

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: P196102

Luminaire Tested: **NAV-AF-04-D-UNV-SL2-1200**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196102
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24257)
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-SL2-1200
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 4000K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II
SPILL LIGHT ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 26840.2 lumens
Efficiency: N/A
Efficacy: 104.0 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Medium - Semi-Cutoff
BUG Rating: B3 - U0 - G4

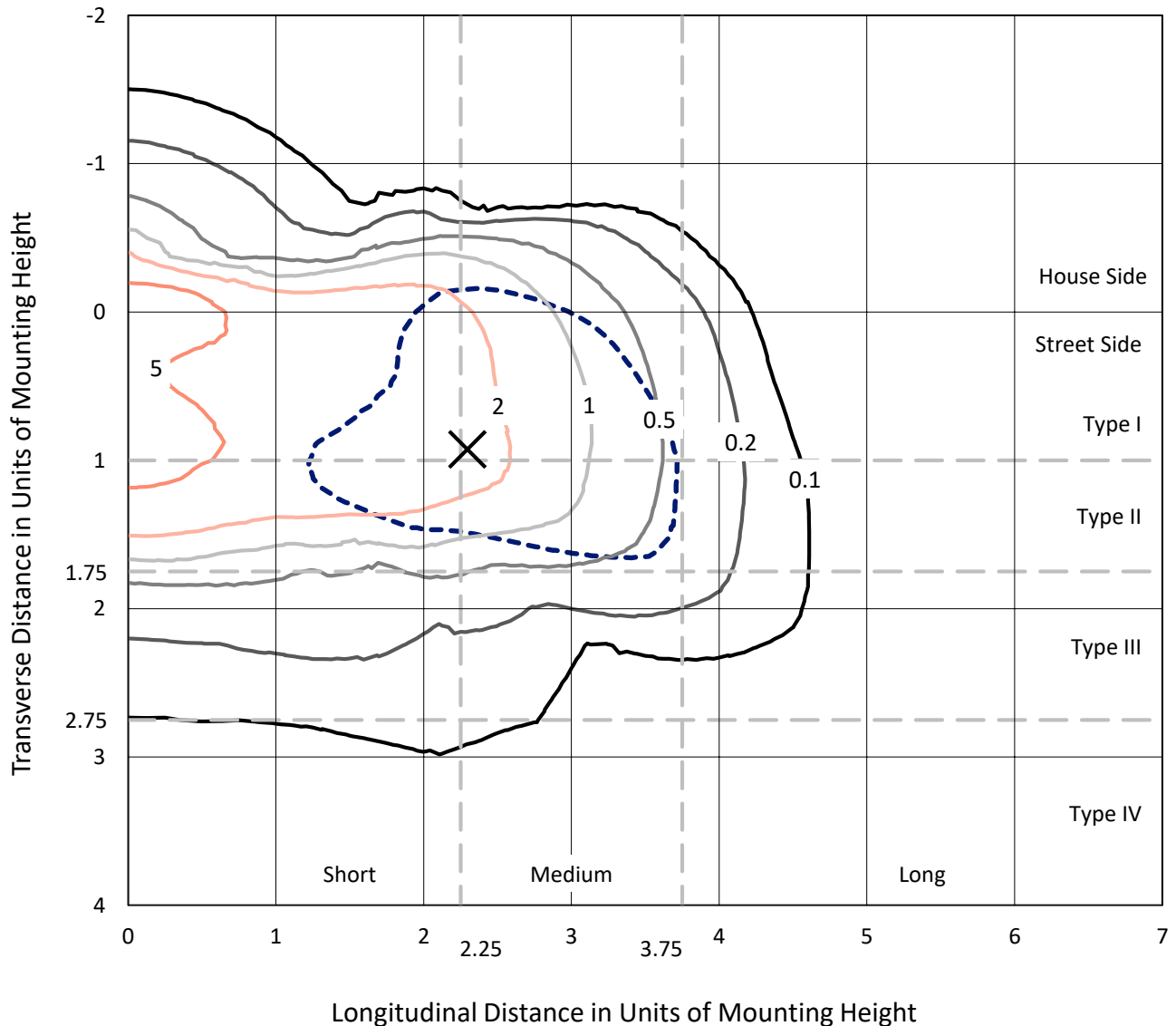
Input Watts (W): 258
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

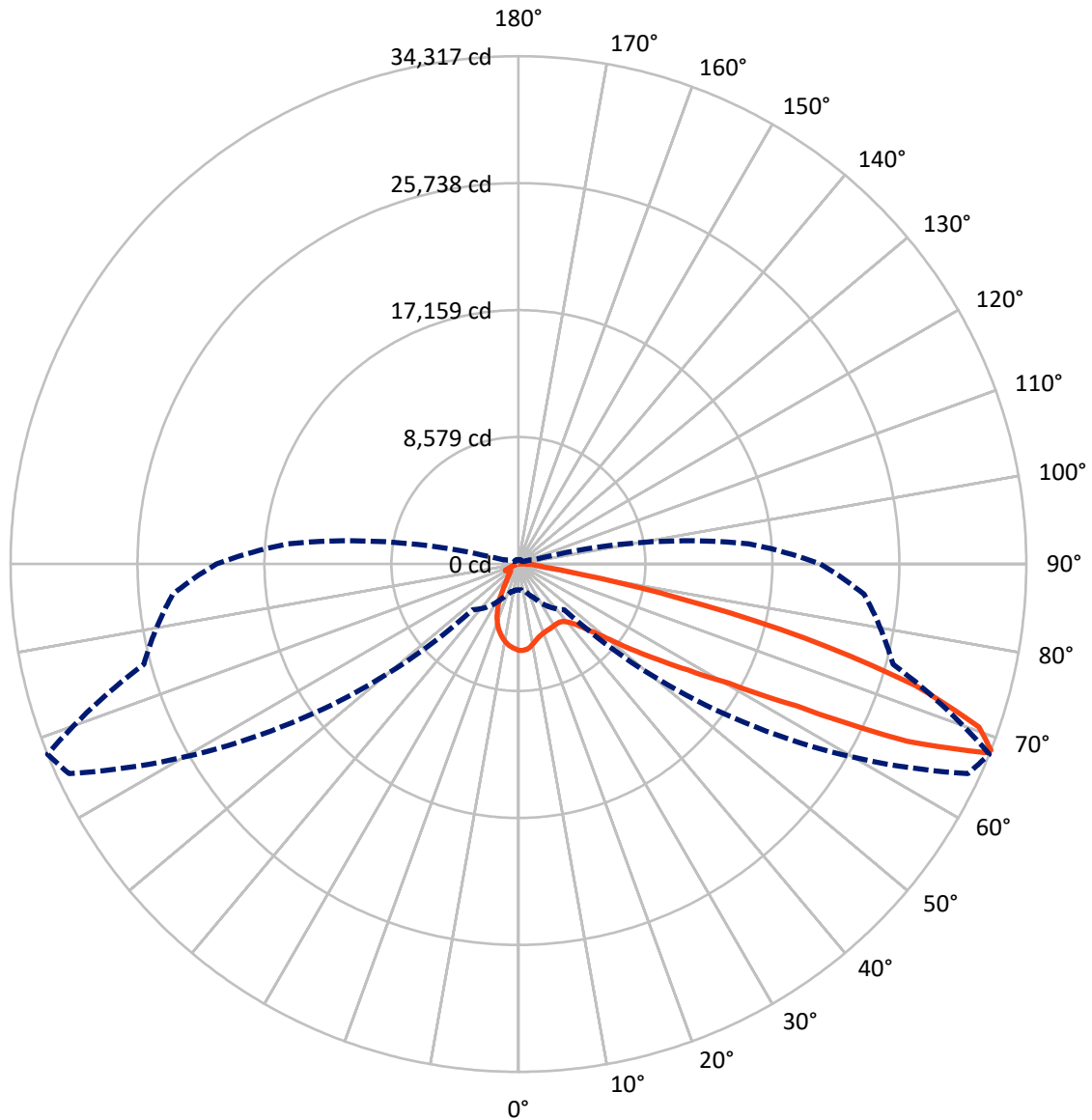
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 9.3 fc
 Type II - Medium - Semi-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 68-Deg Lateral - - - Horizontal Cone Through 68-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4391.1 | 0.0 | 4391.1 |
| | % Fixture | 16.4 | 0.0 | 16.4 |
| Street Side | Lumens | 22449.0 | 0.0 | 22449.0 |
| | % Fixture | 83.6 | 0.0 | 83.6 |
| Total | Lumens | 26840.2 | 0.0 | 26840.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 500.4 | 1.9 |
| 10°-20° | 1160.6 | 4.3 |
| 20°-30° | 1569.7 | 5.8 |
| 30°-40° | 2213.2 | 8.2 |
| 40°-50° | 3639.3 | 13.6 |
| 50°-60° | 5641.3 | 21.0 |
| 60°-70° | 7314.4 | 27.3 |
| 70°-80° | 4197.4 | 15.6 |
