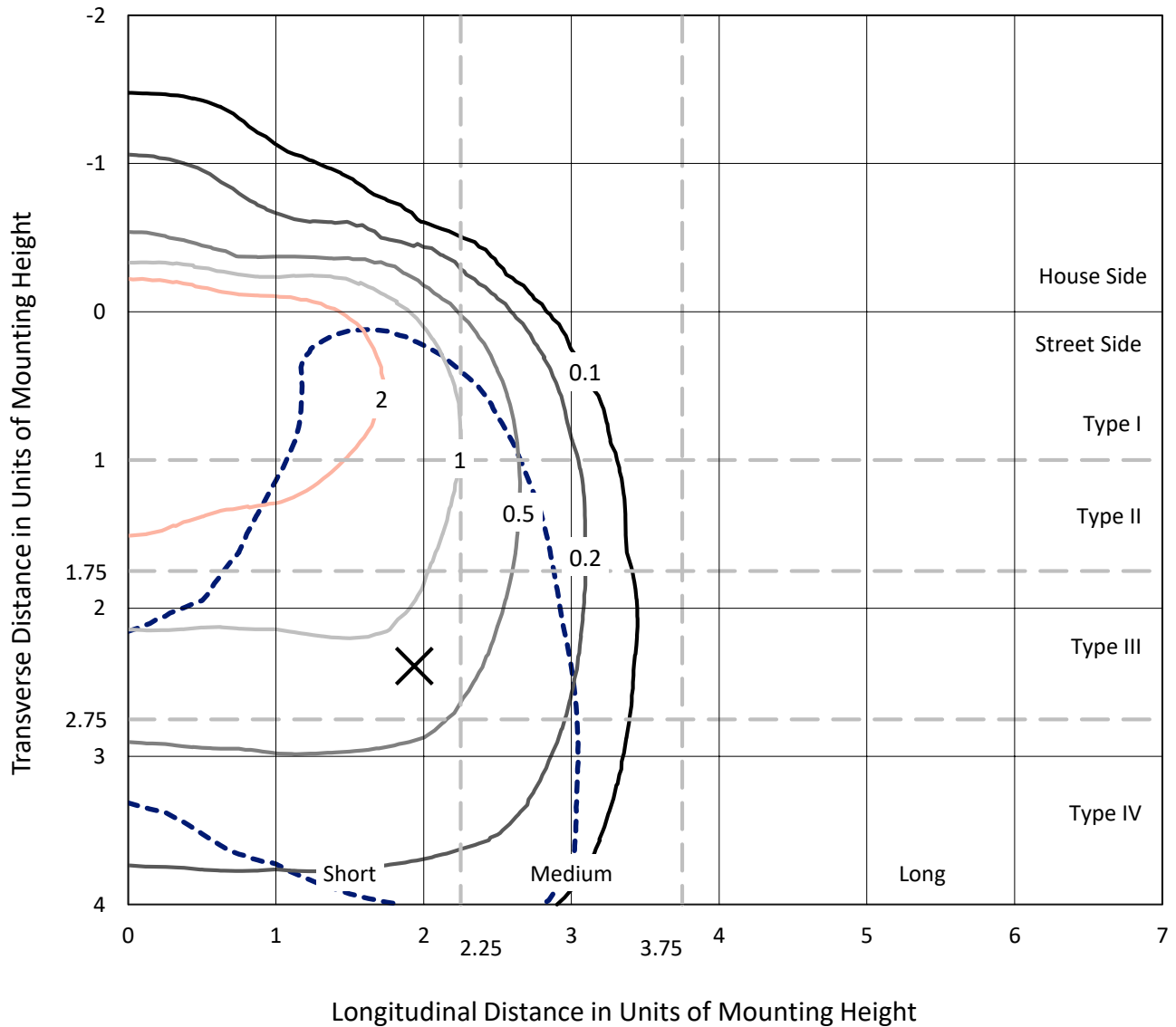
Input Watts (W): 225
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

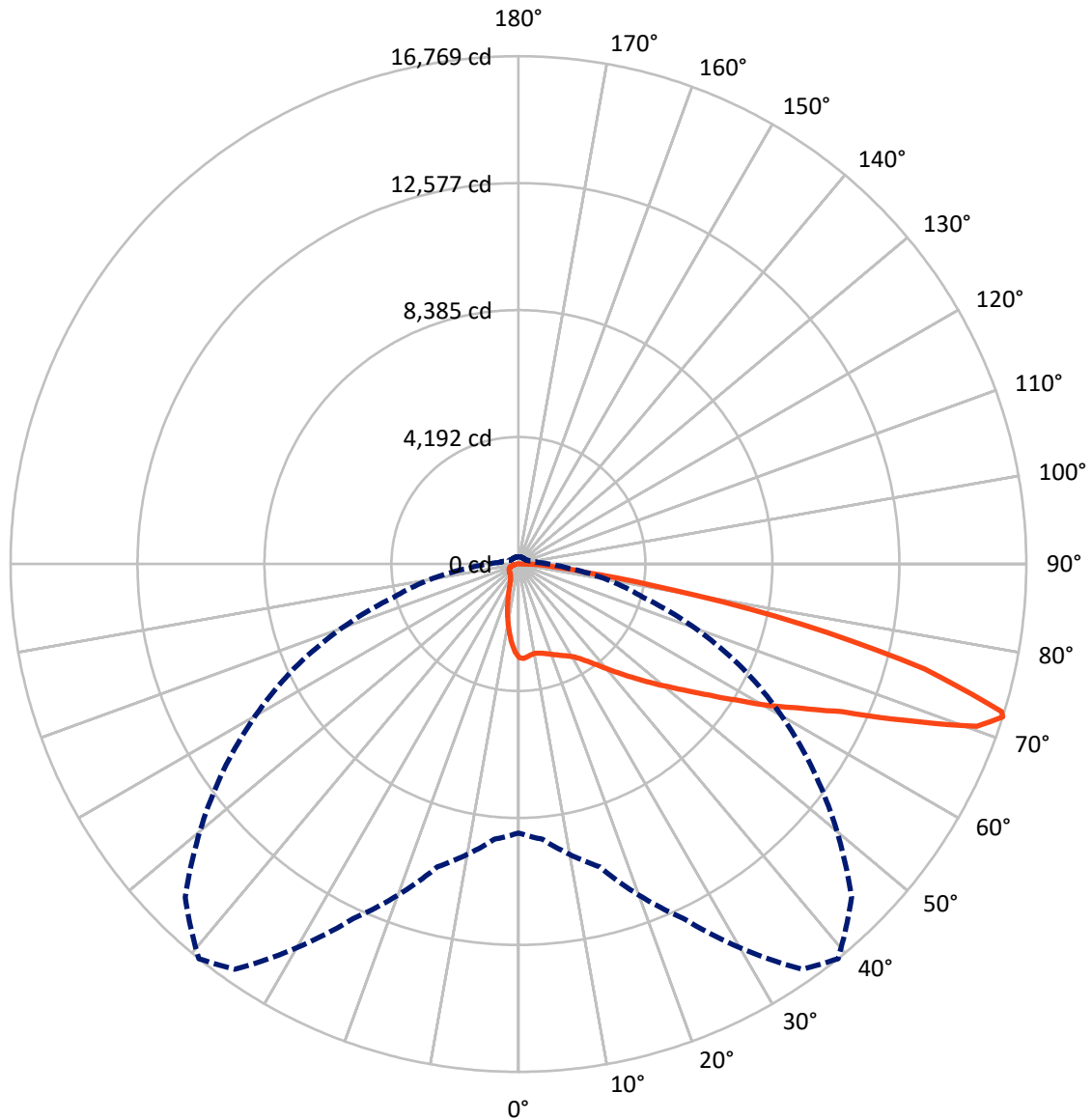
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 4.9 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 | 2318.6 | 0.0 | 2318.6 |
| | % Fixture | 11.5 | 0.0 | 11.5 |
| Street Side | Lumens | 17902.0 | 0.0 | 17902.0 |
| | % Fixture | 88.5 | 0.0 | 88.5 |
| Total | Lumens | 20220.5 | 0.0 | 20220.5 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 265.4 | 1.3 |
| 10°-20° | 666.8 | 3.3 |
| 20°-30° | 1039.2 | 5.1 |
| 30°-40° | 1600.0 | 7.9 |
| 40°-50° | 2608.4 | 12.9 |
| 50°-60° | 4053.1 | 20.0 |
| 60°-70° | 5424.9 | 26.8 |
| 70°-80° | 3901.3 | 19.3 |
| 80°-90° | 661.4 | 3.3 |
| 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° | 20220.5 | 100.0 |
| 0°-180° | 20220.5 | 100.0 |



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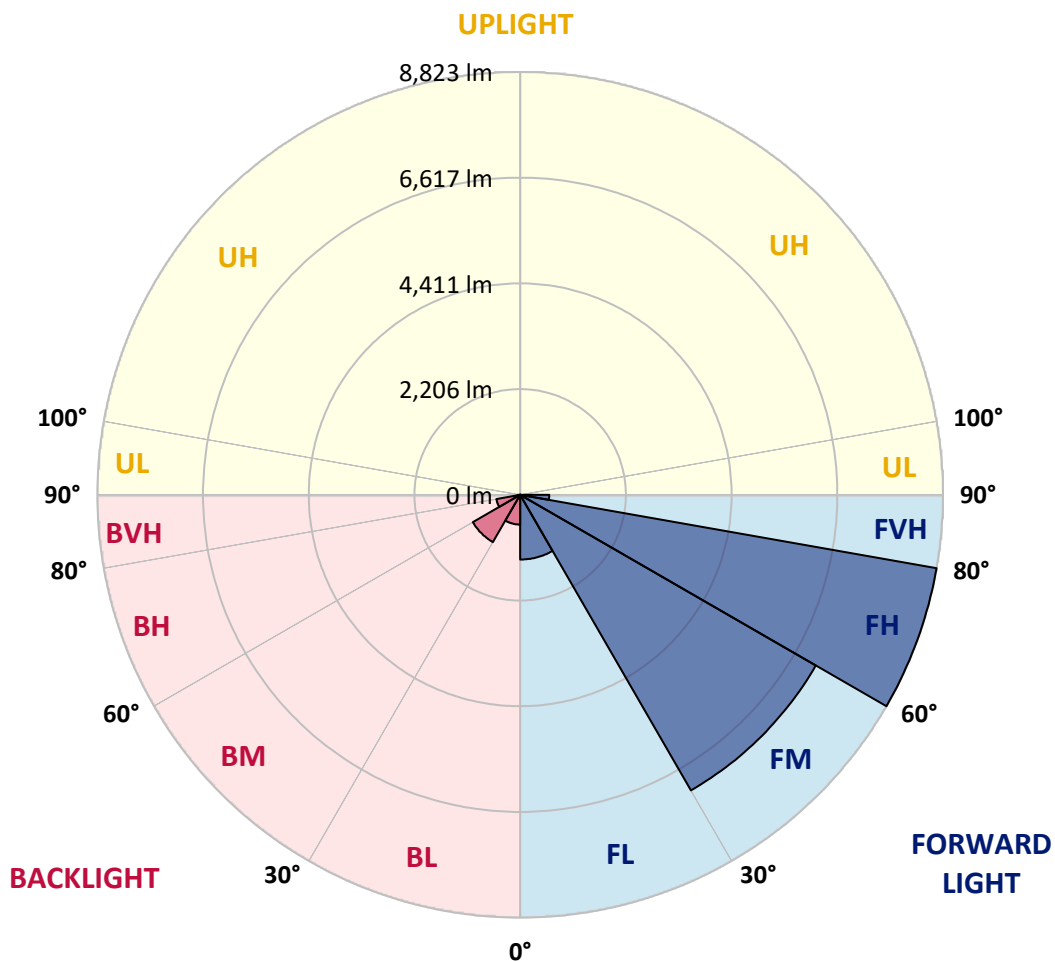
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|----------|
| | | | | B | U | G |
| FL | (0°-30°) | 1350.7 | 6.7 | | | |
| FM | (30°-60°) | 7122.1 | 35.2 | | | |
| FH | (60°-80°) | 8822.5 | 43.6 | | | G4/12000 |
| FVH | (80°-90°) | 606.7 | 3.0 | | | G4/750 |
| BL | (0°-30°) | 620.7 | 3.1 | B2/1000 | | |
| BM | (30°-60°) | 1139.5 | 5.6 | B2/2500 | | |
| BH | (60°-80°) | 503.7 | 2.5 | B2/1000 | | G2/1000 |
