

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: P270524

Luminaire Tested: **NAV-AF-04-D-UNV-SL4-7027-800**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P270524
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-SL4-7027-800
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 2700K, 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: 16336.8 lumens
Efficiency: N/A
Efficacy: 95.5 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B2 - 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

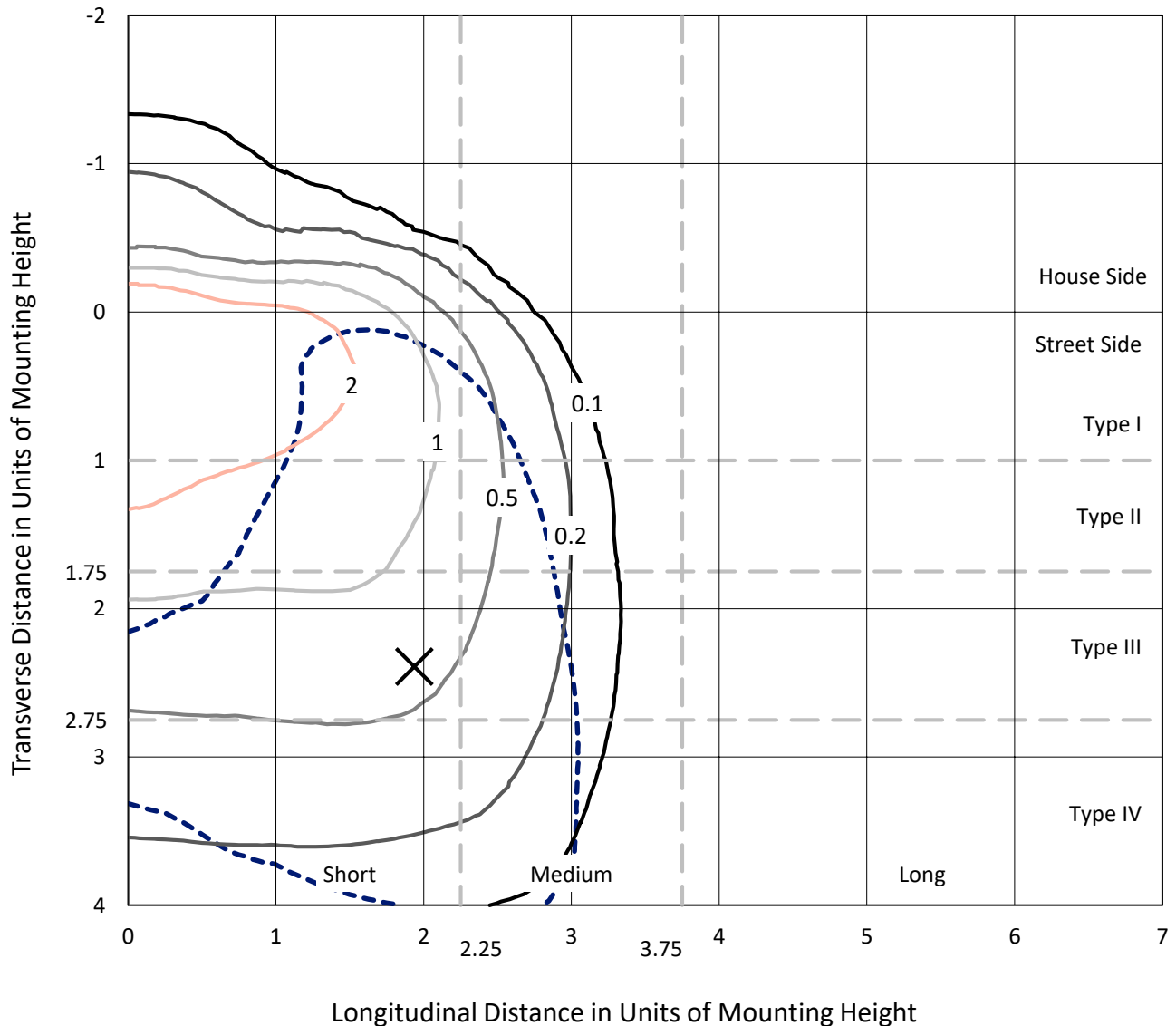


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Iso-Footcandle Lines of Horizontal Illumination

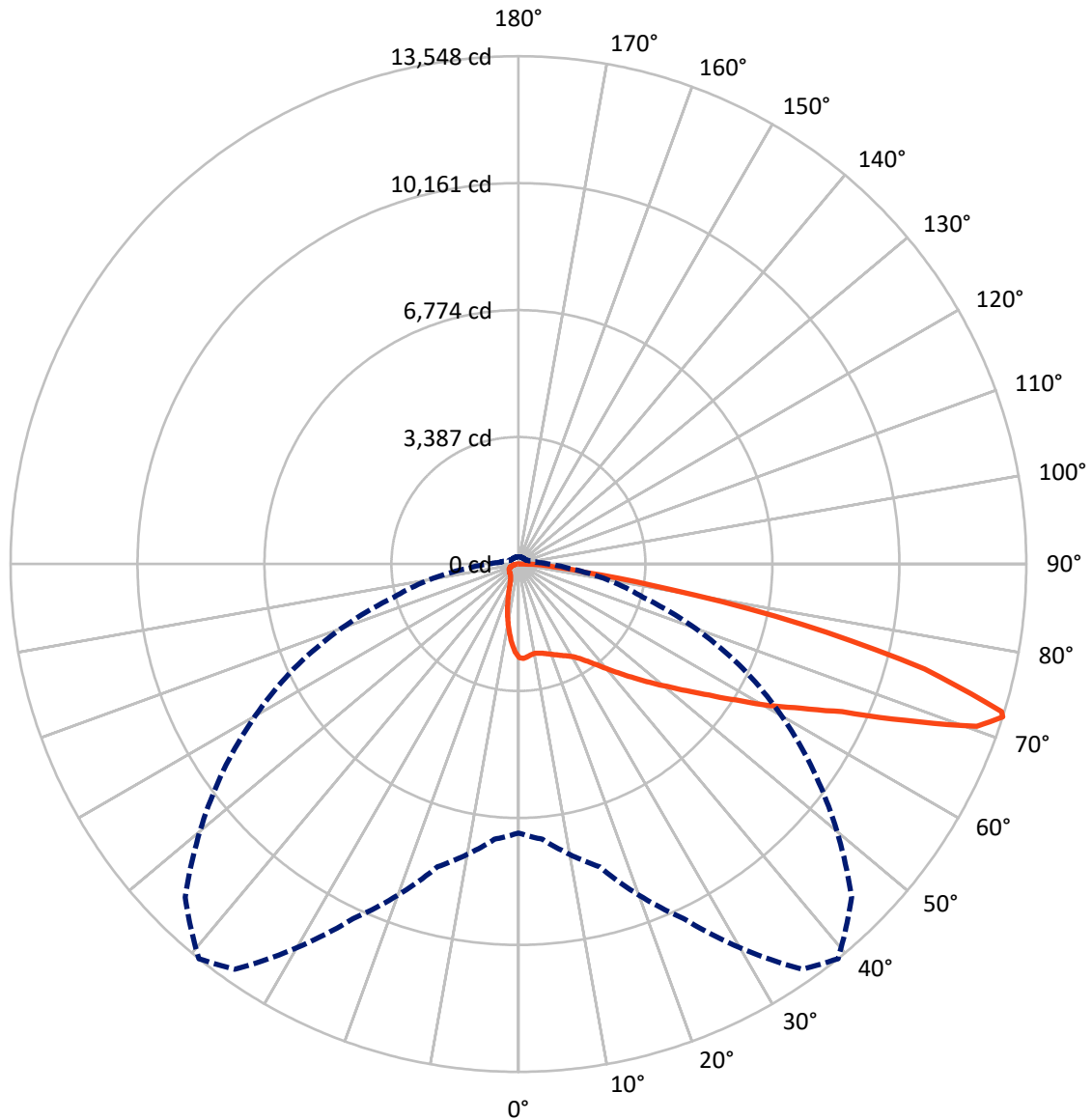
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 4 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 | 1873.2 | 0.0 | 1873.2 |
| | % Fixture | 11.5 | 0.0 | 11.5 |
| Street Side | Lumens | 14463.5 | 0.0 | 14463.5 |
| | % Fixture | 88.5 | 0.0 | 88.5 |
| Total | Lumens | 16336.8 | 0.0 | 16336.8 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 214.4 | 1.3 |
| 10°-20° | 538.7 | 3.3 |
| 20°-30° | 839.6 | 5.1 |
| 30°-40° | 1292.7 | 7.9 |
| 40°-50° | 2107.4 | 12.9 |
| 50°-60° | 3274.6 | 20.0 |
| 60°-70° | 4383.0 | 26.8 |
| 70°-80° | 3152.0 | 19.3 |
| 80°-90° | 534.3 | 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° | 16336.8 | 100.0 |
| 0°-180° | 16336.8 | 100.0 |

Coefficient of Utilization



