

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: P195705

Luminaire Tested: **NAV-AF-03-D-UNV-SL4-7050-800**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P195705
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-03-D-UNV-SL4-7050-800
Description: NAVION ROADWAY AND AREA LUMINAIRE
(3) 70 CRI, 5000K, 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: 13962 lumens
Efficiency: N/A
Efficacy: 112.6 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B1 - U0 - G3

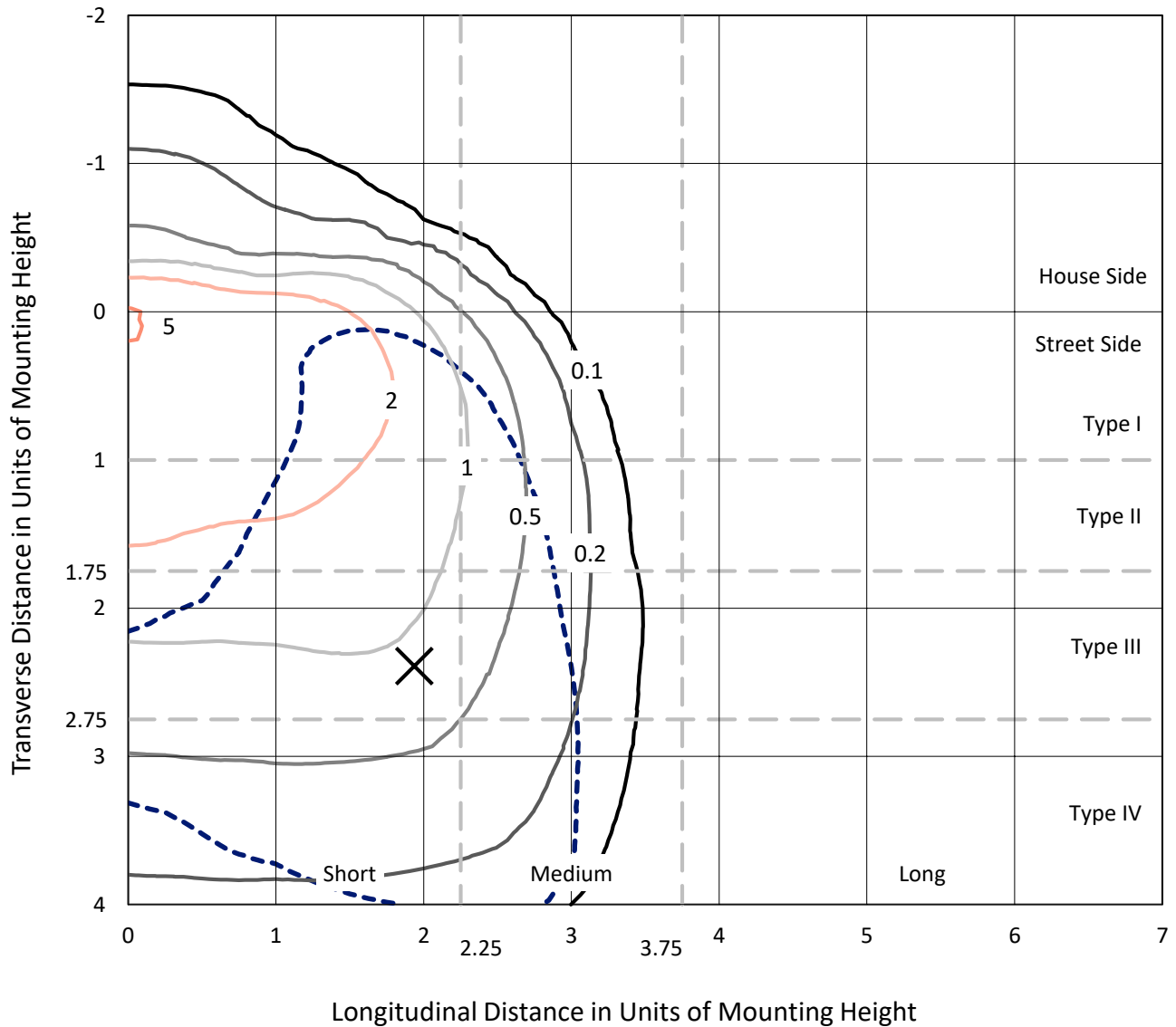
Input Watts (W): 124
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

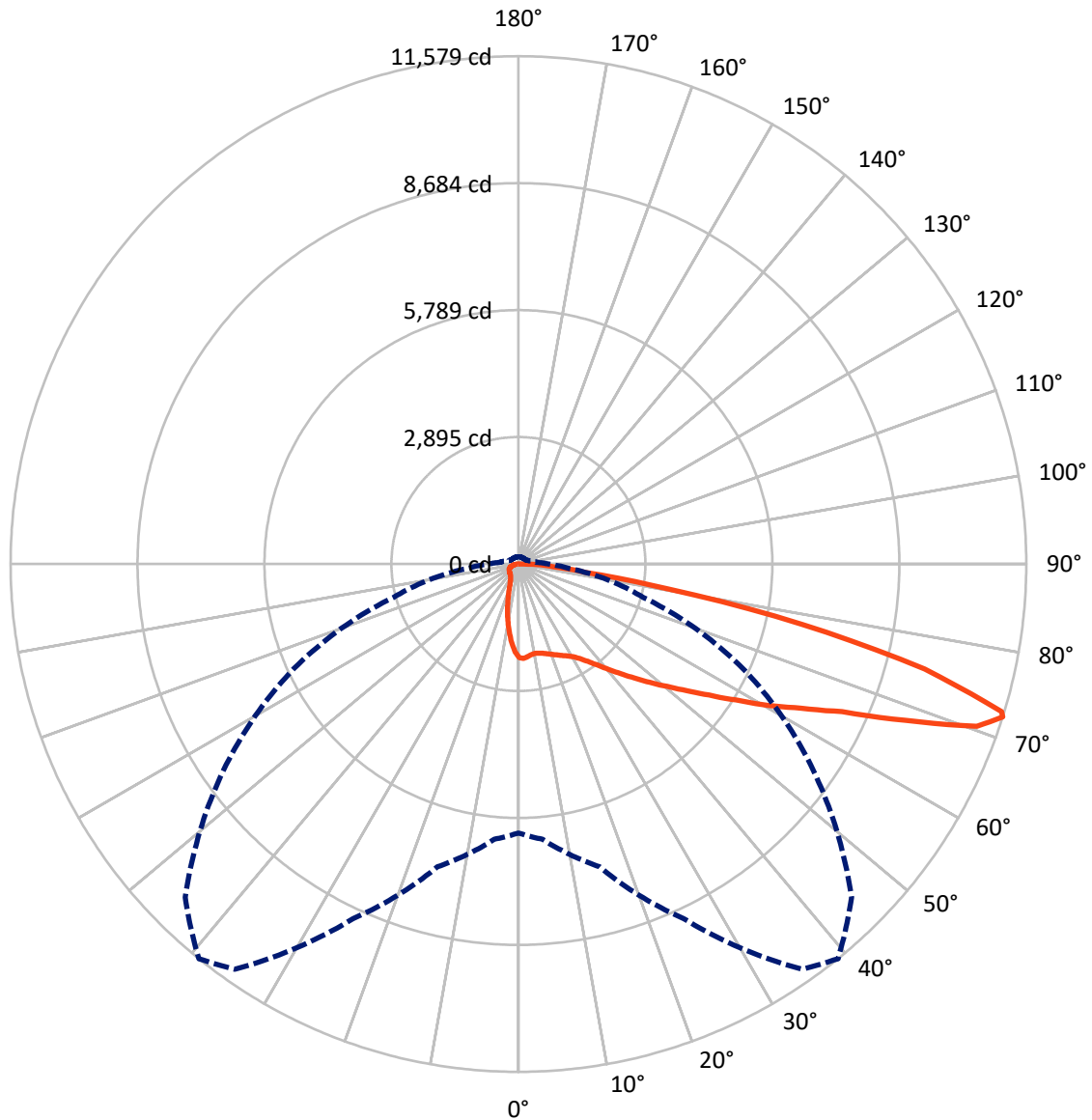
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 5.3 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 | 1600.9 | 0.0 | 1600.9 |
| | % Fixture | 11.5 | 0.0 | 11.5 |
| Street Side | Lumens | 12361.1 | 0.0 | 12361.1 |
| | % Fixture | 88.5 | 0.0 | 88.5 |
| Total | Lumens | 13962.0 | 0.0 | 13962.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 183.2 | 1.3 |
| 10°-20° | 460.4 | 3.3 |
| 20°-30° | 717.5 | 5.1 |
| 30°-40° | 1104.8 | 7.9 |
| 40°-50° | 1801.0 | 12.9 |
| 50°-60° | 2798.6 | 20.0 |
| 60°-70° | 3745.9 | 26.8 |
| 70°-80° | 2693.8 | 19.3 |
| 80°-90° | 456.7 | 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° | 13962.0 | 100.0 |
| 0°-180° | 13962.0 | 100.0 |



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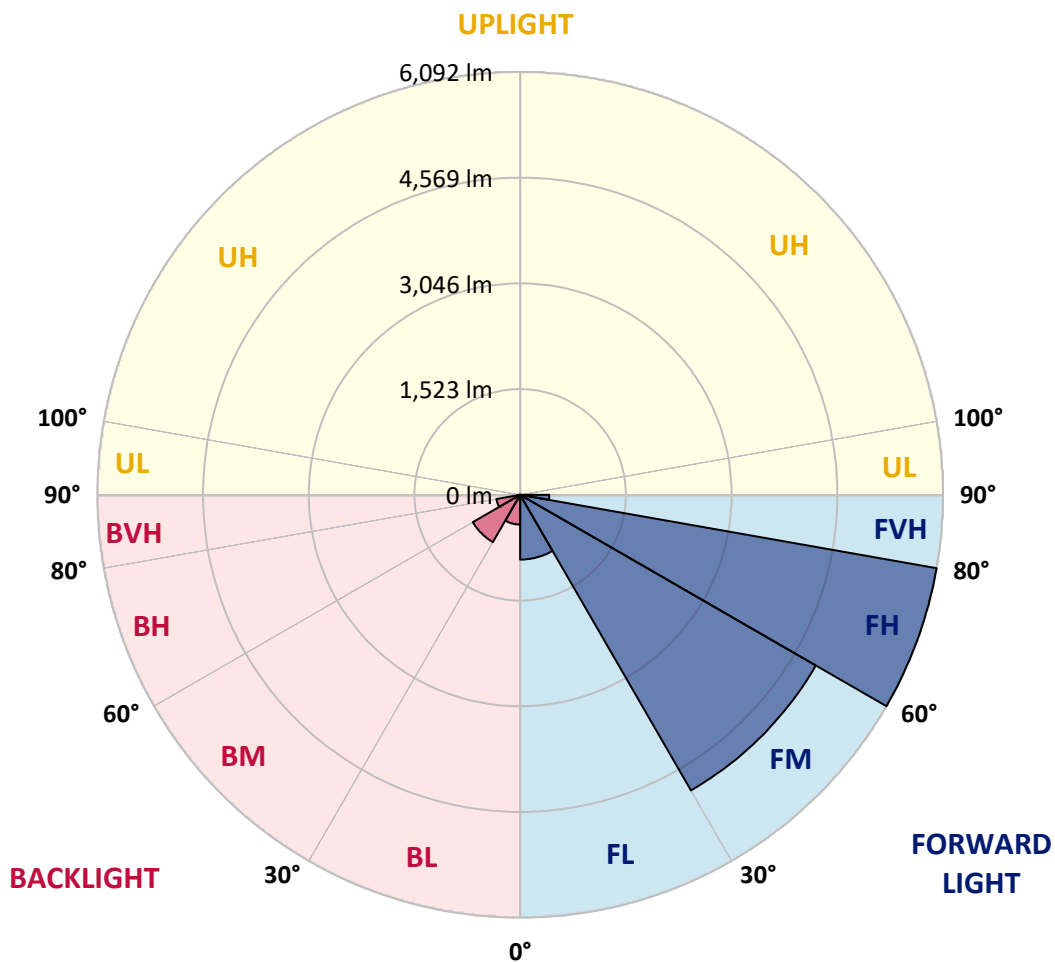