| 80°-90° | 603.9 | 2.2 |
| 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° | 26840.2 | 100.0 |
| 0°-180° | 26840.2 | 100.0 |

Coefficient of Utilization



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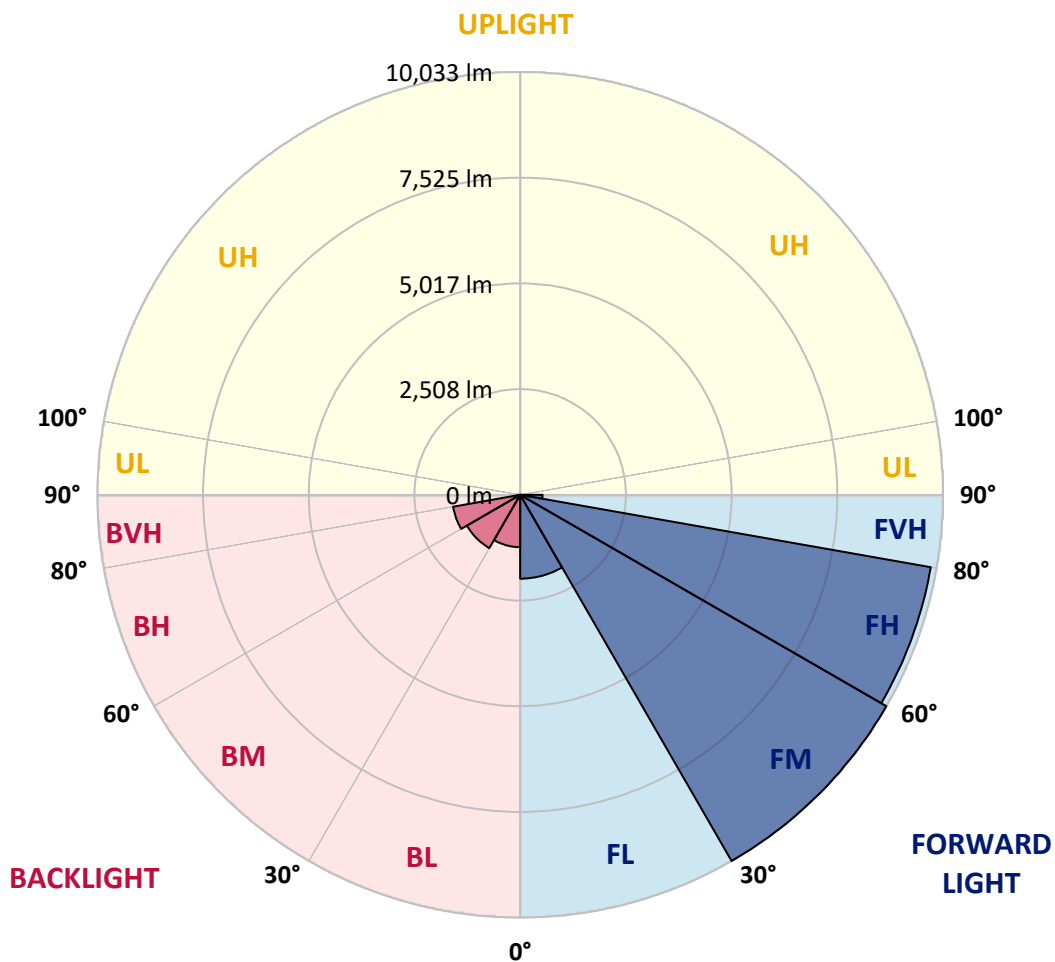
CATALOG NUMBER: NAV-AF-04-D-UNV-SL2-1200

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|---------|-----------|-------------------------|------|----------|
| | | | | B | U | G |
| FL | (0°-30°) | 1989.3 | 7.4 | | | |
| FM | (30°-60°) | 10033.3 | 37.4 | | | |
| FH | (60°-80°) | 9894.5 | 36.9 | | | G4/12000 |
| FVH | (80°-90°) | 531.9 | 2.0 | | | G4/750 |
| BL | (0°-30°) | 1241.4 | 4.6 | B3/2500 | | |
| BM | (30°-60°) | 1460.5 | 5.4 | B2/2500 | | |
| BH | (60°-80°) | 1617.2 | 6.0 | B3/2500 | | G3/2500 |
| BVH | (80°-90°) | 72.0 | 0.3 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G4

Type II Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 68° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 5840.2 | 5840.2 | 5840.2 | 5840.2 | 5840.2 | 5840.2 | 5840.2 | 5840.2 | 5840.2 | 5840.2 | 5840.2 |
| 2.5° | 5684.1 | 5729.8 | 5729.8 | 5763.0 | 5792.9 | 5817.4 | 5838.4 | 5838.4 | 5838.4 | 5824.4 | 5812.1 |
| 5° | 5086.3 | 5147.6 | 5156.4 | 5240.6 | 5351.1 | 5486.0 | 5636.8 | 5770.1 | 5796.3 | 5845.4 | 5864.7 |
| 7.5° | 4670.8 | 4690.0 | 4723.4 | 4781.2 | 4893.4 | 5059.9 | 5296.6 | 5594.7 | 5666.6 | 5820.9 | 5901.5 |
| 10° | 4376.2 | 4391.9 | 4420.1 | 4477.9 | 4579.5 | 4730.3 | 4963.6 | 5351.1 | 5470.2 | 5743.8 | 5903.3 |