| BVH | (80°-90°) | 54.7 | 0.3 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G4

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 39° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0° | 3088.1 | 3088.1 | 3088.1 | 3088.1 | 3088.1 | 3088.1 | 3088.1 | 3088.1 | 3088.1 | 3088.1 | 3088.1 |
| 2.5° | 3154.6 | 3155.8 | 3151.9 | 3139.5 | 3128.7 | 3123.3 | 3113.9 | 3097.5 | 3075.7 | 3060.9 | 3048.7 |
| 5° | 3124.7 | 3128.7 | 3126.0 | 3105.7 | 3086.7 | 3075.7 | 3060.9 | 3037.8 | 3009.3 | 2997.0 | 2968.5 |
| 7.5° | 3101.6 | 3104.4 | 3096.2 | 3073.1 | 3036.5 | 3022.8 | 2995.8 | 2965.8 | 2940.1 | 2922.5 | 2888.5 |
| 10° | 3085.3 | 3088.1 | 3081.2 | 3058.2 | 3017.4 | 3001.1 | 2968.5 | 2936.0 | 2902.1 | 2880.3 | 2842.3 |
| 12.5° | 3062.2 | 3067.7 | 3067.7 | 3056.8 | 3029.7 | 3018.8 | 2986.2 | 2950.9 | 2919.8 | 2896.7 | 2849.2 |
| 15° | 3058.2 | 3064.9 | 3077.1 | 3075.7 | 3067.7 | 3059.5 | 3033.8 | 2998.5 | 2971.4 | 2944.1 | 2885.7 |
| 17.5° | 3092.1 | 3107.1 | 3131.5 | 3139.5 | 3134.1 | 3116.5 | 3086.7 | 3054.1 | 3024.2 | 2998.5 | 2926.5 |
| 20° | 3177.7 | 3185.7 | 3222.4 | 3238.7 | 3211.5 | 3185.7 | 3146.5 | 3104.4 | 3077.1 | 3056.8 | 2964.4 |
| 22.5° | 3306.7 | 3317.4 | 3347.3 | 3348.6 | 3291.6 | 3260.4 | 3210.3 | 3158.6 | 3132.7 | 3124.7 | 3016.1 |
