

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: P196667

Luminaire Tested: **NAV-AF-05-D-UNV-SL4-7030-800**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196667
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-05-D-UNV-SL4-7030-800
Description: NAVION ROADWAY AND AREA LUMINAIRE
(5) 70 CRI, 3000K, 800mA 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: 22414.5 lumens
Efficiency: N/A
Efficacy: 106.7 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1.5' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B2 - U0 - G4

Input Watts (W): 210
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

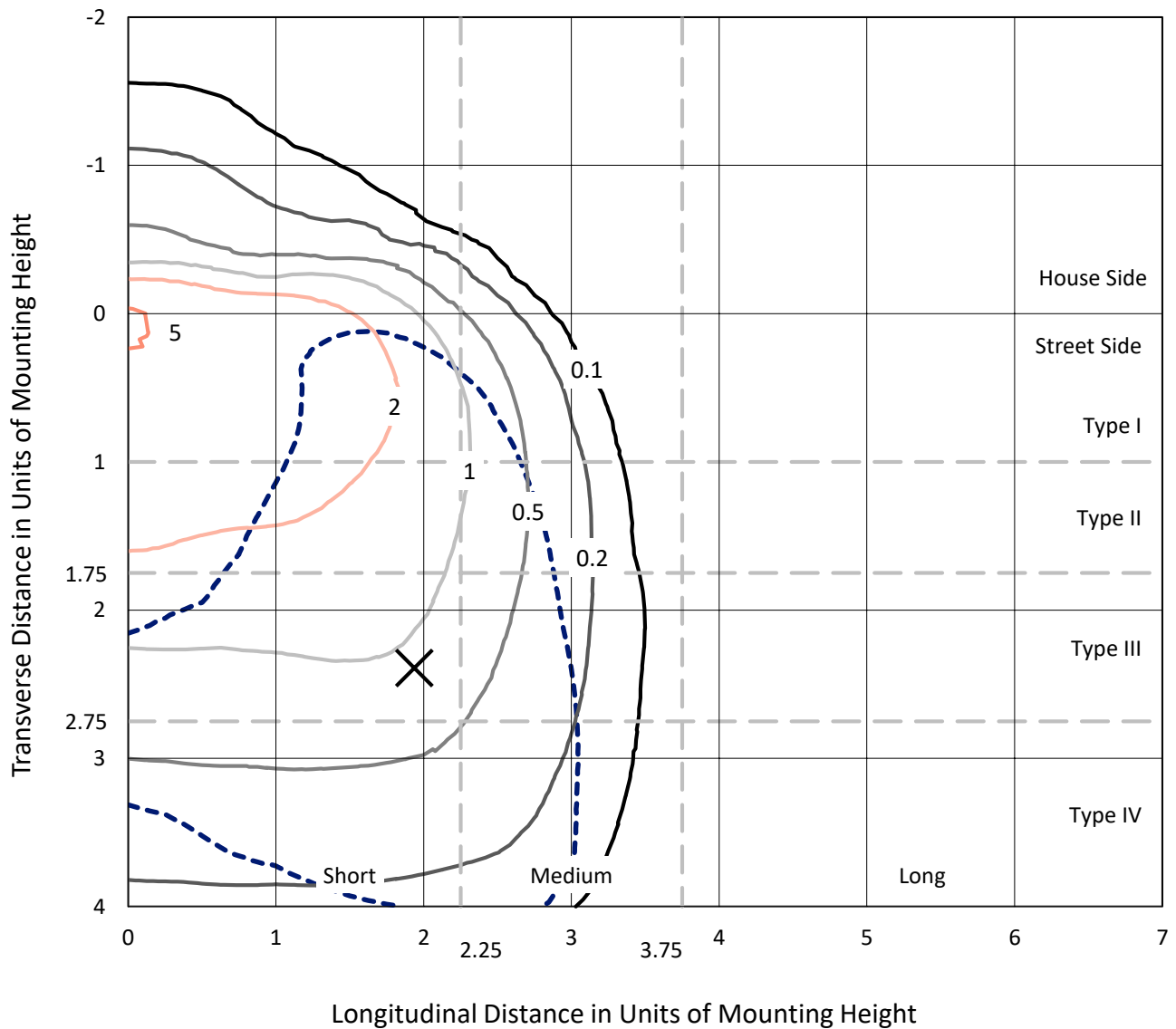


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Iso-Footcandle Lines of Horizontal Illumination

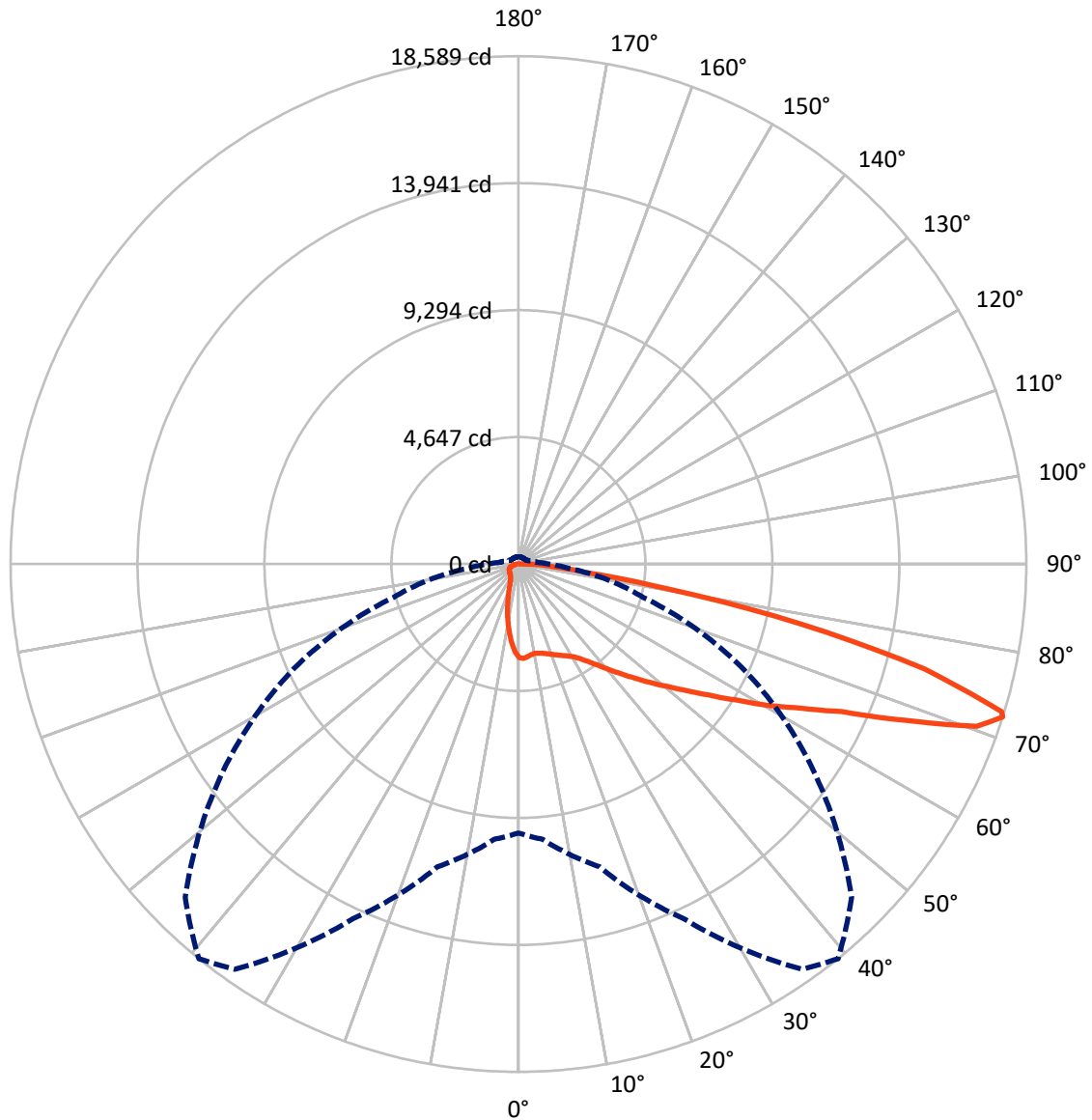
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 5.5 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 | 2570.1 | 0.0 | 2570.1 |
| | % Fixture | 11.5 | 0.0 | 11.5 |
| Street Side | Lumens | 19844.4 | 0.0 | 19844.4 |
| | % Fixture | 88.5 | 0.0 | 88.5 |
| Total | Lumens | 22414.5 | 0.0 | 22414.5 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 294.2 | 1.3 |
| 10°-20° | 739.2 | 3.3 |
| 20°-30° | 1151.9 | 5.1 |
| 30°-40° | 1773.6 | 7.9 |
| 40°-50° | 2891.4 | 12.9 |
| 50°-60° | 4492.9 | 20.0 |
| 60°-70° | 6013.6 | 26.8 |
| 70°-80° | 4324.6 | 19.3 |