| 12.5° | 4160.5 | 4172.8 | 4199.1 | 4251.7 | 4355.1 | 4490.1 | 4728.6 | 5131.8 | 5279.1 | 5666.6 | 5927.9 |
| 15° | 3992.3 | 4013.2 | 4034.3 | 4085.2 | 4190.3 | 4320.1 | 4562.1 | 4972.4 | 5131.8 | 5605.3 | 5973.4 |
| 17.5° | 3925.6 | 3936.1 | 3939.6 | 3965.9 | 4060.6 | 4192.1 | 4434.1 | 4860.1 | 5024.9 | 5556.2 | 6008.5 |
| 20° | 3967.7 | 3969.5 | 3934.4 | 3916.9 | 3971.2 | 4092.2 | 4327.1 | 4776.0 | 4944.2 | 5512.3 | 6022.5 |
| 22.5° | 4151.7 | 4151.7 | 4060.6 | 3983.5 | 3946.6 | 4022.0 | 4255.2 | 4718.1 | 4900.4 | 5479.0 | 6022.5 |
| 25° | 4502.4 | 4486.7 | 4344.7 | 4192.1 | 4029.0 | 3997.5 | 4209.6 | 4681.2 | 4867.7 | 5461.4 | 5999.7 |
| 27.5° | 4963.6 | 4949.5 | 4768.9 | 4542.7 | 4248.2 | 4050.1 | 4193.9 | 4651.5 | 4833.7 | 5435.1 | 5950.6 |
| 30° | 5524.5 | 5512.3 | 5307.2 | 5010.9 | 4576.1 | 4216.6 | 4230.7 | 4630.4 | 4807.5 | 5391.4 | 5868.3 |
| 32.5° | 6083.9 | 6076.8 | 5913.8 | 5610.5 | 5028.4 | 4498.9 | 4327.1 | 4626.9 | 4793.4 | 5338.8 | 5768.3 |
| 35° | 6646.7 | 6646.7 | 6546.8 | 6290.7 | 5636.8 | 4923.3 | 4528.7 | 4691.8 | 4819.7 | 5310.6 | 5682.4 |
| 37.5° | 7477.8 | 7444.4 | 7258.6 | 6993.8 | 6403.0 | 5473.7 | 4854.8 | 4828.5 | 4921.4 | 5358.0 | 5654.4 |
| 40° | 8764.6 | 8668.2 | 8203.7 | 7758.3 | 7239.3 | 6178.5 | 5331.7 | 5093.3 | 5149.4 | 5519.3 | 5721.0 |
| 42.5° | 10111.2 | 9958.6 | 9343.2 | 8631.5 | 8103.7 | 7048.2 | 5957.7 | 5522.8 | 5521.1 | 5831.4 | 5933.1 |