| 25° | 3512.9 | 3510.1 | 3518.3 | 3484.3 | 3381.2 | 3344.6 | 3283.5 | 3223.7 | 3206.1 | 3222.4 | 3092.1 |
| 27.5° | 3759.9 | 3753.2 | 3727.3 | 3639.2 | 3483.0 | 3435.5 | 3362.3 | 3309.3 | 3309.3 | 3347.3 | 3195.4 |
| 30° | 4045.0 | 4038.2 | 3954.0 | 3806.1 | 3603.8 | 3549.6 | 3472.2 | 3416.6 | 3445.0 | 3518.3 | 3335.0 |
| 32.5° | 4346.3 | 4321.8 | 4203.8 | 4005.6 | 3776.3 | 3716.5 | 3641.9 | 3584.9 | 3639.2 | 3764.0 | 3536.0 |
| 35° | 4630.0 | 4616.4 | 4471.3 | 4236.3 | 3998.9 | 3948.6 | 3897.0 | 3826.4 | 3913.3 | 4107.4 | 3819.7 |
| 37.5° | 4923.3 | 4912.3 | 4734.5 | 4484.8 | 4270.4 | 4236.3 | 4192.8 | 4144.2 | 4283.8 | 4539.0 | 4203.8 |
| 40° | 5250.4 | 5228.7 | 5004.6 | 4754.9 | 4586.6 | 4570.2 | 4547.2 | 4533.7 | 4759.0 | 5139.1 | 4689.7 |
| 42.5° | 5620.9 | 5578.8 | 5289.7 | 5052.2 | 4931.3 | 4944.9 | 4932.8 | 4987.0 | 5331.8 | 5831.3 | 5268.0 |
| 45° | 6044.3 | 5960.3 | 5573.4 | 5368.5 | 5312.8 | 5367.1 | 5392.9 | 5531.4 | 6009.1 | 6630.7 | 5914.1 |
| 47.5° | 6440.8 | 6332.2 | 5884.2 | 5711.9 | 5743.0 | 5836.6 | 5909.9 | 6154.4 | 6751.7 | 7420.8 | 6573.7 |
| 50° | 6805.9 | 6683.7 | 6216.8 | 6067.5 | 6219.4 | 6352.5 | 6504.5 | 6849.3 | 7541.6 | 8233.9 | 7179.2 |
| 52.5° | 7075.9 | 6987.7 | 6549.4 | 6455.7 | 6766.6 | 6943.0 | 7185.9 | 7621.7 | 8339.8 | 9008.9 | 7719.3 |
| 55° | 7285.1 | 7237.6 | 6873.7 | 6900.9 | 7385.4 | 7638.0 | 7932.6 | 8433.4 | 9184.0 | 9703.9 | 8153.7 |