| 80°-90° | 733.1 | 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° | 22414.5 | 100.0 |
| 0°-180° | 22414.5 | 100.0 |



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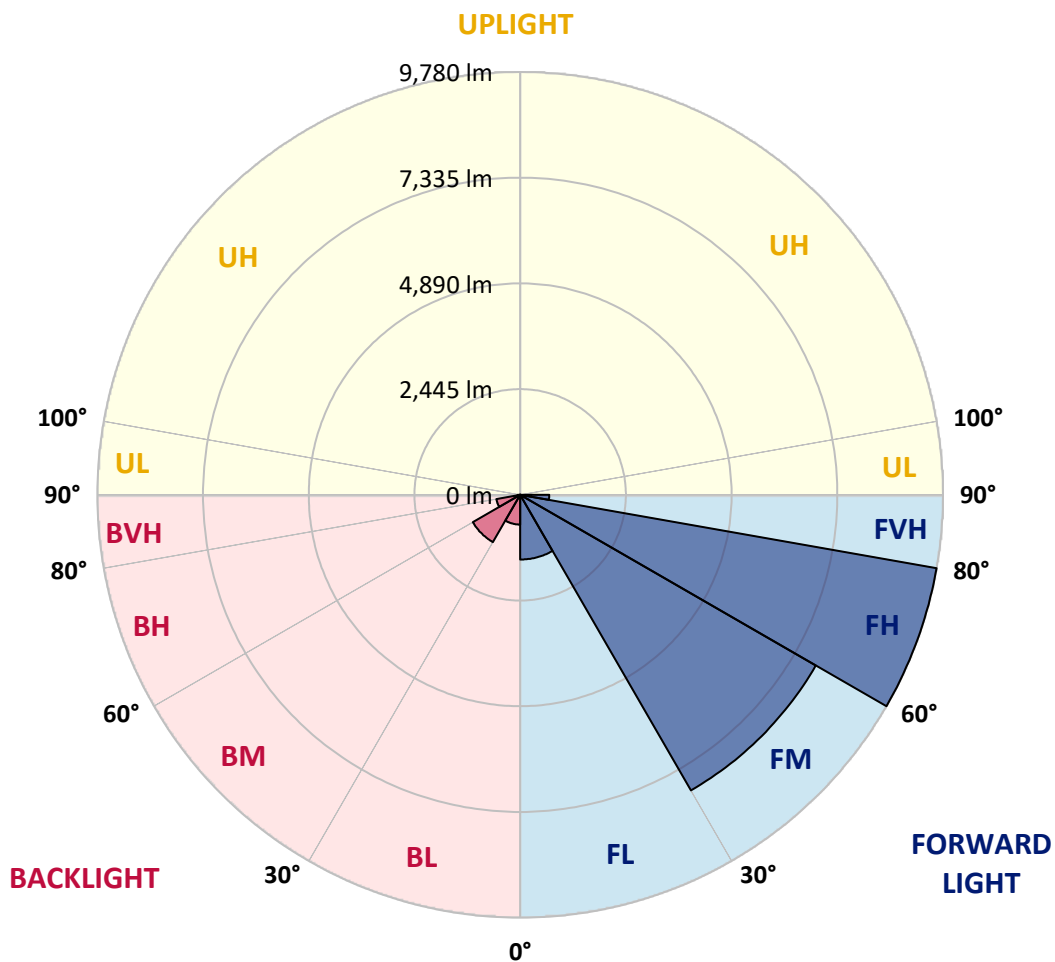
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|----------|
| | | | | B | U | G |
| FL | (0°-30°) | 1497.2 | 6.7 | | | |
| FM | (30°-60°) | 7894.8 | 35.2 | | | |
| FH | (60°-80°) | 9779.8 | 43.6 | | | G4/12000 |
| FVH | (80°-90°) | 672.5 | 3.0 | | | G4/750 |
| BL | (0°-30°) | 688.0 | 3.1 | B2/1000 | | |
| BM | (30°-60°) | 1263.1 | 5.6 | B2/2500 | | |
| BH | (60°-80°) | 558.4 | 2.5 | B2/1000 | | G2/1000 |
| BVH | (80°-90°) | 60.6 | 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° | 3423.1 | 3423.1 | 3423.1 | 3423.1 | 3423.1 | 3423.1 | 3423.1 | 3423.1 | 3423.1 | 3423.1 | 3423.1 |
| 2.5° | 3496.9 | 3498.4 | 3493.8 | 3480.2 | 3468.2 | 3462.2 | 3451.7 | 3433.6 | 3409.6 | 3393.0 | 3379.5 |
| 5° | 3463.7 | 3468.2 | 3465.2 | 3442.6 | 3421.6 | 3409.6 | 3393.0 | 3367.5 | 3335.8 | 3322.2 | 3290.7 |
| 7.5° | 3438.2 | 3441.1 | 3432.2 | 3406.6 | 3366.0 | 3350.9 | 3320.8 | 3287.7 | 3259.1 | 3239.5 | 3202.0 |
| 10° | 3420.2 | 3423.1 | 3415.6 | 3390.0 | 3344.9 | 3326.8 | 3290.7 | 3254.7 | 3216.9 | 3192.9 | 3150.7 |
| 12.5° | 3394.4 | 3400.5 | 3400.5 | 3388.4 | 3358.4 | 3346.4 | 3310.2 | 3271.1 | 3236.5 | 3210.9 | 3158.2 |
| 15° | 3390.0 | 3397.5 | 3411.1 | 3409.6 | 3400.5 | 3391.5 | 3362.9 | 3323.7 | 3293.7 | 3263.6 | 3198.9 |