| 45° | 11266.6 | 11187.7 | 10521.5 | 9618.5 | 9090.8 | 8026.5 | 6748.4 | 6161.0 | 6097.9 | 6315.3 | 6341.6 |
| 47.5° | 11938.1 | 11885.5 | 11484.0 | 10663.4 | 10261.9 | 9181.9 | 7751.3 | 7046.4 | 6927.2 | 7056.9 | 7016.6 |
| 50° | 11752.3 | 11803.1 | 11687.4 | 11268.3 | 11520.8 | 10805.5 | 9029.4 | 8259.7 | 8033.5 | 8163.2 | 8065.1 |
| 52.5° | 10773.9 | 10910.7 | 11014.1 | 11094.8 | 12244.9 | 12977.8 | 10635.4 | 9774.5 | 9587.0 | 9564.2 | 9469.5 |
| 55° | 9011.9 | 9229.3 | 9555.4 | 10148.0 | 12050.4 | 14722.3 | 13440.7 | 11606.7 | 11333.2 | 11189.4 | 11226.3 |
| 57.5° | 6133.0 | 6462.6 | 7165.7 | 8293.1 | 11038.7 | 15465.7 | 17588.9 | 13973.7 | 13510.8 | 12998.8 | 13118.0 |
| 60° | 3378.6 | 3653.9 | 4490.1 | 5626.3 | 8729.6 | 15355.2 | 21265.6 | 17820.3 | 16363.4 | 15006.4 | 15251.8 |
| 62.5° | 2186.4 | 2246.0 | 2868.4 | 3843.2 | 5358.0 | 13556.3 | 23308.1 | 24249.7 | 21162.1 | 17653.8 | 17999.2 |
| 65° | 1756.8 | 1798.9 | 2103.9 | 3099.8 | 3732.7 | 8720.9 | 23399.3 | 30919.1 | 28883.5 | 21251.5 | 21262.0 |
| 67.5° | 1716.5 | 1735.7 | 1912.8 | 2607.1 | 3501.4 | 4747.9 | 20225.9 | 33549.1 | 34020.7 | 25498.0 | 23444.9 |
| 68° | 1741.0 | 1763.8 | 1942.7 | 2526.5 | 3499.5 | 4376.2 | 18693.5 | 33508.7 | 34317.0 | 26208.1 | 23444.9 |
| 70° | 1535.9 | 1563.9 | 1981.3 | 2614.2 | 3350.6 | 3762.5 | 12800.7 | 31729.2 | 33030.1 | 27840.4 | 22245.6 |
| 72.5° | 803.0 | 780.2 | 980.1 | 2063.6 | 3771.3 | 3920.4 | 6762.4 | 26507.9 | 28026.2 | 25783.8 | 19219.5 |
| 75° | 625.9 | 569.8 | 548.8 | 815.3 | 3317.2 | 4065.8 | 3927.3 | 18840.8 | 19987.4 | 18586.5 | 12846.3 |
