

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: P196149

Luminaire Tested: **NAV-AF-03-D-UNV-SL3-1200**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196149
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24262)
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-SL3-1200
Description: NAVION ROADWAY AND AREA LUMINAIRE
(3) 70 CRI, 4000K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III
SPILL LIGHT ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 20300.4 lumens
Efficiency: N/A
Efficacy: 106.3 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')
IES Classification: Type III - Medium - Non-Cutoff
BUG Rating: B2 - U0 - G4

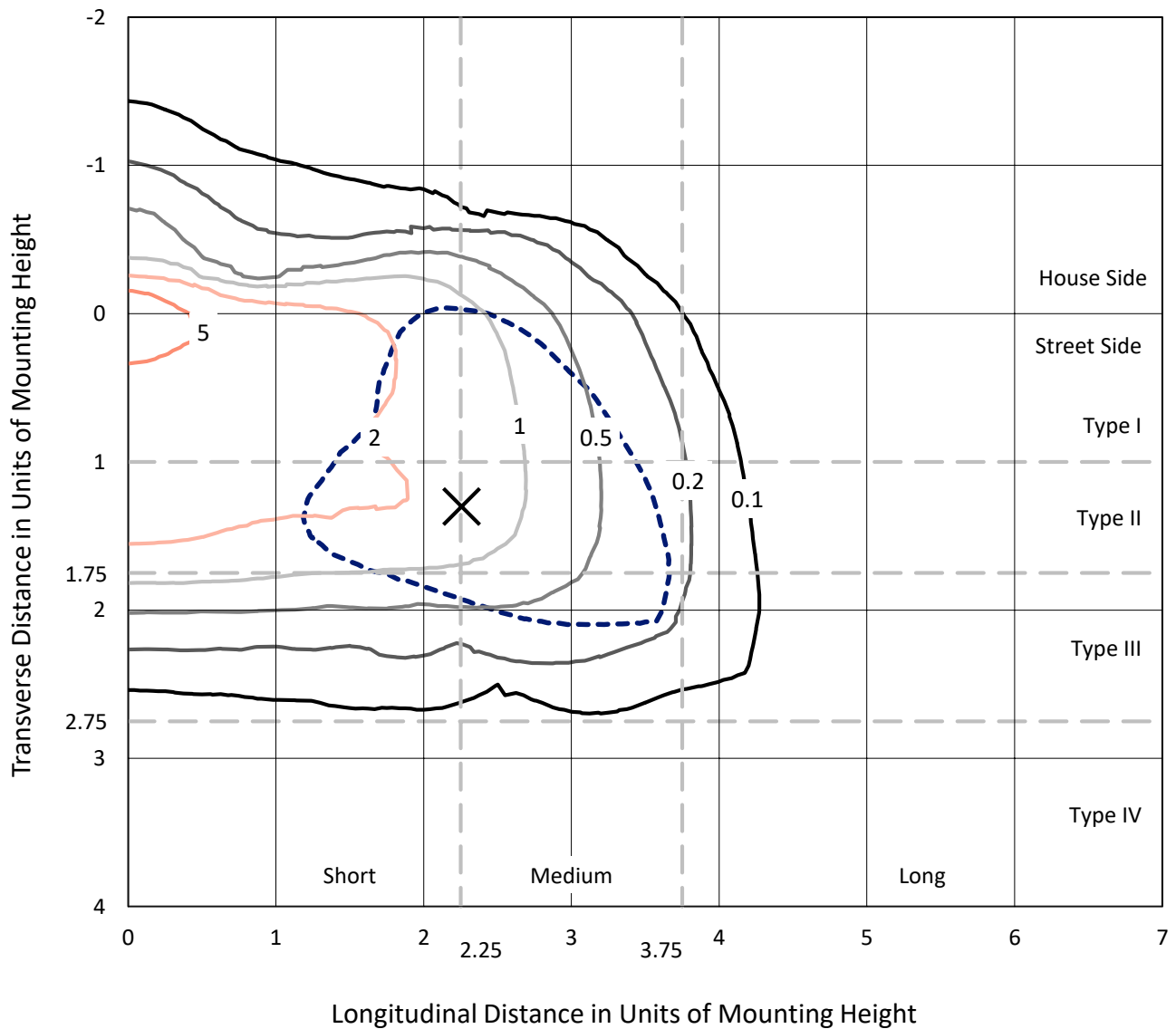
Input Watts (W): 191
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

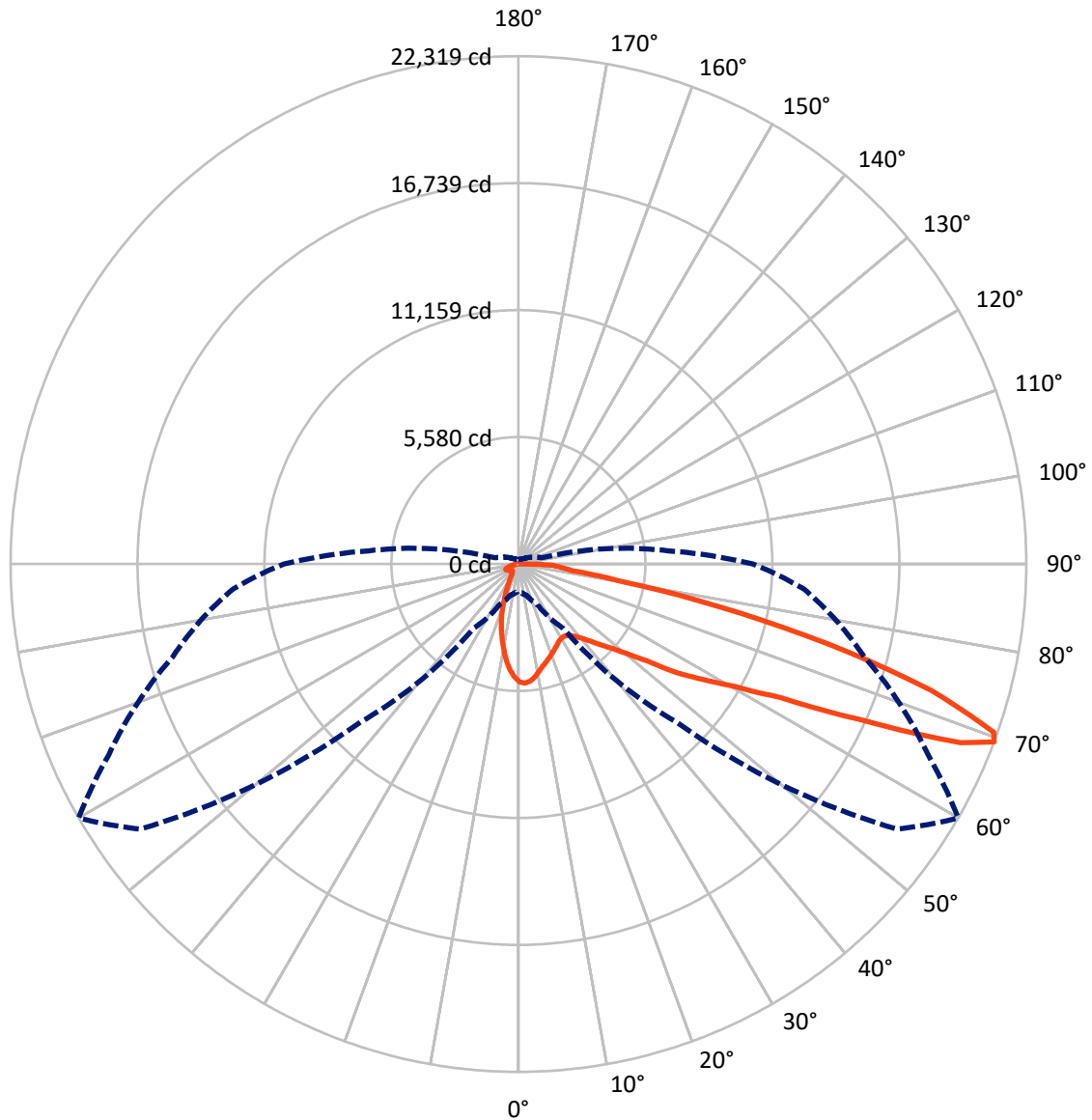
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 8.3 fc
 Type III - Medium - Non-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 60-Deg Lateral - - - Horizontal Cone Through 69-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2895.5 | 0.0 | 2895.5 |
| | % Fixture | 14.3 | 0.0 | 14.3 |
| Street Side | Lumens | 17404.9 | 0.0 | 17404.9 |
| | % Fixture | 85.7 | 0.0 | 85.7 |
| Total | Lumens | 20300.4 | 0.0 | 20300.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 439.4 | 2.2 |
| 10°-20° | 940.8 | 4.6 |
| 20°-30° | 1200.2 | 5.9 |
| 30°-40° | 1651.6 | 8.1 |
| 40°-50° | 2675.3 | 13.2 |
| 50°-60° | 4198.8 | 20.7 |