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|---------|
| | | | | B | U | G |
| FL | (0°-30°) | 932.6 | 6.7 | | | |
| FM | (30°-60°) | 4917.7 | 35.2 | | | |
| FH | (60°-80°) | 6091.8 | 43.6 | | | G3/7500 |
| FVH | (80°-90°) | 418.9 | 3.0 | | | G3/500 |
| BL | (0°-30°) | 428.6 | 3.1 | B1/500 | | |
| BM | (30°-60°) | 786.8 | 5.6 | B1/1000 | | |
| BH | (60°-80°) | 347.8 | 2.5 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 37.8 | 0.3 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G3

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 39° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|---------|---------|---------|--------|--------|--------|--------|
| 0° | 2132.2 | 2132.2 | 2132.2 | 2132.2 | 2132.2 | 2132.2 | 2132.2 | 2132.2 | 2132.2 | 2132.2 | 2132.2 |
| 2.5° | 2178.2 | 2179.1 | 2176.3 | 2167.9 | 2160.4 | 2156.6 | 2150.1 | 2138.8 | 2123.8 | 2113.5 | 2105.1 |
| 5° | 2157.6 | 2160.4 | 2158.5 | 2144.4 | 2131.3 | 2123.8 | 2113.5 | 2097.6 | 2077.9 | 2069.5 | 2049.8 |
| 7.5° | 2141.6 | 2143.5 | 2137.9 | 2121.9 | 2096.6 | 2087.3 | 2068.5 | 2047.9 | 2030.1 | 2017.9 | 1994.5 |
| 10° | 2130.4 | 2132.2 | 2127.6 | 2111.6 | 2083.5 | 2072.3 | 2049.8 | 2027.3 | 2003.8 | 1988.8 | 1962.6 |
| 12.5° | 2114.4 | 2118.2 | 2118.2 | 2110.7 | 2091.9 | 2084.4 | 2062.0 | 2037.6 | 2016.0 | 2000.1 | 1967.3 |
| 15° | 2111.6 | 2116.3 | 2124.8 | 2123.8 | 2118.2 | 2112.6 | 2094.8 | 2070.4 | 2051.6 | 2032.9 | 1992.6 |