| 17.5° | 3427.6 | 3444.2 | 3471.2 | 3480.2 | 3474.2 | 3454.7 | 3421.6 | 3385.5 | 3352.4 | 3323.7 | 3244.0 |
| 20° | 3522.4 | 3531.5 | 3572.0 | 3590.2 | 3560.0 | 3531.5 | 3487.8 | 3441.1 | 3411.1 | 3388.4 | 3286.2 |
| 22.5° | 3665.3 | 3677.3 | 3710.5 | 3712.0 | 3648.8 | 3614.2 | 3558.6 | 3501.3 | 3472.8 | 3463.7 | 3343.4 |
| 25° | 3894.1 | 3891.0 | 3900.1 | 3862.5 | 3748.1 | 3707.5 | 3639.8 | 3573.6 | 3553.9 | 3572.0 | 3427.6 |
| 27.5° | 4167.9 | 4160.4 | 4131.7 | 4034.0 | 3861.0 | 3808.3 | 3727.1 | 3668.4 | 3668.4 | 3710.5 | 3541.9 |
| 30° | 4483.9 | 4476.4 | 4383.1 | 4219.0 | 3994.8 | 3934.7 | 3848.8 | 3787.3 | 3818.8 | 3900.1 | 3696.9 |
| 32.5° | 4817.9 | 4790.8 | 4659.9 | 4440.3 | 4185.9 | 4119.7 | 4037.0 | 3973.8 | 4034.0 | 4172.4 | 3919.6 |
| 35° | 5132.4 | 5117.3 | 4956.3 | 4696.1 | 4432.7 | 4377.0 | 4319.9 | 4241.7 | 4337.9 | 4553.1 | 4234.2 |
| 37.5° | 5457.4 | 5445.4 | 5248.3 | 4971.4 | 4733.6 | 4696.1 | 4647.9 | 4593.7 | 4748.7 | 5031.6 | 4659.9 |
| 40° | 5820.0 | 5795.9 | 5547.6 | 5270.7 | 5084.3 | 5066.3 | 5040.5 | 5025.6 | 5275.4 | 5696.7 | 5198.5 |
| 42.5° | 6230.8 | 6184.2 | 5863.6 | 5600.3 | 5466.5 | 5481.4 | 5468.0 | 5528.1 | 5910.3 | 6464.0 | 5839.6 |
| 45° | 6700.3 | 6607.0 | 6178.2 | 5951.0 | 5889.3 | 5949.3 | 5978.0 | 6131.5 | 6661.1 | 7350.3 | 6555.8 |
| 47.5° | 7139.6 | 7019.3 | 6522.7 | 6331.6 | 6366.2 | 6470.0 | 6551.3 | 6822.1 | 7484.2 | 8226.0 | 7287.0 |