| 77.5° | 589.1 | 520.7 | 480.4 | 482.1 | 1460.5 | 4230.7 | 3177.0 | 11087.8 | 11087.8 | 8866.3 | 4099.2 |
| 80° | 473.4 | 410.3 | 384.0 | 438.3 | 704.8 | 3899.3 | 3315.5 | 5053.0 | 4309.6 | 2291.5 | 1129.1 |
| 82.5° | 312.1 | 278.8 | 280.5 | 355.9 | 534.8 | 2603.6 | 3839.6 | 2494.9 | 1874.3 | 1015.2 | 664.5 |
| 85° | 198.1 | 170.1 | 189.3 | 249.0 | 399.8 | 1160.6 | 3801.1 | 1734.0 | 1241.4 | 569.8 | 331.3 |
| 87.5° | 99.9 | 77.1 | 94.7 | 129.7 | 243.7 | 333.1 | 3129.6 | 1548.1 | 920.5 | 236.7 | 180.6 |
| 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° | 5840.2 | 5840.2 | 5840.2 | 5840.2 | 5840.2 | 5840.2 | 5840.2 | 5840.2 | 5840.2 | 5840.2 | 5840.2 |
| 2.5° | 5812.1 | 5773.5 | 5754.3 | 5722.7 | 5684.1 | 5645.6 | 5619.3 | 5607.0 | 5599.9 | 5603.5 | 5601.8 |
| 5° | 5854.2 | 5803.4 | 5721.0 | 5603.5 | 5482.5 | 5354.5 | 5256.3 | 5180.9 | 5133.6 | 5119.6 | 5116.1 |
| 7.5° | 5885.8 | 5812.1 | 5657.8 | 5443.9 | 5237.1 | 5012.7 | 4821.6 | 4669.0 | 4565.5 | 4518.2 | 4516.4 |
| 10° | 5880.5 | 5785.8 | 5542.1 | 5226.6 | 4923.3 | 4593.6 | 4293.8 | 4037.8 | 3851.9 | 3762.5 | 3759.0 |
| 12.5° | 5885.8 | 5756.0 | 5400.2 | 4972.4 | 4537.5 | 4065.8 | 3620.5 | 3222.5 | 2945.5 | 2814.0 | 2808.7 |
| 15° | 5906.8 | 5724.4 | 5254.6 | 4688.3 | 4086.9 | 3420.6 | 2784.2 | 2284.6 | 2032.1 | 1946.2 | 1946.2 |
| 17.5° | 5905.1 | 5671.9 | 5086.3 | 4358.7 | 3552.2 | 2659.8 | 1900.5 | 1592.0 | 1567.5 | 1646.3 | 1658.6 |