| 57.5° | 7526.7 | 7491.3 | 7244.3 | 7438.4 | 8153.7 | 8471.3 | 8818.9 | 9375.4 | 9987.5 | 10316.0 | 8494.5 |
| 60° | 7781.8 | 7781.8 | 7657.0 | 8086.0 | 9114.8 | 9478.6 | 9824.8 | 10257.7 | 10788.5 | 10867.2 | 8632.9 |
| 62.5° | 7974.6 | 8024.7 | 8069.7 | 8775.5 | 10026.9 | 10479.0 | 10859.0 | 11274.4 | 11617.8 | 11138.7 | 8307.2 |
| 65° | 8254.2 | 8361.5 | 8613.8 | 9572.2 | 11156.3 | 11748.2 | 12261.1 | 12610.0 | 12289.7 | 10922.9 | 7244.3 |
| 67.5° | 8734.7 | 8893.5 | 9431.0 | 10758.6 | 12885.6 | 13771.9 | 14270.0 | 13667.4 | 12158.0 | 9564.1 | 5549.0 |
| 70° | 9167.7 | 9391.7 | 10310.7 | 12263.9 | 15133.3 | 16053.7 | 15824.4 | 13421.8 | 10589.0 | 7010.8 | 3413.7 |
| 72° | 8879.9 | 9124.3 | 10351.3 | 12919.6 | 16334.7 | 16769.0 | 15559.6 | 11894.6 | 8182.2 | 4278.4 | 1683.2 |
| 72.5° | 8691.3 | 8945.1 | 10219.7 | 12903.3 | 16367.3 | 16678.1 | 15191.7 | 11287.9 | 7427.5 | 3743.6 | 1361.4 |
| 75° | 7260.6 | 7477.9 | 8787.7 | 11436.0 | 14423.5 | 13853.4 | 11855.3 | 7305.3 | 3413.7 | 1209.4 | 700.4 |
| 77.5° | 4741.3 | 4906.9 | 6059.3 | 7923.1 | 10103.0 | 9554.6 | 7215.8 | 3420.6 | 1280.1 | 734.4 | 526.6 |
| 80° | 2382.1 | 2500.3 | 3242.8 | 4165.8 | 5452.6 | 5016.9 | 3330.9 | 1654.7 | 856.5 | 530.7 | 413.9 |
| 82.5° | 1657.4 | 1766.0 | 2232.8 | 2126.9 | 2279.0 | 2205.8 | 1566.5 | 1380.4 | 640.8 | 335.2 | 217.2 |