| 17.5° | 2135.1 | 2145.4 | 2162.2 | 2167.9 | 2164.1 | 2151.9 | 2131.3 | 2108.8 | 2088.2 | 2070.4 | 2020.7 |
| 20° | 2194.1 | 2199.7 | 2225.0 | 2236.3 | 2217.5 | 2199.7 | 2172.5 | 2143.5 | 2124.8 | 2110.7 | 2047.0 |
| 22.5° | 2283.1 | 2290.6 | 2311.3 | 2312.2 | 2272.8 | 2251.3 | 2216.6 | 2181.0 | 2163.2 | 2157.6 | 2082.6 |
| 25° | 2425.6 | 2423.7 | 2429.4 | 2405.9 | 2334.7 | 2309.4 | 2267.2 | 2226.0 | 2213.8 | 2225.0 | 2135.1 |
| 27.5° | 2596.2 | 2591.5 | 2573.7 | 2512.8 | 2405.0 | 2372.2 | 2321.6 | 2285.0 | 2285.0 | 2311.3 | 2206.3 |
| 30° | 2793.0 | 2788.3 | 2730.2 | 2628.1 | 2488.4 | 2450.9 | 2397.5 | 2359.1 | 2378.7 | 2429.4 | 2302.8 |
| 32.5° | 3001.1 | 2984.2 | 2902.7 | 2765.8 | 2607.4 | 2566.2 | 2514.6 | 2475.3 | 2512.8 | 2599.0 | 2441.5 |
| 35° | 3197.0 | 3187.6 | 3087.3 | 2925.2 | 2761.1 | 2726.5 | 2690.9 | 2642.1 | 2702.1 | 2836.1 | 2637.4 |
| 37.5° | 3399.4 | 3391.9 | 3269.1 | 3096.7 | 2948.6 | 2925.2 | 2895.2 | 2861.4 | 2958.0 | 3134.2 | 2902.7 |
| 40° | 3625.3 | 3610.3 | 3455.6 | 3283.2 | 3167.0 | 3155.7 | 3139.8 | 3130.4 | 3286.0 | 3548.4 | 3238.2 |
| 42.5° | 3881.2 | 3852.1 | 3652.5 | 3488.5 | 3405.0 | 3414.4 | 3406.0 | 3443.5 | 3681.5 | 4026.4 | 3637.5 |
| 45° | 4173.6 | 4115.5 | 3848.4 | 3706.8 | 3668.4 | 3705.9 | 3723.7 | 3819.3 | 4149.2 | 4578.5 | 4083.6 |
| 47.5° | 4447.3 | 4372.3 | 4063.0 | 3944.0 | 3965.5 | 4030.2 | 4080.8 | 4249.5 | 4661.9 | 5124.0 | 4539.1 |