| 20° | 5870.0 | 5587.7 | 4868.8 | 3967.7 | 2924.5 | 1840.9 | 1288.7 | 1244.8 | 1441.2 | 1658.6 | 1683.2 |
| 22.5° | 5815.7 | 5479.0 | 4618.1 | 3513.5 | 2193.3 | 1199.2 | 994.1 | 1060.7 | 1327.3 | 1597.2 | 1635.8 |
| 25° | 5740.3 | 5347.5 | 4330.6 | 2985.9 | 1458.7 | 862.7 | 829.3 | 911.8 | 1099.3 | 1279.9 | 1307.9 |
| 27.5° | 5629.8 | 5180.9 | 4016.8 | 2414.3 | 931.0 | 710.0 | 722.3 | 780.2 | 860.8 | 938.0 | 953.8 |
| 30° | 5491.3 | 4986.4 | 3674.8 | 1781.4 | 706.6 | 634.6 | 655.7 | 690.8 | 725.9 | 775.0 | 785.4 |
| 32.5° | 5351.1 | 4788.2 | 3319.0 | 1223.8 | 617.1 | 594.3 | 615.4 | 634.6 | 664.5 | 697.9 | 704.8 |
| 35° | 5224.8 | 4604.1 | 2952.5 | 853.9 | 578.6 | 568.0 | 578.6 | 590.9 | 620.6 | 654.0 | 657.5 |
| 37.5° | 5133.6 | 4453.3 | 2570.3 | 675.0 | 555.8 | 545.2 | 550.6 | 555.8 | 590.9 | 640.0 | 645.2 |
| 40° | 5121.3 | 4353.4 | 2182.9 | 606.6 | 538.3 | 524.3 | 520.7 | 524.3 | 569.8 | 625.9 | 631.2 |
| 42.5° | 5240.6 | 4358.7 | 1804.2 | 578.6 | 524.3 | 508.4 | 494.4 | 501.5 | 541.8 | 585.6 | 589.1 |
| 45° | 5522.8 | 4481.3 | 1476.2 | 566.3 | 512.0 | 499.7 | 478.6 | 482.1 | 501.5 | 524.3 | 527.7 |
| 47.5° | 6020.8 | 4749.7 | 1225.5 | 559.2 | 501.5 | 490.9 | 464.6 | 454.1 | 455.8 | 468.1 | 468.1 |
| 50° | 6816.7 | 5198.5 | 1073.0 | 552.3 | 492.7 | 473.4 | 443.6 | 422.6 | 417.3 | 424.3 | 426.1 |
| 52.5° | 8003.8 | 5968.2 | 999.3 | 538.3 | 476.9 | 450.6 | 417.3 | 396.3 | 387.5 | 394.4 | 394.4 |
| 55° | 9608.0 | 7197.2 | 964.3 | 518.9 | 457.6 | 422.6 | 392.7 | 375.2 | 368.2 | 373.5 | 373.5 |