| 85° | 1389.9 | 1502.7 | 1847.4 | 1516.2 | 1240.6 | 1130.6 | 1122.5 | 1304.5 | 423.6 | 165.6 | 183.3 |
| 87.5° | 1212.2 | 1383.2 | 1524.3 | 1107.6 | 851.1 | 750.7 | 826.6 | 1195.9 | 134.3 | 91.0 | 55.7 |
| 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° | 3088.1 | 3088.1 | 3088.1 | 3088.1 | 3088.1 | 3088.1 | 3088.1 | 3088.1 | 3088.1 | 3088.1 | 3088.1 |
| 2.5° | 3028.2 | 3024.2 | 3003.9 | 2972.6 | 2949.6 | 2934.7 | 2906.1 | 2904.8 | 2907.5 | 2883.1 | 2892.5 |
| 5° | 2942.8 | 2926.5 | 2873.6 | 2801.6 | 2743.2 | 2687.5 | 2626.6 | 2606.2 | 2588.6 | 2551.8 | 2555.9 |
| 7.5° | 2853.1 | 2824.7 | 2732.5 | 2614.2 | 2501.6 | 2398.5 | 2296.6 | 2246.4 | 2208.5 | 2161.0 | 2161.0 |
| 10° | 2800.2 | 2755.6 | 2614.2 | 2442.0 | 2262.7 | 2112.1 | 1960.0 | 1869.2 | 1802.5 | 1741.5 | 1737.4 |
| 12.5° | 2797.5 | 2729.7 | 2533.0 | 2295.3 | 2049.7 | 1837.9 | 1630.2 | 1490.4 | 1391.4 | 1319.4 | 1312.6 |
| 15° | 2819.3 | 2724.3 | 2464.9 | 2158.2 | 1848.7 | 1573.2 | 1316.6 | 1138.8 | 1012.6 | 932.5 | 924.4 |
| 17.5° | 2838.3 | 2717.5 | 2391.6 | 2014.4 | 1653.3 | 1318.1 | 1033.1 | 848.4 | 729.0 | 663.8 | 657.0 |
| 20° | 2855.9 | 2702.6 | 2298.0 | 1862.4 | 1437.5 | 1079.1 | 807.7 | 658.3 | 579.5 | 542.9 | 538.9 |
| 22.5° | 2881.8 | 2688.9 | 2200.3 | 1691.2 | 1225.6 | 878.3 | 666.5 | 559.3 | 517.2 | 499.5 | 496.9 |
