

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: P197277

Luminaire Tested: **NAV-AF-03-D-UNV-T3-8030-1200**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P197277
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (p24135)
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-T3-8030-1200
Description: NAVION ROADWAY AND AREA LUMINAIRE
(3) 80 CRI, 3000K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16220 lumens
Efficiency: N/A
Efficacy: 84.9 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')
IES Classification: Type III - Short - Semi-Cutoff
BUG Rating: B3 - U0 - G3

Input Watts (W): 191
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

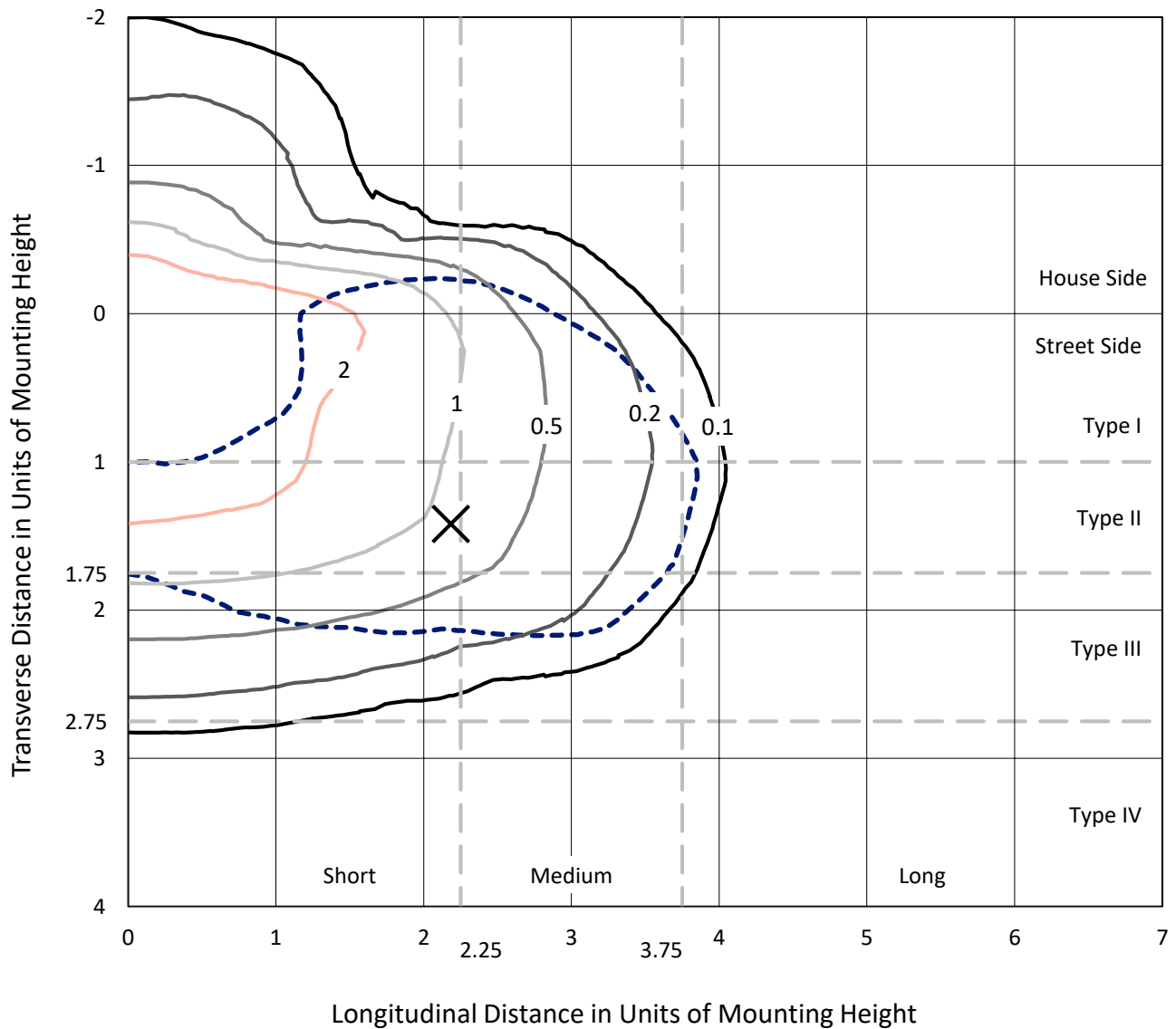


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Iso-Footcandle Lines of Horizontal Illumination

× Max cd
 - - - 1/2 Max cd

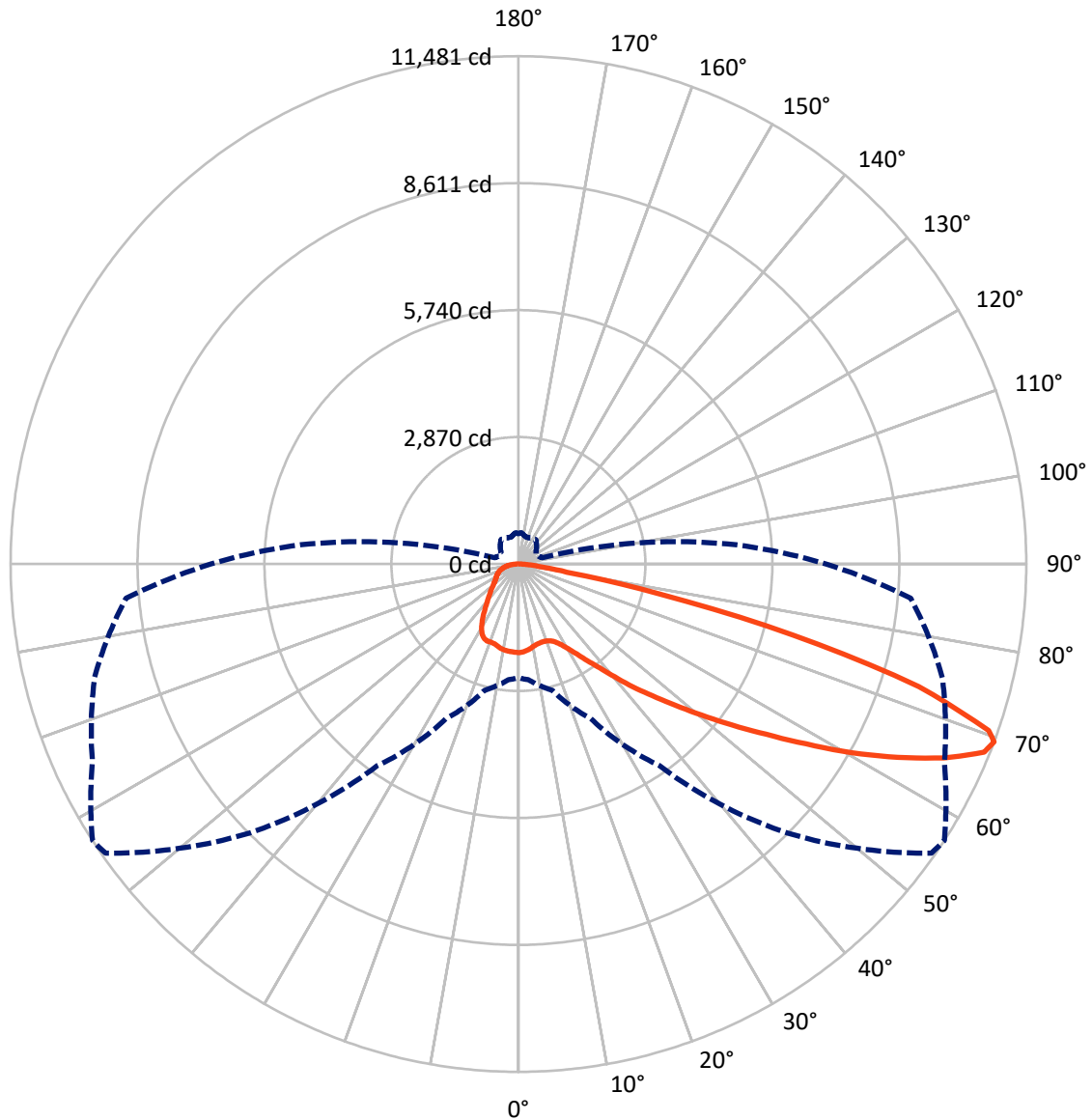


Based on 25 foot mounting height. Maximum calculated value = 3.3 fc
 Type III - Short - Semi-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 57-Deg Lateral - - - Horizontal Cone Through 69-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 3579.2 | 0.0 | 3579.2 |
| | % Fixture | 22.1 | 0.0 | 22.1 |
| Street Side | Lumens | 12640.8 | 0.0 | 12640.8 |
| | % Fixture | 77.9 | 0.0 | 77.9 |
| Total | Lumens | 16220.0 | 0.0 | 16220.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 187.6 | 1.2 |
| 10°-20° | 533.5 | 3.3 |
| 20°-30° | 887.4 | 5.5 |
| 30°-40° | 1449.1 | 8.9 |
