

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: P196071

Luminaire Tested: **NAV-AF-03-D-UNV-SL2-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196071
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24258)
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-SL2-HSS
Description: NAVION ROADWAY AND AREA LUMINAIRE
(3) 70 CRI, 4000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II
SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15115.1 lumens
Efficiency: N/A
Efficacy: 91.1 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')
IES Classification: Type II - Medium - Semi-Cutoff
BUG Rating: B2 - U0 - G3

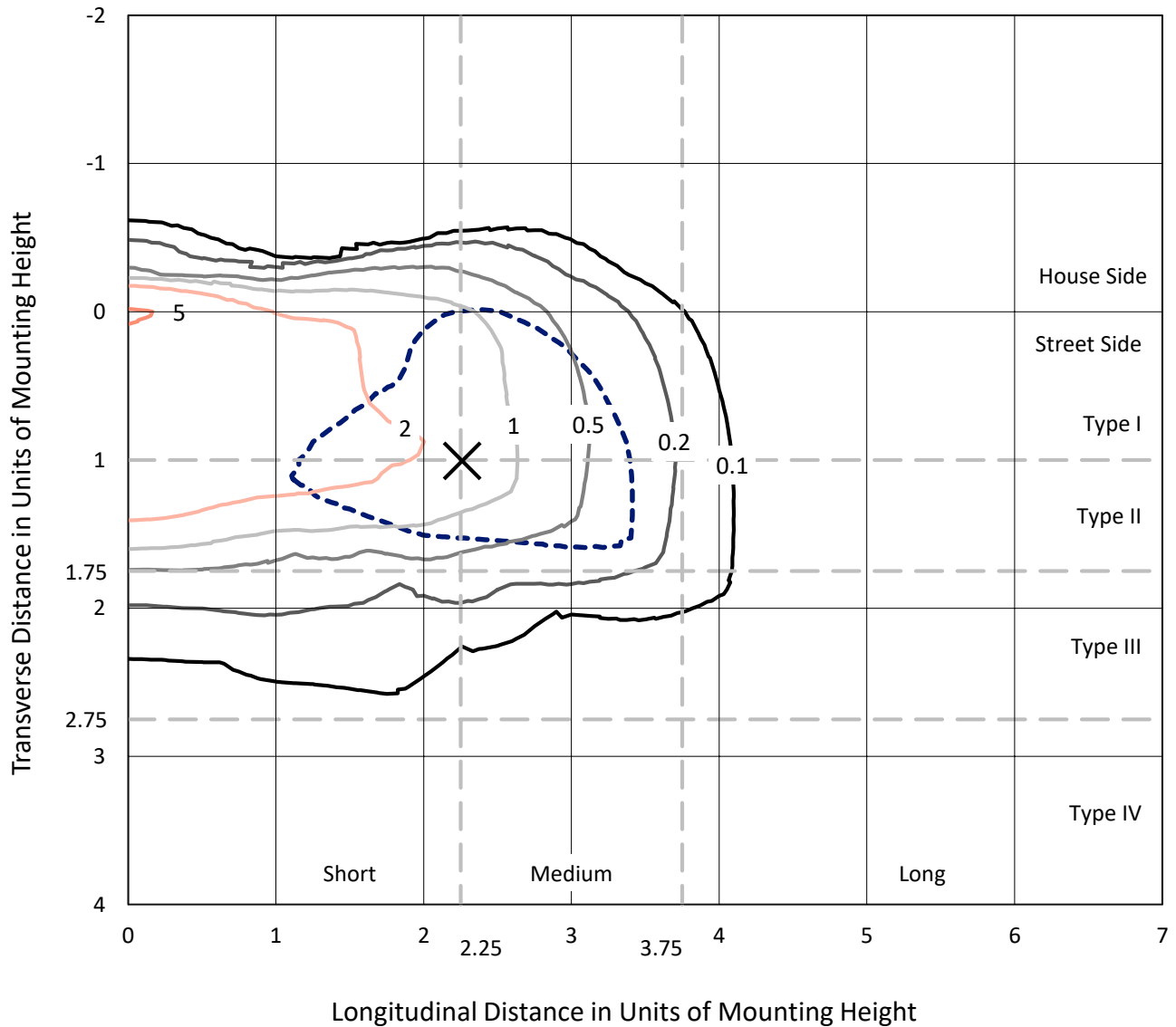
Input Watts (W): 166
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