| 25° | 2923.9 | 2690.3 | 2105.3 | 1516.2 | 1031.7 | 731.6 | 576.9 | 510.3 | 487.3 | 475.1 | 475.1 |
| 27.5° | 2984.9 | 2706.7 | 2011.7 | 1338.4 | 867.4 | 631.1 | 523.9 | 484.5 | 469.6 | 460.1 | 457.4 |
| 30° | 3074.4 | 2736.4 | 1912.5 | 1170.0 | 737.1 | 562.0 | 492.7 | 468.2 | 456.1 | 448.0 | 446.5 |
| 32.5° | 3204.8 | 2789.3 | 1808.0 | 1016.7 | 637.9 | 513.1 | 469.6 | 454.7 | 445.2 | 438.5 | 437.0 |
| 35° | 3398.8 | 2883.1 | 1706.2 | 886.4 | 567.4 | 477.8 | 450.7 | 438.5 | 433.1 | 430.3 | 428.9 |
| 37.5° | 3683.9 | 3033.8 | 1609.9 | 784.6 | 521.2 | 454.7 | 431.6 | 424.9 | 422.2 | 422.2 | 422.2 |
| 40° | 4042.3 | 3231.9 | 1522.9 | 712.6 | 495.4 | 437.0 | 418.2 | 412.6 | 412.6 | 413.9 | 413.9 |
| 42.5° | 4478.1 | 3480.4 | 1448.2 | 663.8 | 480.6 | 424.9 | 408.5 | 405.9 | 404.4 | 404.4 | 405.9 |
| 45° | 4984.2 | 3773.5 | 1402.2 | 625.8 | 469.6 | 418.2 | 401.8 | 400.5 | 395.0 | 392.3 | 392.3 |
| 47.5° | 5493.2 | 4087.1 | 1399.5 | 604.0 | 456.1 | 409.9 | 395.0 | 395.0 | 384.1 | 378.7 | 380.1 |
| 50° | 5968.3 | 4368.1 | 1429.4 | 598.6 | 448.0 | 397.7 | 388.2 | 389.5 | 374.7 | 367.9 | 366.5 |
| 52.5° | 6351.1 | 4582.6 | 1465.9 | 605.4 | 448.0 | 386.9 | 376.0 | 382.8 | 366.5 | 358.3 | 356.9 |
| 55° | 6647.1 | 4731.8 | 1479.6 | 620.3 | 453.4 | 377.4 | 365.2 | 376.0 | 363.8 | 352.9 | 352.9 |
| 57.5° | 6858.7 | 4779.3 | 1421.2 | 627.0 | 461.5 | 376.0 | 354.3 | 374.7 | 367.9 | 354.3 | 354.3 |