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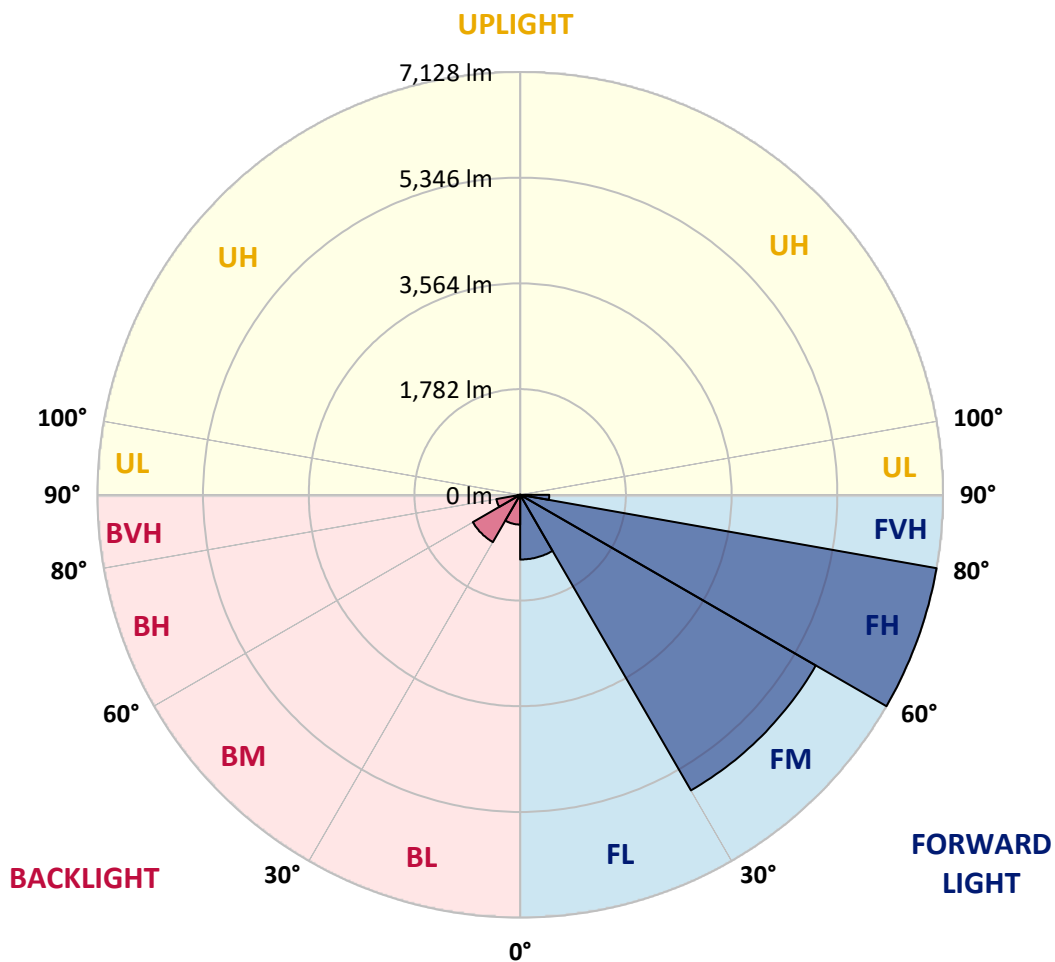
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1091.3 | 6.7 | | | |
| FM (30°-60°) | 5754.1 | 35.2 | | | |
| FH (60°-80°) | 7128.0 | 43.6 | | | G3/7500 |
| FVH (80°-90°) | 490.2 | 3.0 | | | G3/500 |
| BL (0°-30°) | 501.5 | 3.1 | B2/1000 | | |
| BM (30°-60°) | 920.6 | 5.6 | B1/1000 | | |
| BH (60°-80°) | 407.0 | 2.5 | B1/500 | | G1/500 |
| BVH (80°-90°) | 44.2 | 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-G3

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 39° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|---------|---------|---------|---------|---------|--------|--------|--------|
| 0° | 2495.0 | 2495.0 | 2495.0 | 2495.0 | 2495.0 | 2495.0 | 2495.0 | 2495.0 | 2495.0 | 2495.0 | 2495.0 |
| 2.5° | 2548.6 | 2549.7 | 2546.4 | 2536.5 | 2527.8 | 2523.3 | 2515.8 | 2502.6 | 2485.0 | 2472.9 | 2463.2 |
| 5° | 2524.5 | 2527.8 | 2525.7 | 2509.1 | 2493.9 | 2485.0 | 2472.9 | 2454.3 | 2431.4 | 2421.4 | 2398.5 |
| 7.5° | 2505.9 | 2508.1 | 2501.5 | 2482.8 | 2453.2 | 2442.3 | 2420.4 | 2396.1 | 2375.4 | 2361.1 | 2333.6 |
| 10° | 2492.7 | 2495.0 | 2489.5 | 2470.8 | 2437.9 | 2424.7 | 2398.5 | 2372.1 | 2344.7 | 2327.1 | 2296.3 |
| 12.5° | 2474.1 | 2478.5 | 2478.5 | 2469.7 | 2447.7 | 2439.0 | 2412.7 | 2384.1 | 2358.9 | 2340.3 | 2301.8 |
| 15° | 2470.8 | 2476.3 | 2486.1 | 2485.0 | 2478.5 | 2471.9 | 2451.0 | 2422.5 | 2400.6 | 2378.7 | 2331.6 |