| 60°-70° | 5597.7 | 27.6 |
| 70°-80° | 3113.6 | 15.3 |
| 80°-90° | 482.9 | 2.4 |
| 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° | 20300.4 | 100.0 |
| 0°-180° | 20300.4 | 100.0 |

Coefficient of Utilization



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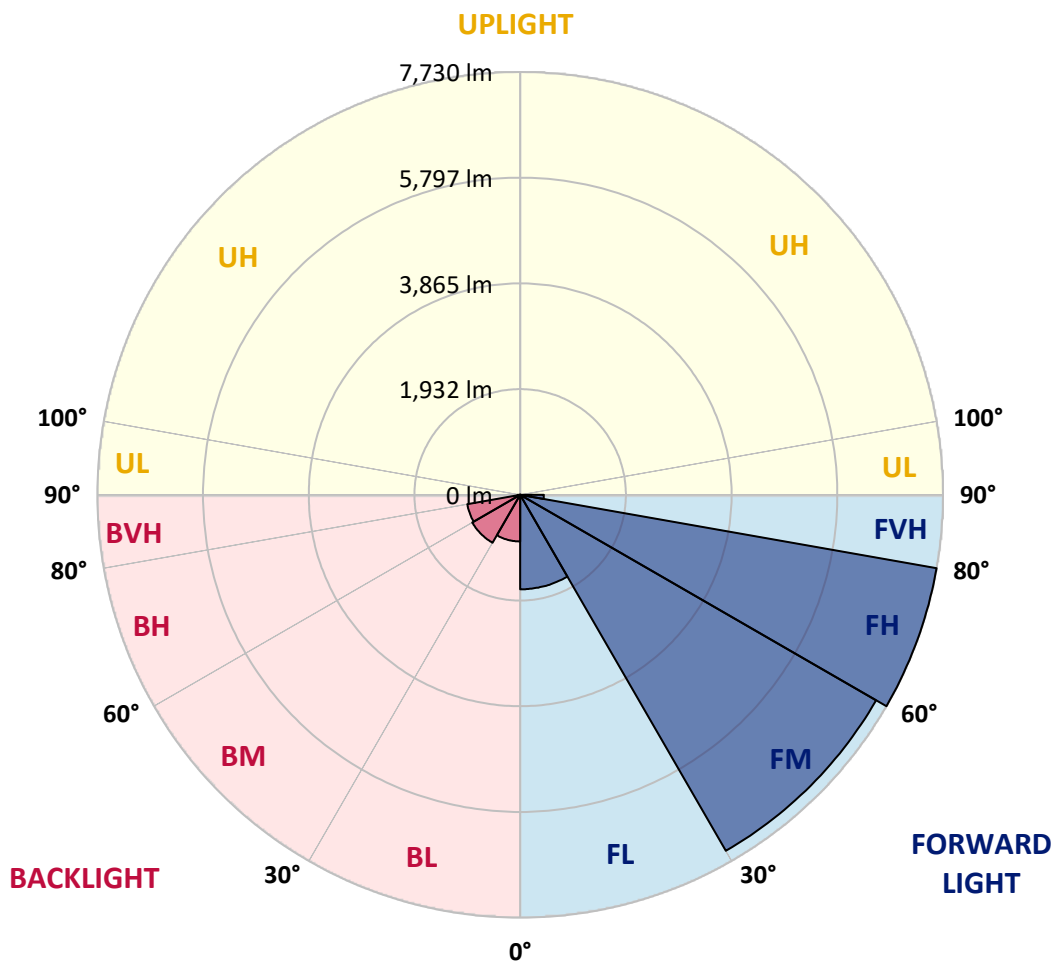
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|----------|
| | | | | B | U | G |
| FL | (0°-30°) | 1727.2 | 8.5 | | | |
| FM | (30°-60°) | 7514.2 | 37.0 | | | |
| FH | (60°-80°) | 7729.6 | 38.1 | | | G4/12000 |
| FVH | (80°-90°) | 434.0 | 2.1 | | | G3/500 |
| BL | (0°-30°) | 853.3 | 4.2 | B2/1000 | | |
| BM | (30°-60°) | 1011.5 | 5.0 | B2/2500 | | |
| BH | (60°-80°) | 981.7 | 4.8 | B2/1000 | | G2/1000 |
| BVH | (80°-90°) | 48.9 | 0.2 | | | 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 III Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 60° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|
| 0° | 5179.7 | 5179.7 | 5179.7 | 5179.7 | 5179.7 | 5179.7 | 5179.7 | 5179.7 | 5179.7 | 5179.7 | 5179.7 |
| 2.5° | 5317.7 | 5332.0 | 5332.0 | 5320.4 | 5313.8 | 5276.1 | 5254.0 | 5238.3 | 5211.0 | 5160.2 | 5114.7 |
| 5° | 5127.6 | 5155.0 | 5166.7 | 5171.9 | 5205.8 | 5194.0 | 5195.4 | 5184.9 | 5161.5 | 5106.9 | 5032.6 |
| 7.5° | 4778.8 | 4784.0 | 4804.8 | 4840.0 | 4921.9 | 4979.2 | 5026.2 | 5035.3 | 5030.1 | 4989.6 | 4885.5 |
| 10° | 4435.1 | 4444.2 | 4469.0 | 4528.8 | 4607.0 | 4689.0 | 4790.5 | 4832.1 | 4863.4 | 4850.4 | 4718.9 |