| 40°-50° | 2445.8 | 15.1 |
| 50°-60° | 3804.6 | 23.5 |
| 60°-70° | 4532.1 | 27.9 |
| 70°-80° | 2111.3 | 13.0 |
| 80°-90° | 268.5 | 1.7 |
| 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° | 16220.0 | 100.0 |
| 0°-180° | 16220.0 | 100.0 |

Coefficient of Utilization



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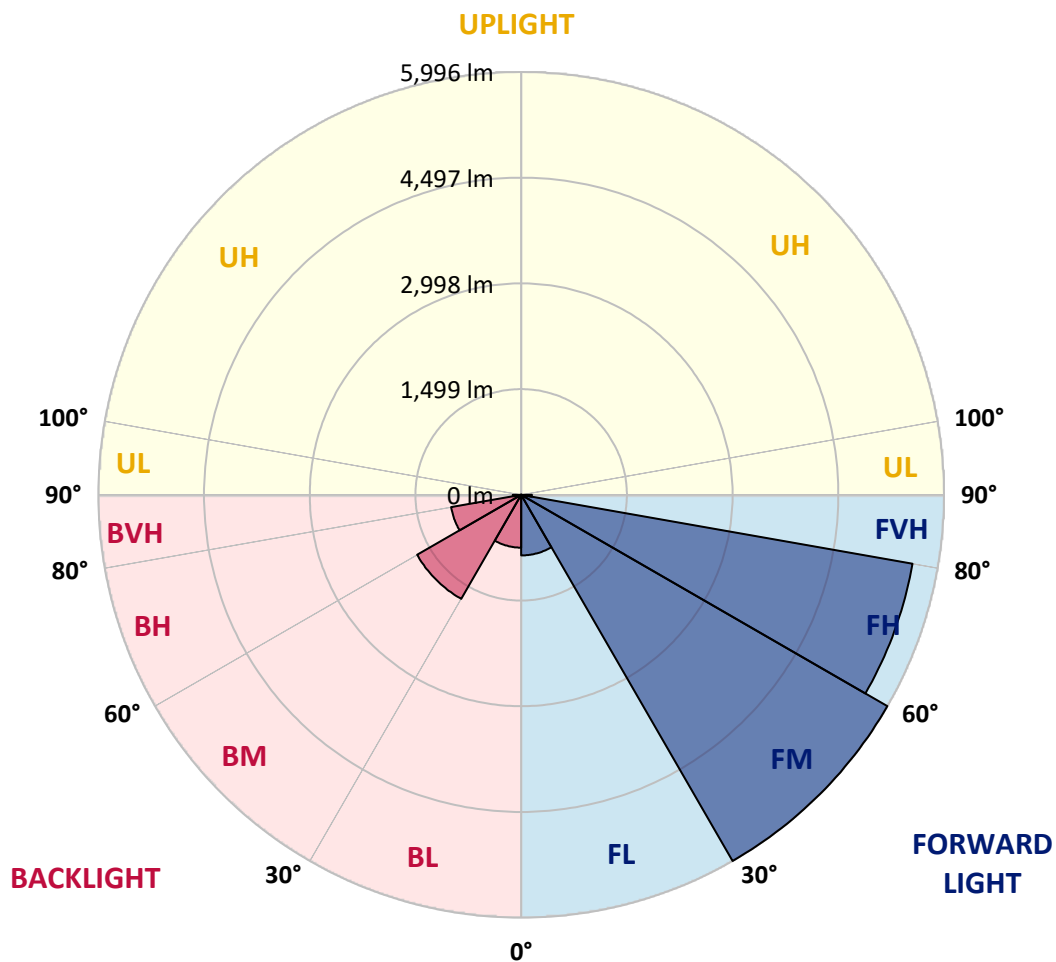
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|---------|
| | | | | B | U | G |
| FL | (0°-30°) | 859.0 | 5.3 | | | |
| FM | (30°-60°) | 5996.0 | 37.0 | | | |
| FH | (60°-80°) | 5634.8 | 34.7 | | | G3/7500 |
| FVH | (80°-90°) | 151.0 | 0.9 | | | G2/225 |
| BL | (0°-30°) | 749.6 | 4.6 | B2/1000 | | |
| BM | (30°-60°) | 1703.5 | 10.5 | B2/2500 | | |
| BH | (60°-80°) | 1008.6 | 6.2 | B3/2500 | | G3/2500 |
| BVH | (80°-90°) | 117.6 | 0.7 | | | 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 III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 57° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|---------|---------|---------|--------|--------|
| 0° | 2004.1 | 2004.1 | 2004.1 | 2004.1 | 2004.1 | 2004.1 | 2004.1 | 2004.1 | 2004.1 | 2004.1 | 2004.1 |
| 2.5° | 1992.7 | 1992.7 | 1997.9 | 1997.9 | 1997.9 | 1995.8 | 1989.6 | 1991.7 | 1987.5 | 1984.4 | 1979.2 |
| 5° | 1952.2 | 1954.3 | 1960.5 | 1962.6 | 1965.7 | 1966.8 | 1966.8 | 1965.7 | 1966.8 | 1966.8 | 1963.6 |
| 7.5° | 1896.1 | 1898.2 | 1905.5 | 1909.6 | 1919.0 | 1927.3 | 1931.5 | 1931.5 | 1936.6 | 1940.8 | 1941.8 |