| 60° | 6781.5 | 4503.8 | 1204.0 | 601.3 | 460.1 | 373.2 | 346.1 | 377.4 | 381.4 | 366.5 | 366.5 |
| 62.5° | 6177.5 | 3768.1 | 966.4 | 542.9 | 437.0 | 363.8 | 336.7 | 374.7 | 390.9 | 385.6 | 382.8 |
| 65° | 5029.2 | 2763.6 | 749.2 | 473.8 | 397.7 | 343.4 | 316.3 | 350.2 | 369.3 | 374.7 | 376.0 |
| 67.5° | 3544.2 | 1749.7 | 582.3 | 403.1 | 348.8 | 313.6 | 293.1 | 309.5 | 316.3 | 319.0 | 324.4 |
| 70° | 1938.4 | 947.4 | 462.8 | 339.3 | 298.6 | 283.7 | 268.8 | 270.1 | 267.3 | 264.7 | 267.3 |
| 72° | 973.3 | 618.9 | 390.9 | 294.6 | 264.7 | 255.2 | 248.4 | 244.2 | 244.2 | 240.2 | 241.6 |
| 72.5° | 837.5 | 575.5 | 377.4 | 283.7 | 256.6 | 248.4 | 243.0 | 238.9 | 237.5 | 234.8 | 236.2 |
| 75° | 557.8 | 456.1 | 314.9 | 237.5 | 218.6 | 213.1 | 215.9 | 211.7 | 213.1 | 210.5 | 211.7 |
| 77.5° | 450.7 | 392.3 | 267.3 | 201.0 | 187.3 | 179.2 | 184.6 | 185.9 | 188.6 | 185.9 | 184.6 |
| 80° | 377.4 | 333.9 | 223.9 | 165.6 | 156.0 | 149.3 | 152.1 | 161.5 | 163.0 | 154.8 | 153.4 |
| 82.5° | 244.2 | 268.8 | 176.4 | 128.9 | 119.5 | 116.7 | 123.5 | 132.9 | 135.7 | 124.9 | 122.2 |
| 85° | 205.0 | 215.9 | 127.6 | 88.3 | 78.7 | 75.9 | 89.7 | 99.2 | 105.9 | 95.0 | 92.3 |
| 87.5° | 57.0 | 105.9 | 62.4 | 42.1 | 35.4 | 35.4 | 43.5 | 51.7 | 61.1 | 62.4 | 62.4 |
| 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)