| 17.5° | 2498.1 | 2510.3 | 2529.9 | 2536.5 | 2532.2 | 2517.9 | 2493.9 | 2467.6 | 2443.4 | 2422.5 | 2364.3 |
| 20° | 2567.3 | 2573.9 | 2603.5 | 2616.7 | 2594.8 | 2573.9 | 2542.1 | 2508.1 | 2486.1 | 2469.7 | 2395.2 |
| 22.5° | 2671.5 | 2680.3 | 2704.3 | 2705.4 | 2659.4 | 2634.2 | 2593.6 | 2551.9 | 2531.2 | 2524.5 | 2436.8 |
| 25° | 2838.1 | 2835.9 | 2842.5 | 2815.2 | 2731.7 | 2702.2 | 2652.9 | 2604.5 | 2590.4 | 2603.5 | 2498.1 |
| 27.5° | 3037.8 | 3032.3 | 3011.5 | 2940.2 | 2814.0 | 2775.7 | 2716.5 | 2673.6 | 2673.6 | 2704.3 | 2581.5 |
| 30° | 3268.0 | 3262.6 | 3194.6 | 3075.1 | 2911.6 | 2867.7 | 2805.2 | 2760.3 | 2783.4 | 2842.5 | 2694.5 |
| 32.5° | 3511.6 | 3491.8 | 3396.4 | 3236.2 | 3051.0 | 3002.7 | 2942.4 | 2896.2 | 2940.2 | 3041.0 | 2856.8 |
| 35° | 3740.7 | 3729.8 | 3612.4 | 3422.7 | 3230.8 | 3190.2 | 3148.5 | 3091.4 | 3161.7 | 3318.5 | 3085.9 |
| 37.5° | 3977.6 | 3968.8 | 3825.2 | 3623.5 | 3450.1 | 3422.7 | 3387.6 | 3348.2 | 3461.1 | 3667.2 | 3396.4 |
| 40° | 4241.8 | 4224.4 | 4043.5 | 3841.6 | 3705.7 | 3692.5 | 3673.9 | 3662.8 | 3844.9 | 4152.0 | 3789.1 |
| 42.5° | 4541.3 | 4507.2 | 4273.6 | 4081.8 | 3984.3 | 3995.1 | 3985.3 | 4029.2 | 4307.7 | 4711.3 | 4256.2 |
| 45° | 4883.5 | 4815.5 | 4502.9 | 4337.3 | 4292.3 | 4336.2 | 4357.0 | 4468.9 | 4854.9 | 5357.2 | 4778.2 |
| 47.5° | 5203.7 | 5115.9 | 4754.0 | 4614.8 | 4639.9 | 4715.7 | 4774.9 | 4972.3 | 5454.8 | 5995.5 | 5311.1 |