| 10° | 1861.9 | 1861.9 | 1866.0 | 1866.0 | 1873.3 | 1877.5 | 1891.0 | 1889.9 | 1904.5 | 1918.0 | 1924.2 |
| 12.5° | 1857.7 | 1857.7 | 1855.6 | 1848.4 | 1844.2 | 1843.2 | 1856.7 | 1858.8 | 1880.6 | 1904.5 | 1915.9 |
| 15° | 1871.2 | 1871.2 | 1865.0 | 1850.5 | 1834.9 | 1827.6 | 1841.1 | 1845.3 | 1869.1 | 1897.2 | 1914.8 |
| 17.5° | 1914.8 | 1913.8 | 1900.3 | 1871.2 | 1844.2 | 1832.8 | 1837.0 | 1841.1 | 1862.9 | 1895.1 | 1916.9 |
| 20° | 2011.4 | 2011.4 | 1982.3 | 1929.4 | 1882.6 | 1855.6 | 1849.4 | 1852.5 | 1868.1 | 1898.2 | 1926.3 |
| 22.5° | 2180.7 | 2183.8 | 2131.9 | 2044.6 | 1964.7 | 1907.6 | 1882.6 | 1885.8 | 1893.0 | 1922.1 | 1953.3 |
| 25° | 2429.9 | 2421.6 | 2347.9 | 2224.3 | 2099.7 | 2002.1 | 1951.2 | 1954.3 | 1954.3 | 1981.3 | 2013.5 |
| 27.5° | 2693.6 | 2695.7 | 2589.8 | 2456.9 | 2292.8 | 2147.4 | 2066.4 | 2065.4 | 2064.4 | 2090.3 | 2124.6 |
| 30° | 2991.7 | 2992.7 | 2870.2 | 2716.5 | 2528.5 | 2342.7 | 2221.2 | 2220.1 | 2210.8 | 2243.0 | 2287.6 |
| 32.5° | 3317.7 | 3316.7 | 3174.4 | 3001.0 | 2792.3 | 2581.5 | 2423.7 | 2422.6 | 2415.4 | 2459.0 | 2513.0 |
| 35° | 3679.1 | 3679.1 | 3537.9 | 3324.0 | 3098.6 | 2863.9 | 2681.2 | 2680.1 | 2684.3 | 2743.5 | 2794.4 |
| 37.5° | 4114.2 | 4123.5 | 3953.2 | 3693.6 | 3447.5 | 3197.3 | 2984.4 | 2978.2 | 2947.0 | 3046.7 | 3130.8 |
| 40° | 4568.0 | 4593.9 | 4417.4 | 4114.2 | 3848.4 | 3589.8 | 3355.1 | 3351.0 | 3324.0 | 3429.9 | 3565.9 |
| 42.5° | 5059.2 | 5118.3 | 4922.1 | 4612.6 | 4322.9 | 4043.6 | 3807.9 | 3796.4 | 3692.6 | 3857.7 | 4070.6 |