| 12.5° | 4150.0 | 4151.3 | 4178.7 | 4247.7 | 4334.9 | 4437.8 | 4575.7 | 4640.8 | 4715.0 | 4745.0 | 4597.9 |
| 15° | 3875.3 | 3893.6 | 3919.6 | 4002.9 | 4110.9 | 4241.2 | 4400.0 | 4489.8 | 4587.4 | 4673.4 | 4504.2 |
| 17.5° | 3667.1 | 3681.4 | 3697.0 | 3766.0 | 3891.0 | 4053.7 | 4250.3 | 4346.6 | 4475.5 | 4607.0 | 4407.8 |
| 20° | 3552.5 | 3557.7 | 3546.1 | 3579.8 | 3685.3 | 3861.0 | 4088.8 | 4204.7 | 4358.3 | 4543.1 | 4308.9 |
| 22.5° | 3529.1 | 3529.1 | 3486.1 | 3479.7 | 3526.5 | 3674.8 | 3922.2 | 4064.1 | 4251.6 | 4498.9 | 4220.3 |
| 25° | 3638.4 | 3630.7 | 3549.9 | 3475.7 | 3458.8 | 3534.3 | 3763.4 | 3937.8 | 4160.4 | 4497.6 | 4153.9 |
| 27.5° | 3845.4 | 3835.0 | 3734.8 | 3609.8 | 3501.8 | 3469.2 | 3641.0 | 3819.4 | 4088.8 | 4541.9 | 4120.1 |
| 30° | 4103.2 | 4099.3 | 3997.7 | 3841.5 | 3663.2 | 3495.2 | 3592.9 | 3758.2 | 4040.7 | 4623.8 | 4118.8 |
| 32.5° | 4385.7 | 4367.4 | 4305.0 | 4148.7 | 3917.0 | 3639.8 | 3621.6 | 3760.8 | 4027.7 | 4743.6 | 4148.7 |
| 35° | 4686.3 | 4673.4 | 4657.7 | 4500.2 | 4239.8 | 3894.9 | 3747.8 | 3850.6 | 4091.5 | 4910.3 | 4233.4 |
| 37.5° | 5069.0 | 5054.7 | 5080.8 | 4908.9 | 4623.8 | 4229.4 | 3961.3 | 4030.2 | 4221.6 | 5152.4 | 4390.8 |
| 40° | 5749.9 | 5708.3 | 5635.3 | 5371.1 | 5071.7 | 4639.5 | 4269.8 | 4280.2 | 4444.2 | 5476.6 | 4643.4 |
| 42.5° | 6868.1 | 6734.1 | 6373.5 | 5887.9 | 5544.2 | 5116.0 | 4672.0 | 4622.6 | 4751.4 | 5904.8 | 5010.5 |