| 50° | 7544.4 | 7409.0 | 6891.3 | 6725.8 | 6894.4 | 7041.8 | 7210.3 | 7592.5 | 8359.9 | 9127.3 | 7958.1 |
| 52.5° | 7843.8 | 7746.1 | 7259.9 | 7156.2 | 7500.7 | 7696.3 | 7965.6 | 8448.7 | 9244.7 | 9986.4 | 8556.9 |
| 55° | 8075.5 | 8022.8 | 7619.6 | 7649.7 | 8186.9 | 8466.7 | 8793.1 | 9348.4 | 10180.6 | 10756.8 | 9038.5 |
| 57.5° | 8343.4 | 8304.2 | 8030.3 | 8245.6 | 9038.5 | 9390.7 | 9775.8 | 10392.7 | 11071.2 | 11435.4 | 9416.2 |
| 60° | 8626.2 | 8626.2 | 8487.8 | 8963.3 | 10103.8 | 10507.0 | 10890.8 | 11370.7 | 11959.1 | 12046.3 | 9569.7 |
| 62.5° | 8839.8 | 8895.6 | 8945.2 | 9727.7 | 11115.0 | 11616.0 | 12037.3 | 12497.7 | 12878.4 | 12347.3 | 9208.5 |
| 65° | 9149.8 | 9268.7 | 9548.6 | 10610.8 | 12366.8 | 13022.8 | 13591.7 | 13978.3 | 13623.2 | 12108.0 | 8030.3 |
| 67.5° | 9682.4 | 9858.6 | 10454.4 | 11925.9 | 14283.8 | 15266.2 | 15818.4 | 15150.4 | 13477.2 | 10601.9 | 6151.1 |
| 70° | 10162.4 | 10410.8 | 11429.4 | 13594.6 | 16775.4 | 17795.6 | 17541.3 | 14878.1 | 11737.8 | 7771.6 | 3784.2 |
| 72° | 9843.5 | 10114.3 | 11474.5 | 14321.3 | 18107.1 | 18588.6 | 17247.8 | 13185.3 | 9070.0 | 4742.7 | 1865.8 |
| 72.5° | 9634.4 | 9915.8 | 11328.5 | 14303.3 | 18143.1 | 18487.8 | 16840.1 | 12512.8 | 8233.4 | 4149.8 | 1509.2 |
| 75° | 8048.5 | 8289.2 | 9741.1 | 12676.8 | 15988.6 | 15356.6 | 13141.7 | 8098.1 | 3784.2 | 1340.6 | 776.4 |
| 77.5° | 5255.8 | 5439.4 | 6716.8 | 8782.7 | 11199.2 | 10591.3 | 7998.8 | 3791.8 | 1418.8 | 814.0 | 583.8 |