| 45° | 5703.0 | 5741.4 | 5456.9 | 5176.5 | 4903.4 | 4584.6 | 4304.2 | 4243.0 | 4139.1 | 4351.0 | 4627.2 |
| 47.5° | 6141.2 | 6122.5 | 5944.9 | 5757.0 | 5581.5 | 5276.2 | 4845.2 | 4767.4 | 4640.7 | 4921.0 | 5225.3 |
| 50° | 6413.2 | 6426.7 | 6327.1 | 6317.7 | 6308.4 | 6095.5 | 5455.8 | 5362.4 | 5216.0 | 5548.2 | 5903.4 |
| 52.5° | 6592.9 | 6531.6 | 6549.3 | 6761.1 | 7017.6 | 6915.8 | 6146.4 | 6042.5 | 5892.0 | 6224.3 | 6625.1 |
| 55° | 6518.1 | 6437.1 | 6600.2 | 7017.6 | 7620.9 | 7643.8 | 6904.4 | 6797.5 | 6668.7 | 6942.8 | 7493.2 |
| 57.5° | 6208.7 | 6249.2 | 6506.7 | 7087.2 | 8033.2 | 8295.9 | 7775.6 | 7666.6 | 7413.2 | 7691.5 | 8317.7 |
| 60° | 5773.6 | 5855.6 | 6249.2 | 6977.1 | 8321.9 | 8803.7 | 8732.0 | 8659.3 | 8223.2 | 8420.5 | 9183.7 |
| 62.5° | 5306.3 | 5387.3 | 5871.2 | 6789.2 | 8192.0 | 9253.3 | 9670.8 | 9626.1 | 9117.3 | 9122.5 | 9733.1 |
| 65° | 4615.8 | 4649.0 | 5143.3 | 6276.2 | 7831.7 | 9659.3 | 10610.5 | 10571.1 | 9971.9 | 9721.6 | 9886.7 |
| 67.5° | 3486.0 | 3527.5 | 3933.5 | 4954.3 | 6735.2 | 9439.2 | 11361.3 | 11355.1 | 10485.9 | 9943.9 | 9521.2 |
| 69° | 2574.2 | 2625.1 | 2956.4 | 3846.3 | 5569.0 | 8600.1 | 11396.6 | 11480.7 | 10625.1 | 9921.0 | 8903.4 |
| 70° | 1883.7 | 1941.8 | 2248.2 | 3052.9 | 4638.6 | 7673.9 | 11094.4 | 11275.1 | 10572.1 | 9776.7 | 8421.5 |
| 72.5° | 800.6 | 820.3 | 970.9 | 1378.0 | 2353.0 | 4627.2 | 9087.2 | 9467.2 | 9548.2 | 8760.1 | 6579.4 |
| 75° | 501.6 | 507.8 | 567.0 | 707.2 | 1046.7 | 1913.8 | 5884.7 | 6402.9 | 7128.7 | 6796.4 | 4405.0 |