| 45° | 7988.9 | 7838.0 | 7228.7 | 6451.5 | 6033.7 | 5627.6 | 5169.3 | 5050.8 | 5134.2 | 6403.4 | 5483.0 |
| 47.5° | 8712.7 | 8638.5 | 7951.2 | 7015.2 | 6546.6 | 6184.7 | 5738.1 | 5543.0 | 5602.8 | 6968.3 | 6066.2 |
| 50° | 8924.9 | 8861.1 | 8320.9 | 7456.5 | 7030.8 | 6857.7 | 6442.4 | 6183.4 | 6193.8 | 7628.3 | 6765.3 |
| 52.5° | 8766.1 | 8740.1 | 8382.1 | 7729.9 | 7476.0 | 7567.2 | 7417.4 | 7056.8 | 6971.0 | 8352.1 | 7522.9 |
| 55° | 8553.9 | 8563.0 | 8425.0 | 8004.6 | 7929.1 | 8228.4 | 8693.2 | 8402.9 | 8038.4 | 9105.9 | 8311.8 |
| 57.5° | 7886.1 | 7892.6 | 8254.5 | 8527.8 | 8793.4 | 9155.3 | 9686.4 | 9564.1 | 9139.7 | 9919.5 | 9195.7 |
| 60° | 6350.0 | 6400.8 | 7206.6 | 8419.8 | 9781.5 | 10981.7 | 11111.9 | 10901.0 | 10311.2 | 10856.7 | 10345.1 |
| 62.5° | 4536.7 | 4582.2 | 5515.5 | 7309.4 | 9665.7 | 13048.9 | 13744.1 | 12905.8 | 11900.7 | 12258.7 | 11962.0 |
| 65° | 2383.6 | 2375.7 | 3098.2 | 5050.8 | 8141.3 | 13527.9 | 17891.5 | 16464.7 | 14578.5 | 14186.7 | 13524.0 |
| 67.5° | 1331.7 | 1374.6 | 1654.5 | 2547.6 | 5306.0 | 11905.9 | 20540.5 | 20961.1 | 18301.5 | 15716.2 | 13456.3 |
| 69° | 1231.4 | 1245.7 | 1433.3 | 1969.6 | 3458.8 | 9823.1 | 20312.7 | 22318.7 | 19871.4 | 15722.8 | 12589.4 |
| 70° | 1196.3 | 1212.0 | 1382.5 | 1814.6 | 2905.6 | 8048.8 | 19483.5 | 22160.0 | 20252.9 | 15373.8 | 11800.6 |
| 72.5° | 1072.7 | 1093.5 | 1258.8 | 1631.1 | 2448.6 | 4148.7 | 15694.1 | 18966.7 | 18345.8 | 13436.9 | 9150.1 |
| 75° | 915.1 | 950.3 | 1200.2 | 1619.4 | 2319.7 | 2637.4 | 10466.2 | 14130.6 | 13654.2 | 9609.6 | 5191.5 |