| 50° | 5498.6 | 5400.0 | 5022.8 | 4902.1 | 5024.8 | 5132.3 | 5255.3 | 5533.7 | 6093.1 | 6652.4 | 5800.3 |
| 52.5° | 5717.0 | 5645.7 | 5291.5 | 5215.7 | 5466.8 | 5609.5 | 5805.7 | 6157.8 | 6737.9 | 7278.5 | 6236.8 |
| 55° | 5885.9 | 5847.4 | 5553.5 | 5575.5 | 5966.9 | 6170.9 | 6408.9 | 6813.6 | 7420.0 | 7840.0 | 6587.7 |
| 57.5° | 6081.0 | 6052.5 | 5852.8 | 6009.8 | 6587.7 | 6844.2 | 7125.0 | 7574.7 | 8069.3 | 8334.7 | 6863.0 |
| 60° | 6287.1 | 6287.1 | 6186.3 | 6532.8 | 7364.1 | 7658.1 | 7937.7 | 8287.6 | 8716.3 | 8779.9 | 6974.8 |
| 62.5° | 6443.0 | 6483.4 | 6519.7 | 7090.0 | 8101.0 | 8466.3 | 8773.3 | 9109.0 | 9386.4 | 8999.2 | 6711.5 |
| 65° | 6668.8 | 6755.4 | 6959.4 | 7733.7 | 9013.6 | 9491.6 | 9906.1 | 10188.0 | 9929.2 | 8824.9 | 5852.8 |
| 67.5° | 7057.1 | 7185.4 | 7619.7 | 8692.2 | 10410.6 | 11126.8 | 11529.2 | 11042.3 | 9822.8 | 7727.1 | 4483.3 |
| 70° | 7406.9 | 7587.9 | 8330.3 | 9908.3 | 12226.7 | 12970.3 | 12784.9 | 10843.8 | 8555.1 | 5664.4 | 2758.2 |
| 72° | 7174.5 | 7371.9 | 8363.2 | 10438.0 | 13197.3 | 13548.1 | 12571.2 | 9610.1 | 6610.6 | 3456.7 | 1359.9 |
| 72.5° | 7022.0 | 7227.0 | 8256.9 | 10424.9 | 13223.6 | 13474.8 | 12273.9 | 9120.0 | 6000.9 | 3024.7 | 1100.0 |
| 75° | 5866.1 | 6041.6 | 7099.8 | 9239.3 | 11653.3 | 11192.6 | 9578.3 | 5902.3 | 2758.2 | 977.1 | 565.9 |
| 77.5° | 3830.6 | 3964.5 | 4895.6 | 6401.2 | 8162.4 | 7719.5 | 5829.9 | 2763.5 | 1034.2 | 593.3 | 425.4 |