| 77.5° | 378.0 | 383.2 | 417.4 | 487.0 | 650.0 | 714.4 | 2730.0 | 3255.4 | 4083.0 | 3997.9 | 2192.1 |
| 80° | 289.7 | 292.8 | 315.7 | 354.1 | 457.9 | 447.6 | 885.8 | 1113.2 | 1704.0 | 1503.6 | 775.7 |
| 82.5° | 227.4 | 228.5 | 248.2 | 255.4 | 319.8 | 301.1 | 444.4 | 495.3 | 688.5 | 572.2 | 379.0 |
| 85° | 201.5 | 204.6 | 224.3 | 186.9 | 204.6 | 181.7 | 244.0 | 264.8 | 365.5 | 344.8 | 143.3 |
| 87.5° | 102.8 | 108.0 | 188.0 | 159.9 | 102.8 | 86.2 | 107.0 | 115.3 | 148.5 | 161.0 | 69.6 |
| 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° | 2004.1 | 2004.1 | 2004.1 | 2004.1 | 2004.1 | 2004.1 | 2004.1 | 2004.1 | 2004.1 | 2004.1 | 2004.1 |
| 2.5° | 1980.3 | 1981.3 | 1984.4 | 1989.6 | 1997.9 | 2008.3 | 2020.8 | 2033.2 | 2040.5 | 2045.7 | 2043.6 |
| 5° | 1963.6 | 1964.7 | 1970.9 | 1980.3 | 1990.6 | 2006.2 | 2027.0 | 2042.6 | 2054.0 | 2061.3 | 2060.2 |
| 7.5° | 1942.9 | 1946.0 | 1958.4 | 1968.8 | 1983.4 | 1995.8 | 2012.4 | 2027.0 | 2038.4 | 2045.7 | 2044.6 |
| 10° | 1927.3 | 1930.4 | 1946.0 | 1959.5 | 1971.9 | 1974.0 | 1970.9 | 1966.8 | 1965.7 | 1970.9 | 1968.8 |
| 12.5° | 1920.0 | 1926.3 | 1940.8 | 1950.1 | 1944.9 | 1925.2 | 1902.4 | 1893.0 | 1889.9 | 1900.3 | 1901.3 |
| 15° | 1922.1 | 1927.3 | 1939.8 | 1933.5 | 1905.5 | 1872.3 | 1859.8 | 1867.1 | 1873.3 | 1879.5 | 1880.6 |
| 17.5° | 1927.3 | 1930.4 | 1933.5 | 1910.7 | 1871.2 | 1849.4 | 1845.3 | 1838.0 | 1819.3 | 1808.9 | 1807.9 |