| 77.5° | 378.8 | 382.7 | 524.6 | 1185.9 | 2434.3 | 2524.1 | 5624.9 | 8950.9 | 7923.9 | 4213.8 | 1563.4 |
| 80° | 264.2 | 259.0 | 261.7 | 346.3 | 1964.4 | 2541.0 | 2886.1 | 4552.2 | 3538.2 | 1111.7 | 731.6 |
| 82.5° | 222.6 | 220.0 | 230.4 | 217.4 | 665.2 | 2883.4 | 2413.4 | 2373.1 | 1666.3 | 598.8 | 348.8 |
| 85° | 147.1 | 143.2 | 188.7 | 197.8 | 316.3 | 2289.8 | 2595.7 | 1865.5 | 1241.9 | 320.2 | 148.4 |
| 87.5° | 71.6 | 72.9 | 108.0 | 134.1 | 168.0 | 725.1 | 2486.4 | 1474.9 | 959.4 | 139.3 | 59.8 |
| 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° | 5179.7 | 5179.7 | 5179.7 | 5179.7 | 5179.7 | 5179.7 | 5179.7 | 5179.7 | 5179.7 | 5179.7 | 5179.7 |
| 2.5° | 5096.4 | 5057.4 | 5022.2 | 4978.0 | 4944.1 | 4915.5 | 4876.4 | 4875.1 | 4868.6 | 4877.7 | 4880.3 |
| 5° | 4983.2 | 4918.0 | 4819.1 | 4708.4 | 4630.4 | 4527.6 | 4427.3 | 4393.5 | 4355.7 | 4351.8 | 4363.5 |
| 7.5° | 4812.7 | 4711.1 | 4541.9 | 4372.6 | 4203.4 | 4030.2 | 3866.2 | 3783.0 | 3702.3 | 3677.5 | 3689.2 |
| 10° | 4622.6 | 4493.7 | 4234.6 | 3958.7 | 3720.5 | 3462.7 | 3212.8 | 3051.4 | 2904.3 | 2841.8 | 2857.4 |
| 12.5° | 4474.2 | 4310.1 | 3945.6 | 3587.7 | 3231.0 | 2861.3 | 2531.9 | 2213.1 | 1972.1 | 1864.1 | 1870.7 |
| 15° | 4346.6 | 4137.0 | 3674.8 | 3198.5 | 2751.9 | 2245.6 | 1788.6 | 1418.9 | 1208.0 | 1130.0 | 1127.3 |
| 17.5° | 4208.6 | 3954.7 | 3392.4 | 2836.5 | 2257.2 | 1631.1 | 1197.7 | 979.0 | 895.6 | 869.6 | 869.6 |