| 80° | 2640.7 | 2771.6 | 3594.6 | 4617.9 | 6044.2 | 5561.2 | 3692.4 | 1834.1 | 949.5 | 588.4 | 458.9 |
| 82.5° | 1837.2 | 1957.6 | 2475.2 | 2357.9 | 2526.3 | 2445.1 | 1736.3 | 1530.2 | 710.1 | 371.7 | 240.7 |
| 85° | 1540.8 | 1665.6 | 2047.8 | 1680.7 | 1375.2 | 1253.4 | 1244.4 | 1445.9 | 469.5 | 183.5 | 203.1 |
| 87.5° | 1343.7 | 1533.2 | 1689.7 | 1227.8 | 943.5 | 832.1 | 916.3 | 1325.7 | 148.9 | 100.8 | 61.7 |
| 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° | 3423.1 | 3423.1 | 3423.1 | 3423.1 | 3423.1 | 3423.1 | 3423.1 | 3423.1 | 3423.1 | 3423.1 | 3423.1 |
| 2.5° | 3356.9 | 3352.4 | 3329.7 | 3295.3 | 3269.6 | 3253.0 | 3221.5 | 3220.0 | 3222.9 | 3196.0 | 3206.4 |
| 5° | 3262.2 | 3244.0 | 3185.4 | 3105.5 | 3040.9 | 2979.3 | 2911.5 | 2889.0 | 2869.3 | 2828.7 | 2833.3 |
| 7.5° | 3162.8 | 3131.2 | 3028.8 | 2898.0 | 2773.1 | 2658.8 | 2545.8 | 2490.2 | 2448.1 | 2395.4 | 2395.4 |
| 10° | 3104.2 | 3054.5 | 2898.0 | 2706.9 | 2508.3 | 2341.2 | 2172.7 | 2071.9 | 1998.3 | 1930.5 | 1925.9 |
| 12.5° | 3101.1 | 3025.8 | 2807.8 | 2544.4 | 2272.0 | 2037.3 | 1807.1 | 1652.1 | 1542.3 | 1462.6 | 1455.0 |
| 15° | 3125.2 | 3019.8 | 2732.5 | 2392.4 | 2049.3 | 1743.9 | 1459.4 | 1262.4 | 1122.5 | 1033.7 | 1024.7 |
| 17.5° | 3146.2 | 3012.3 | 2651.1 | 2232.9 | 1832.8 | 1461.1 | 1145.0 | 940.4 | 808.0 | 735.8 | 728.2 |
| 20° | 3165.8 | 2995.8 | 2547.4 | 2064.4 | 1593.4 | 1196.2 | 895.3 | 729.8 | 642.5 | 601.9 | 597.3 |