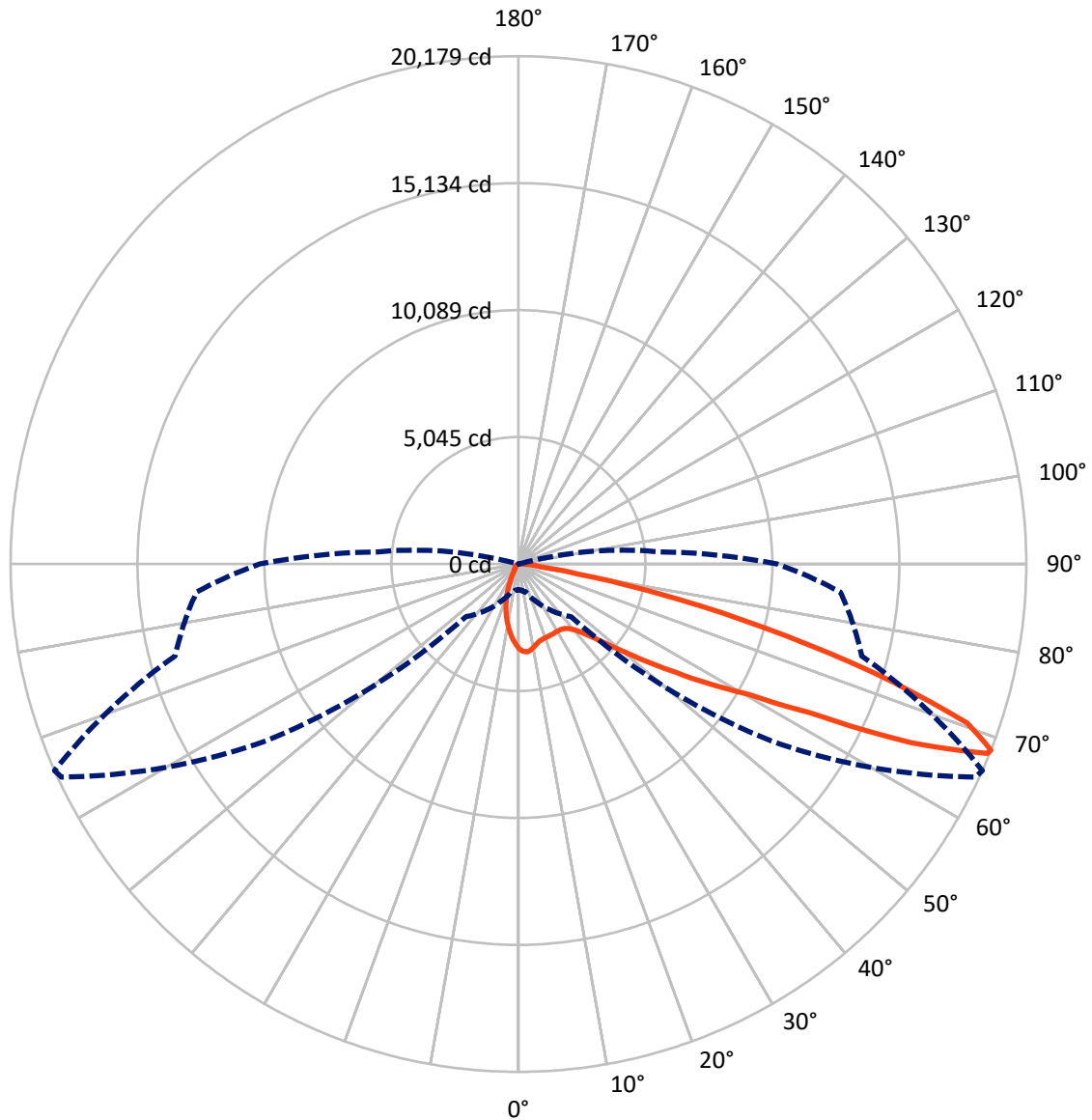
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 5.4 fc
 Type II - Medium - Semi-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 66-Deg Lateral - - - Horizontal Cone Through 68-Deg Vertical