| 20° | 1936.6 | 1940.8 | 1935.6 | 1899.3 | 1864.0 | 1834.9 | 1785.0 | 1740.4 | 1697.8 | 1675.0 | 1665.6 |
| 22.5° | 1968.8 | 1971.9 | 1956.4 | 1921.1 | 1867.1 | 1772.6 | 1671.8 | 1595.0 | 1529.6 | 1494.3 | 1480.8 |
| 25° | 2032.2 | 2037.4 | 2015.6 | 1970.9 | 1829.7 | 1664.6 | 1522.3 | 1418.5 | 1336.4 | 1293.9 | 1282.4 |
| 27.5° | 2143.3 | 2148.5 | 2124.6 | 2008.3 | 1742.5 | 1520.2 | 1347.9 | 1245.1 | 1174.4 | 1138.1 | 1132.9 |
| 30° | 2309.4 | 2316.7 | 2294.9 | 2007.3 | 1609.5 | 1336.4 | 1177.6 | 1117.3 | 1076.8 | 1051.9 | 1050.9 |
| 32.5° | 2540.0 | 2567.0 | 2477.7 | 1971.9 | 1445.5 | 1150.6 | 1048.8 | 1028.0 | 1008.3 | 991.7 | 991.7 |
| 35° | 2832.8 | 2896.1 | 2658.3 | 1898.2 | 1264.8 | 1023.9 | 977.1 | 957.4 | 932.5 | 914.8 | 912.8 |
| 37.5° | 3182.7 | 3281.4 | 2787.1 | 1767.4 | 1109.0 | 962.6 | 933.5 | 901.3 | 861.9 | 827.6 | 819.3 |
| 40° | 3663.5 | 3686.4 | 2850.4 | 1554.5 | 992.7 | 929.4 | 893.0 | 852.5 | 802.7 | 764.3 | 760.1 |
| 42.5° | 4146.4 | 4071.6 | 2838.0 | 1326.1 | 926.3 | 899.3 | 851.5 | 806.8 | 762.2 | 730.0 | 730.0 |
| 45° | 4695.7 | 4408.1 | 2743.5 | 1096.6 | 866.0 | 865.0 | 813.1 | 770.5 | 736.2 | 712.4 | 707.2 |
| 47.5° | 5221.1 | 4710.2 | 2580.5 | 927.3 | 803.7 | 830.7 | 788.2 | 753.9 | 722.7 | 699.9 | 695.7 |
| 50° | 5858.7 | 5060.2 | 2407.0 | 808.9 | 743.5 | 800.6 | 777.8 | 760.1 | 730.0 | 690.5 | 686.4 |
| 52.5° | 6492.2 | 5469.3 | 2273.1 | 719.6 | 690.5 | 776.7 | 784.0 | 786.1 | 758.0 | 681.2 | 676.0 |
| 55° | 7172.3 | 5906.5 | 2131.9 | 650.0 | 646.9 | 765.3 | 798.5 | 796.5 | 783.0 | 683.3 | 675.0 |