| 20° | 4061.5 | 3767.3 | 3096.9 | 2442.1 | 1736.6 | 1139.1 | 900.8 | 816.2 | 785.0 | 777.1 | 775.8 |
| 22.5° | 3924.9 | 3583.8 | 2800.1 | 2021.7 | 1256.2 | 864.4 | 766.7 | 734.2 | 729.0 | 735.5 | 735.5 |
| 25° | 3816.7 | 3422.4 | 2499.4 | 1579.0 | 913.8 | 723.7 | 682.1 | 678.2 | 697.8 | 721.2 | 725.1 |
| 27.5° | 3736.0 | 3277.8 | 2202.6 | 1153.4 | 718.6 | 630.0 | 615.7 | 632.7 | 678.2 | 725.1 | 734.2 |
| 30° | 3680.1 | 3154.2 | 1847.2 | 829.2 | 598.8 | 552.0 | 558.4 | 588.4 | 657.3 | 729.0 | 748.5 |
| 32.5° | 3655.3 | 3053.9 | 1489.2 | 636.6 | 511.6 | 485.6 | 502.5 | 541.6 | 613.2 | 684.8 | 708.2 |
| 35° | 3678.8 | 2981.1 | 1158.6 | 528.6 | 447.8 | 428.3 | 447.8 | 488.2 | 535.0 | 570.2 | 584.5 |
| 37.5° | 3763.4 | 2955.0 | 872.2 | 468.6 | 406.1 | 386.7 | 402.2 | 429.5 | 450.4 | 463.4 | 469.9 |
| 40° | 3941.7 | 2982.3 | 683.4 | 437.4 | 382.7 | 360.6 | 364.5 | 377.5 | 391.8 | 402.2 | 403.6 |
| 42.5° | 4225.5 | 3072.1 | 607.9 | 425.6 | 368.4 | 339.7 | 333.3 | 342.4 | 358.0 | 372.4 | 374.9 |
| 45° | 4603.1 | 3221.9 | 600.1 | 429.5 | 361.9 | 322.8 | 309.9 | 319.0 | 339.7 | 363.1 | 367.1 |
| 47.5° | 5091.2 | 3458.8 | 636.6 | 450.4 | 365.8 | 313.7 | 294.2 | 303.3 | 330.6 | 361.9 | 367.1 |
| 50° | 5669.2 | 3786.9 | 704.3 | 481.6 | 384.0 | 313.7 | 287.7 | 295.5 | 324.2 | 359.3 | 364.5 |
| 52.5° | 6350.0 | 4243.7 | 774.6 | 512.9 | 410.1 | 325.4 | 290.3 | 289.0 | 315.1 | 347.6 | 354.0 |
| 55° | 7101.1 | 4811.3 | 842.2 | 540.2 | 424.4 | 341.1 | 296.8 | 281.2 | 302.0 | 328.1 | 333.3 |