| 50° | 4699.4 | 4615.0 | 4292.6 | 4189.5 | 4294.5 | 4386.3 | 4491.3 | 4729.4 | 5207.4 | 5685.4 | 4957.1 |
| 52.5° | 4885.9 | 4825.0 | 4522.2 | 4457.6 | 4672.2 | 4794.0 | 4961.8 | 5262.7 | 5758.5 | 6220.5 | 5330.2 |
| 55° | 5030.2 | 4997.4 | 4746.2 | 4765.0 | 5099.6 | 5273.9 | 5477.3 | 5823.1 | 6341.4 | 6700.4 | 5630.1 |
| 57.5° | 5197.1 | 5172.7 | 5002.1 | 5136.1 | 5630.1 | 5849.4 | 6089.3 | 6473.6 | 6896.3 | 7123.1 | 5865.3 |
| 60° | 5373.3 | 5373.3 | 5287.0 | 5583.2 | 6293.6 | 6544.8 | 6783.8 | 7082.8 | 7449.3 | 7503.6 | 5960.9 |
| 62.5° | 5506.4 | 5541.0 | 5572.0 | 6059.3 | 6923.5 | 7235.6 | 7498.0 | 7784.8 | 8021.9 | 7691.1 | 5736.0 |
| 65° | 5699.4 | 5773.5 | 5947.8 | 6609.5 | 7703.3 | 8111.9 | 8466.2 | 8707.1 | 8485.9 | 7542.1 | 5002.1 |
| 67.5° | 6031.2 | 6140.9 | 6512.0 | 7428.7 | 8897.3 | 9509.4 | 9853.3 | 9437.2 | 8395.0 | 6603.9 | 3831.5 |
| 70° | 6330.2 | 6484.8 | 7119.4 | 8468.1 | 10449.4 | 11084.9 | 10926.5 | 9267.5 | 7311.5 | 4840.9 | 2357.2 |
| 72° | 6131.5 | 6300.2 | 7147.5 | 8920.8 | 11278.9 | 11578.8 | 10743.7 | 8213.1 | 5649.8 | 2954.2 | 1162.2 |
| 72.5° | 6001.2 | 6176.5 | 7056.6 | 8909.5 | 11301.4 | 11516.0 | 10489.7 | 7794.2 | 5128.6 | 2584.9 | 940.1 |
| 75° | 5013.4 | 5163.3 | 6067.8 | 7896.3 | 9959.2 | 9565.6 | 8186.0 | 5044.3 | 2357.2 | 835.1 | 483.6 |
| 77.5° | 3273.8 | 3388.2 | 4183.9 | 5470.7 | 6976.0 | 6597.3 | 4982.4 | 2361.9 | 883.8 | 507.1 | 363.7 |