| 57.5° | 7819.3 | 6345.7 | 1921.1 | 601.2 | 612.7 | 753.9 | 801.7 | 768.4 | 744.5 | 693.7 | 680.2 |
| 60° | 8355.1 | 6709.2 | 1611.6 | 567.0 | 583.6 | 731.0 | 780.9 | 731.0 | 690.5 | 691.6 | 679.1 |
| 62.5° | 8615.7 | 6811.0 | 1232.6 | 527.5 | 559.7 | 693.7 | 750.8 | 703.0 | 665.6 | 695.7 | 688.5 |
| 65° | 8417.4 | 6521.2 | 878.5 | 491.2 | 530.6 | 650.0 | 733.1 | 679.1 | 653.2 | 716.5 | 708.2 |
| 67.5° | 7705.0 | 5732.0 | 637.6 | 459.0 | 502.6 | 605.4 | 699.9 | 657.3 | 640.7 | 732.1 | 713.4 |
| 69° | 6948.0 | 4949.1 | 552.4 | 440.3 | 482.9 | 581.5 | 678.1 | 645.9 | 631.4 | 710.3 | 683.3 |
| 70° | 6318.7 | 4345.8 | 509.9 | 428.9 | 466.2 | 568.0 | 661.5 | 638.6 | 622.0 | 684.3 | 652.1 |
| 72.5° | 4530.6 | 2808.9 | 428.9 | 394.6 | 422.6 | 537.9 | 625.1 | 611.6 | 586.7 | 617.9 | 597.1 |
| 75° | 2737.3 | 1466.2 | 364.5 | 359.3 | 376.9 | 496.4 | 582.6 | 565.9 | 541.0 | 544.1 | 533.7 |
| 77.5° | 1257.5 | 677.0 | 305.3 | 317.8 | 329.2 | 444.4 | 530.6 | 511.9 | 489.1 | 480.8 | 481.8 |
| 80° | 551.4 | 395.6 | 255.4 | 271.0 | 277.3 | 399.8 | 474.6 | 453.8 | 428.9 | 473.5 | 439.2 |
| 82.5° | 298.0 | 229.5 | 199.4 | 209.8 | 227.4 | 347.9 | 412.3 | 385.3 | 361.4 | 420.6 | 339.6 |
| 85° | 120.5 | 117.3 | 135.0 | 145.4 | 157.8 | 250.3 | 344.8 | 316.7 | 287.6 | 257.5 | 251.3 |
| 87.5° | 51.9 | 56.1 | 66.5 | 70.6 | 84.1 | 155.8 | 231.6 | 202.5 | 203.5 | 174.5 | 171.3 |
| 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)