| 80° | 1924.7 | 2020.1 | 2619.9 | 3365.7 | 4405.3 | 4053.3 | 2691.2 | 1336.9 | 692.1 | 428.9 | 334.4 |
| 82.5° | 1339.1 | 1426.8 | 1804.1 | 1718.5 | 1841.3 | 1782.1 | 1265.5 | 1115.3 | 517.7 | 270.8 | 175.4 |
| 85° | 1123.1 | 1214.0 | 1492.5 | 1225.0 | 1002.4 | 913.5 | 907.0 | 1053.9 | 342.2 | 133.8 | 148.0 |
| 87.5° | 979.3 | 1117.5 | 1231.5 | 894.9 | 687.7 | 606.4 | 667.9 | 966.1 | 108.5 | 73.5 | 44.9 |
| 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° | 2495.0 | 2495.0 | 2495.0 | 2495.0 | 2495.0 | 2495.0 | 2495.0 | 2495.0 | 2495.0 | 2495.0 | 2495.0 |
| 2.5° | 2446.7 | 2443.4 | 2427.0 | 2401.7 | 2383.1 | 2370.9 | 2348.0 | 2346.8 | 2349.1 | 2329.3 | 2337.0 |
| 5° | 2377.5 | 2364.3 | 2321.6 | 2263.5 | 2216.4 | 2171.5 | 2122.1 | 2105.5 | 2091.3 | 2061.7 | 2065.1 |
| 7.5° | 2305.2 | 2282.1 | 2207.6 | 2112.2 | 2021.1 | 1937.9 | 1855.5 | 1814.9 | 1784.3 | 1745.9 | 1745.9 |
| 10° | 2262.4 | 2226.2 | 2112.2 | 1972.9 | 1828.1 | 1706.4 | 1583.6 | 1510.1 | 1456.4 | 1407.0 | 1403.7 |
| 12.5° | 2260.2 | 2205.3 | 2046.3 | 1854.6 | 1655.9 | 1484.9 | 1317.0 | 1204.2 | 1124.0 | 1066.0 | 1060.4 |
| 15° | 2277.8 | 2200.9 | 1991.5 | 1743.7 | 1493.6 | 1271.0 | 1063.8 | 920.1 | 818.0 | 753.4 | 746.9 |
| 17.5° | 2293.2 | 2195.5 | 1932.3 | 1627.5 | 1335.7 | 1064.9 | 834.5 | 685.3 | 588.8 | 536.3 | 530.8 |
| 20° | 2307.3 | 2183.5 | 1856.6 | 1504.7 | 1161.4 | 871.9 | 652.4 | 531.8 | 468.2 | 438.6 | 435.4 |