| 80° | 1644.9 | 1726.4 | 2239.1 | 2876.4 | 3764.9 | 3464.1 | 2300.0 | 1142.5 | 591.4 | 366.5 | 285.9 |
| 82.5° | 1144.4 | 1219.4 | 1541.8 | 1468.7 | 1573.6 | 1523.0 | 1081.6 | 953.2 | 442.4 | 231.5 | 150.0 |
| 85° | 959.7 | 1037.5 | 1275.6 | 1046.9 | 856.6 | 780.7 | 775.1 | 900.7 | 292.4 | 114.3 | 126.5 |
| 87.5° | 837.0 | 955.1 | 1052.5 | 764.8 | 587.7 | 518.3 | 570.8 | 825.7 | 92.8 | 62.8 | 38.4 |
| 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° | 2132.2 | 2132.2 | 2132.2 | 2132.2 | 2132.2 | 2132.2 | 2132.2 | 2132.2 | 2132.2 | 2132.2 | 2132.2 |
| 2.5° | 2091.0 | 2088.2 | 2074.1 | 2052.6 | 2036.6 | 2026.3 | 2006.7 | 2005.7 | 2007.6 | 1990.7 | 1997.3 |
| 5° | 2032.0 | 2020.7 | 1984.2 | 1934.5 | 1894.2 | 1855.8 | 1813.6 | 1799.5 | 1787.3 | 1762.0 | 1764.8 |
| 7.5° | 1970.1 | 1950.4 | 1886.7 | 1805.1 | 1727.4 | 1656.1 | 1585.8 | 1551.2 | 1524.9 | 1492.1 | 1492.1 |
| 10° | 1933.6 | 1902.6 | 1805.1 | 1686.1 | 1562.4 | 1458.4 | 1353.4 | 1290.6 | 1244.7 | 1202.5 | 1199.7 |
| 12.5° | 1931.7 | 1884.8 | 1748.9 | 1584.9 | 1415.3 | 1269.0 | 1125.6 | 1029.1 | 960.7 | 911.0 | 906.3 |
| 15° | 1946.7 | 1881.1 | 1702.0 | 1490.2 | 1276.5 | 1086.3 | 909.1 | 786.4 | 699.2 | 643.9 | 638.3 |
| 17.5° | 1959.8 | 1876.4 | 1651.4 | 1390.9 | 1141.6 | 910.1 | 713.2 | 585.8 | 503.3 | 458.3 | 453.6 |
| 20° | 1972.0 | 1866.1 | 1586.8 | 1285.9 | 992.5 | 745.1 | 557.7 | 454.6 | 400.2 | 374.9 | 372.1 |