| 57.5° | 7985.1 | 5588.5 | 960.7 | 566.3 | 432.2 | 352.8 | 304.6 | 273.3 | 285.1 | 303.3 | 307.2 |
| 60° | 9184.0 | 6730.1 | 1191.1 | 610.5 | 446.5 | 358.0 | 306.0 | 265.6 | 264.2 | 277.3 | 278.5 |
| 62.5° | 10747.4 | 8067.1 | 1411.2 | 662.6 | 475.2 | 359.3 | 300.7 | 260.3 | 247.3 | 251.2 | 251.2 |
| 65° | 11859.1 | 8559.1 | 1347.3 | 706.9 | 501.1 | 358.0 | 295.5 | 256.5 | 234.4 | 227.8 | 227.8 |
| 67.5° | 11226.5 | 7560.6 | 1144.3 | 718.6 | 503.8 | 343.7 | 283.8 | 247.3 | 222.6 | 206.9 | 206.9 |
| 69° | 10296.9 | 6627.3 | 1050.6 | 697.8 | 482.9 | 326.7 | 270.8 | 238.2 | 214.8 | 196.6 | 196.6 |
| 70° | 9539.3 | 5920.4 | 993.3 | 673.0 | 458.2 | 312.4 | 259.0 | 229.1 | 206.9 | 191.4 | 190.1 |
| 72.5° | 7122.0 | 3950.8 | 848.7 | 580.6 | 376.2 | 264.2 | 226.5 | 204.4 | 186.2 | 175.7 | 175.7 |
| 75° | 3758.2 | 1980.0 | 695.1 | 473.8 | 290.3 | 210.9 | 186.2 | 171.9 | 161.4 | 160.1 | 158.9 |
| 77.5° | 1231.4 | 895.6 | 499.9 | 356.7 | 213.5 | 164.0 | 148.4 | 139.3 | 138.0 | 143.2 | 143.2 |
| 80° | 665.2 | 535.0 | 321.5 | 240.8 | 148.4 | 122.3 | 114.6 | 113.2 | 117.1 | 125.0 | 125.0 |
| 82.5° | 322.8 | 264.2 | 191.4 | 148.4 | 101.6 | 89.8 | 89.8 | 91.1 | 96.4 | 105.5 | 105.5 |
| 85° | 139.3 | 125.0 | 110.7 | 83.3 | 62.5 | 56.0 | 63.8 | 70.3 | 74.2 | 80.7 | 83.3 |
| 87.5° | 66.4 | 58.6 | 50.7 | 32.5 | 27.3 | 28.6 | 33.9 | 41.6 | 49.5 | 54.6 | 56.0 |
| 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)