| 22.5° | 2328.2 | 2172.6 | 1777.7 | 1366.4 | 990.3 | 709.5 | 538.4 | 451.8 | 417.8 | 403.6 | 401.5 |
| 25° | 2362.3 | 2173.5 | 1700.9 | 1225.0 | 833.4 | 591.2 | 466.1 | 412.3 | 393.6 | 383.8 | 383.8 |
| 27.5° | 2411.6 | 2186.7 | 1625.3 | 1081.3 | 700.8 | 510.0 | 423.3 | 391.5 | 379.4 | 371.8 | 369.6 |
| 30° | 2484.0 | 2210.9 | 1545.3 | 945.3 | 595.4 | 454.1 | 398.0 | 378.4 | 368.5 | 361.8 | 360.8 |
| 32.5° | 2589.3 | 2253.7 | 1460.7 | 821.4 | 515.4 | 414.6 | 379.4 | 367.3 | 359.7 | 354.2 | 353.2 |
| 35° | 2746.1 | 2329.3 | 1378.4 | 716.0 | 458.5 | 386.0 | 364.2 | 354.2 | 349.8 | 347.6 | 346.6 |
| 37.5° | 2976.4 | 2451.0 | 1300.7 | 633.8 | 421.1 | 367.3 | 348.7 | 343.2 | 341.0 | 341.0 | 341.0 |
| 40° | 3265.9 | 2611.2 | 1230.5 | 575.8 | 400.3 | 353.2 | 337.8 | 333.5 | 333.5 | 334.4 | 334.4 |
| 42.5° | 3618.0 | 2811.9 | 1170.1 | 536.3 | 388.2 | 343.2 | 330.0 | 327.9 | 326.9 | 326.9 | 327.9 |
| 45° | 4026.9 | 3048.8 | 1132.9 | 505.6 | 379.4 | 337.8 | 324.6 | 323.5 | 319.2 | 316.9 | 316.9 |
| 47.5° | 4438.2 | 3302.1 | 1130.6 | 488.0 | 368.5 | 331.1 | 319.2 | 319.2 | 310.4 | 306.0 | 307.1 |
| 50° | 4822.0 | 3529.1 | 1154.9 | 483.6 | 361.8 | 321.4 | 313.7 | 314.8 | 302.6 | 297.2 | 296.1 |
| 52.5° | 5131.3 | 3702.4 | 1184.3 | 489.0 | 361.8 | 312.5 | 303.7 | 309.2 | 296.1 | 289.6 | 288.4 |
| 55° | 5370.3 | 3822.9 | 1195.4 | 501.2 | 366.2 | 304.9 | 295.1 | 303.7 | 293.9 | 285.1 | 285.1 |