| 22.5° | 3194.4 | 2980.7 | 2439.1 | 1874.8 | 1358.7 | 973.5 | 738.8 | 619.9 | 573.3 | 553.7 | 550.6 |
| 25° | 3241.0 | 2982.2 | 2333.8 | 1680.7 | 1143.5 | 811.0 | 639.5 | 565.8 | 540.2 | 526.6 | 526.6 |
| 27.5° | 3308.7 | 3000.3 | 2229.9 | 1483.6 | 961.5 | 699.7 | 580.8 | 537.1 | 520.6 | 510.1 | 507.1 |
| 30° | 3408.1 | 3033.4 | 2120.0 | 1297.0 | 817.0 | 622.9 | 546.2 | 519.1 | 505.6 | 496.6 | 495.1 |
| 32.5° | 3552.4 | 3092.0 | 2004.3 | 1127.0 | 707.2 | 568.8 | 520.6 | 504.0 | 493.6 | 485.9 | 484.4 |
| 35° | 3767.7 | 3196.0 | 1891.4 | 982.6 | 628.9 | 529.7 | 499.6 | 485.9 | 479.9 | 477.0 | 475.5 |
| 37.5° | 4083.7 | 3362.9 | 1784.5 | 869.7 | 577.8 | 504.0 | 478.4 | 470.9 | 467.9 | 467.9 | 467.9 |
| 40° | 4480.8 | 3582.6 | 1688.3 | 790.0 | 549.2 | 484.4 | 463.5 | 457.5 | 457.5 | 458.9 | 458.9 |
| 42.5° | 4963.8 | 3858.0 | 1605.4 | 735.8 | 532.6 | 470.9 | 452.9 | 449.9 | 448.4 | 448.4 | 449.9 |
| 45° | 5525.1 | 4183.0 | 1554.3 | 693.7 | 520.6 | 463.5 | 445.3 | 443.9 | 437.8 | 434.9 | 434.9 |
| 47.5° | 6089.3 | 4530.6 | 1551.3 | 669.5 | 505.6 | 454.4 | 437.8 | 437.8 | 425.8 | 419.8 | 421.3 |
| 50° | 6615.9 | 4842.1 | 1584.4 | 663.5 | 496.6 | 440.9 | 430.4 | 431.8 | 415.3 | 407.7 | 406.2 |
| 52.5° | 7040.3 | 5079.7 | 1625.0 | 671.1 | 496.6 | 428.9 | 416.9 | 424.4 | 406.2 | 397.2 | 395.7 |
| 55° | 7368.3 | 5245.2 | 1640.1 | 687.7 | 502.6 | 418.3 | 404.8 | 416.9 | 403.2 | 391.2 | 391.2 |