| 22.5° | 1989.8 | 1856.7 | 1519.3 | 1167.8 | 846.3 | 606.4 | 460.2 | 386.1 | 357.1 | 344.9 | 343.0 |
| 25° | 2018.8 | 1857.6 | 1453.7 | 1046.9 | 712.3 | 505.2 | 398.3 | 352.4 | 336.5 | 328.0 | 328.0 |
| 27.5° | 2061.0 | 1868.9 | 1389.0 | 924.1 | 598.9 | 435.8 | 361.8 | 334.6 | 324.3 | 317.7 | 315.9 |
| 30° | 2122.9 | 1889.5 | 1320.6 | 807.9 | 508.9 | 388.0 | 340.2 | 323.4 | 314.9 | 309.3 | 308.4 |
| 32.5° | 2212.9 | 1926.1 | 1248.4 | 702.0 | 440.5 | 354.3 | 324.3 | 314.0 | 307.4 | 302.7 | 301.8 |
| 35° | 2346.9 | 1990.7 | 1178.1 | 612.0 | 391.8 | 329.9 | 311.2 | 302.7 | 299.0 | 297.1 | 296.2 |
| 37.5° | 2543.7 | 2094.8 | 1111.6 | 541.7 | 359.9 | 314.0 | 298.0 | 293.4 | 291.5 | 291.5 | 291.5 |
| 40° | 2791.1 | 2231.6 | 1051.6 | 492.1 | 342.1 | 301.8 | 288.7 | 284.9 | 284.9 | 285.9 | 285.9 |
| 42.5° | 3092.0 | 2403.1 | 1000.0 | 458.3 | 331.8 | 293.4 | 282.1 | 280.2 | 279.3 | 279.3 | 280.2 |
| 45° | 3441.6 | 2605.6 | 968.2 | 432.1 | 324.3 | 288.7 | 277.4 | 276.5 | 272.7 | 270.9 | 270.9 |
| 47.5° | 3793.1 | 2822.1 | 966.3 | 417.1 | 314.9 | 283.1 | 272.7 | 272.7 | 265.2 | 261.5 | 262.4 |
| 50° | 4121.1 | 3016.1 | 986.9 | 413.3 | 309.3 | 274.6 | 268.1 | 269.0 | 258.7 | 254.0 | 253.1 |
| 52.5° | 4385.4 | 3164.2 | 1012.2 | 418.0 | 309.3 | 267.1 | 259.6 | 264.3 | 253.1 | 247.4 | 246.5 |
| 55° | 4589.7 | 3267.3 | 1021.6 | 428.3 | 313.0 | 260.6 | 252.1 | 259.6 | 251.2 | 243.7 | 243.7 |