| 57.5° | 5541.5 | 3861.4 | 1148.3 | 506.6 | 372.8 | 303.7 | 286.2 | 302.6 | 297.2 | 286.2 | 286.2 |
| 60° | 5478.9 | 3638.8 | 972.8 | 485.9 | 371.8 | 301.7 | 279.6 | 304.9 | 308.2 | 296.1 | 296.1 |
| 62.5° | 4991.0 | 3044.4 | 780.8 | 438.6 | 353.2 | 293.9 | 271.9 | 302.6 | 315.8 | 311.4 | 309.2 |
| 65° | 4063.2 | 2232.7 | 605.4 | 382.8 | 321.4 | 277.4 | 255.5 | 283.0 | 298.2 | 302.6 | 303.7 |
| 67.5° | 2863.3 | 1413.7 | 470.4 | 325.7 | 281.9 | 253.3 | 236.9 | 250.1 | 255.5 | 257.8 | 262.0 |
| 70° | 1566.0 | 765.4 | 374.0 | 274.2 | 241.3 | 229.2 | 217.1 | 218.3 | 216.0 | 213.8 | 216.0 |
| 72° | 786.2 | 500.0 | 315.8 | 238.1 | 213.8 | 206.3 | 200.7 | 197.4 | 197.4 | 194.2 | 195.2 |
| 72.5° | 676.7 | 465.1 | 304.9 | 229.2 | 207.2 | 200.7 | 196.3 | 193.0 | 191.9 | 189.7 | 190.8 |
| 75° | 450.7 | 368.5 | 254.4 | 191.9 | 176.5 | 172.1 | 174.5 | 171.0 | 172.1 | 170.0 | 171.0 |
| 77.5° | 364.2 | 316.9 | 216.0 | 162.4 | 151.4 | 144.7 | 149.2 | 150.2 | 152.4 | 150.2 | 149.2 |
| 80° | 304.9 | 269.9 | 181.0 | 133.8 | 126.1 | 120.6 | 122.8 | 130.6 | 131.6 | 125.0 | 124.0 |
| 82.5° | 197.4 | 217.1 | 142.7 | 104.2 | 96.5 | 94.3 | 99.8 | 107.4 | 109.7 | 100.9 | 98.8 |
| 85° | 165.6 | 174.5 | 103.0 | 71.2 | 63.6 | 61.4 | 72.4 | 80.0 | 85.6 | 76.7 | 74.6 |
| 87.5° | 46.1 | 85.6 | 50.5 | 34.0 | 28.6 | 28.6 | 35.2 | 41.7 | 49.3 | 50.5 | 50.5 |
| 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)