| 57.5° | 11436.7 | 8794.5 | 1023.9 | 492.7 | 433.0 | 392.7 | 371.7 | 359.5 | 354.1 | 359.5 | 361.2 |
| 60° | 13609.0 | 10884.4 | 1434.2 | 459.4 | 406.7 | 366.4 | 354.1 | 347.2 | 343.6 | 348.9 | 348.9 |
| 62.5° | 16496.6 | 13665.1 | 2219.7 | 433.0 | 378.7 | 341.9 | 338.4 | 334.9 | 331.3 | 336.7 | 336.7 |
| 65° | 19614.0 | 16195.1 | 2284.6 | 417.3 | 354.1 | 320.9 | 322.6 | 322.6 | 319.1 | 324.4 | 324.4 |
| 67.5° | 20606.3 | 15975.9 | 1276.4 | 398.0 | 324.4 | 299.8 | 306.8 | 306.8 | 305.0 | 310.4 | 308.6 |
| 68° | 20395.9 | 15628.7 | 1111.5 | 392.7 | 319.1 | 294.5 | 301.6 | 303.3 | 301.6 | 306.8 | 305.0 |
| 70° | 18828.5 | 13721.1 | 731.1 | 362.9 | 296.3 | 277.0 | 287.6 | 289.3 | 287.6 | 294.5 | 292.8 |
| 72.5° | 15542.8 | 10291.8 | 540.0 | 317.3 | 268.2 | 254.2 | 264.7 | 266.5 | 268.2 | 275.3 | 273.5 |
| 75° | 9871.0 | 5684.1 | 426.1 | 270.0 | 240.2 | 227.9 | 238.4 | 243.7 | 247.2 | 257.8 | 252.5 |
| 77.5° | 2703.6 | 1725.2 | 345.3 | 229.7 | 206.8 | 201.6 | 208.7 | 215.6 | 219.1 | 231.4 | 222.7 |
| 80° | 946.7 | 762.7 | 287.6 | 194.6 | 171.9 | 170.1 | 177.1 | 184.1 | 187.6 | 198.1 | 187.6 |
| 82.5° | 575.1 | 498.0 | 229.7 | 152.5 | 135.0 | 133.3 | 142.0 | 149.0 | 152.5 | 152.5 | 145.6 |
| 85° | 299.8 | 263.0 | 168.3 | 107.0 | 92.9 | 87.7 | 103.4 | 112.2 | 114.0 | 112.2 | 107.0 |
| 87.5° | 168.3 | 149.0 | 89.4 | 50.8 | 42.0 | 43.8 | 54.3 | 66.6 | 71.9 | 70.2 | 66.6 |
| 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)