| 57.5° | 7603.1 | 5297.9 | 1575.4 | 695.1 | 511.6 | 416.9 | 392.7 | 415.3 | 407.7 | 392.7 | 392.7 |
| 60° | 7517.2 | 4992.5 | 1334.6 | 666.6 | 510.1 | 413.8 | 383.7 | 418.3 | 422.9 | 406.2 | 406.2 |
| 62.5° | 6847.8 | 4177.0 | 1071.3 | 601.9 | 484.4 | 403.2 | 373.1 | 415.3 | 433.3 | 427.3 | 424.4 |
| 65° | 5574.7 | 3063.5 | 830.6 | 525.1 | 440.9 | 380.7 | 350.6 | 388.2 | 409.2 | 415.3 | 416.9 |
| 67.5° | 3928.6 | 1939.5 | 645.5 | 446.9 | 386.7 | 347.6 | 325.0 | 343.1 | 350.6 | 353.6 | 359.6 |
| 70° | 2148.7 | 1050.2 | 513.1 | 376.2 | 331.0 | 314.4 | 297.9 | 299.5 | 296.4 | 293.4 | 296.4 |
| 72° | 1078.8 | 686.1 | 433.3 | 326.4 | 293.4 | 282.9 | 275.4 | 270.9 | 270.9 | 266.4 | 267.8 |
| 72.5° | 928.3 | 638.0 | 418.3 | 314.4 | 284.4 | 275.4 | 269.4 | 264.9 | 263.4 | 260.2 | 261.7 |
| 75° | 618.4 | 505.6 | 349.1 | 263.4 | 242.2 | 236.2 | 239.3 | 234.7 | 236.2 | 233.3 | 234.7 |
| 77.5° | 499.6 | 434.9 | 296.4 | 222.7 | 207.6 | 198.7 | 204.7 | 206.2 | 209.1 | 206.2 | 204.7 |
| 80° | 418.3 | 370.2 | 248.2 | 183.5 | 173.0 | 165.5 | 168.5 | 179.0 | 180.6 | 171.5 | 170.0 |
| 82.5° | 270.9 | 297.9 | 195.6 | 142.9 | 132.4 | 129.4 | 136.9 | 147.5 | 150.4 | 138.4 | 135.4 |
| 85° | 227.2 | 239.3 | 141.5 | 97.8 | 87.3 | 84.2 | 99.3 | 109.8 | 117.4 | 105.3 | 102.2 |
| 87.5° | 63.2 | 117.4 | 69.2 | 46.7 | 39.2 | 39.2 | 48.2 | 57.2 | 67.7 | 69.2 | 69.2 |
| 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)