| 57.5° | 4735.9 | 3300.1 | 981.3 | 433.0 | 318.7 | 259.6 | 244.6 | 258.7 | 254.0 | 244.6 | 244.6 |
| 60° | 4682.5 | 3109.8 | 831.3 | 415.2 | 317.7 | 257.7 | 239.0 | 260.6 | 263.4 | 253.1 | 253.1 |
| 62.5° | 4265.4 | 2601.8 | 667.3 | 374.9 | 301.8 | 251.2 | 232.4 | 258.7 | 269.9 | 266.2 | 264.3 |
| 65° | 3472.5 | 1908.2 | 517.4 | 327.1 | 274.6 | 237.1 | 218.4 | 241.8 | 254.9 | 258.7 | 259.6 |
| 67.5° | 2447.2 | 1208.1 | 402.1 | 278.4 | 240.9 | 216.5 | 202.4 | 213.7 | 218.4 | 220.3 | 224.0 |
| 70° | 1338.4 | 654.2 | 319.6 | 234.3 | 206.2 | 195.9 | 185.6 | 186.5 | 184.6 | 182.8 | 184.6 |
| 72° | 672.0 | 427.4 | 269.9 | 203.4 | 182.8 | 176.2 | 171.5 | 168.7 | 168.7 | 165.9 | 166.8 |
| 72.5° | 578.3 | 397.4 | 260.6 | 195.9 | 177.1 | 171.5 | 167.8 | 165.0 | 164.0 | 162.1 | 163.1 |
| 75° | 385.2 | 314.9 | 217.4 | 164.0 | 150.9 | 147.1 | 149.0 | 146.2 | 147.1 | 145.3 | 146.2 |
| 77.5° | 311.2 | 270.9 | 184.6 | 138.7 | 129.3 | 123.7 | 127.5 | 128.4 | 130.3 | 128.4 | 127.5 |
| 80° | 260.6 | 230.6 | 154.6 | 114.3 | 107.8 | 103.1 | 105.0 | 111.5 | 112.5 | 106.8 | 105.9 |
| 82.5° | 168.7 | 185.6 | 121.8 | 89.0 | 82.5 | 80.6 | 85.3 | 91.9 | 93.7 | 86.2 | 84.4 |
| 85° | 141.5 | 149.0 | 88.1 | 60.9 | 54.4 | 52.5 | 61.9 | 68.4 | 73.1 | 65.6 | 63.7 |
| 87.5° | 39.4 | 73.1 | 43.1 | 29.1 | 24.4 | 24.4 | 30.0 | 35.6 | 42.2 | 43.1 | 43.1 |
| 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)