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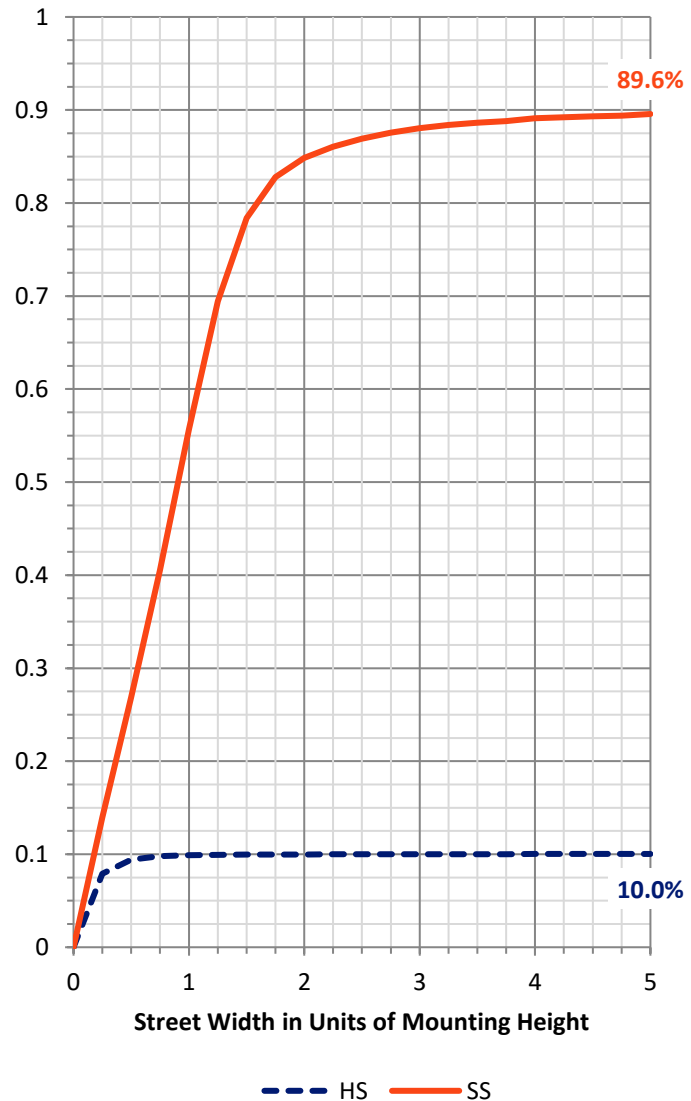
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 1531.0 | 0.0 | 1531.0 |
| | % Fixture | 10.1 | 0.0 | 10.1 |
| Street Side | Lumens | 13584.1 | 0.0 | 13584.1 |
| | % Fixture | 89.9 | 0.0 | 89.9 |
| Total | Lumens | 15115.1 | 0.0 | 15115.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 276.1 | 1.8 |
| 10°-20° | 594.0 | 3.9 |
| 20°-30° | 860.7 | 5.7 |
| 30°-40° | 1317.6 | 8.7 |
| 40°-50° | 2253.7 | 14.9 |
| 50°-60° | 3525.4 | 23.3 |
| 60°-70° | 4059.4 | 26.9 |
| 70°-80° | 2031.4 | 13.4 |
| 80°-90° | 196.7 | 1.3 |
| 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° | 15115.1 | 100.0 |
| 0°-180° | 15115.1 | 100.0 |



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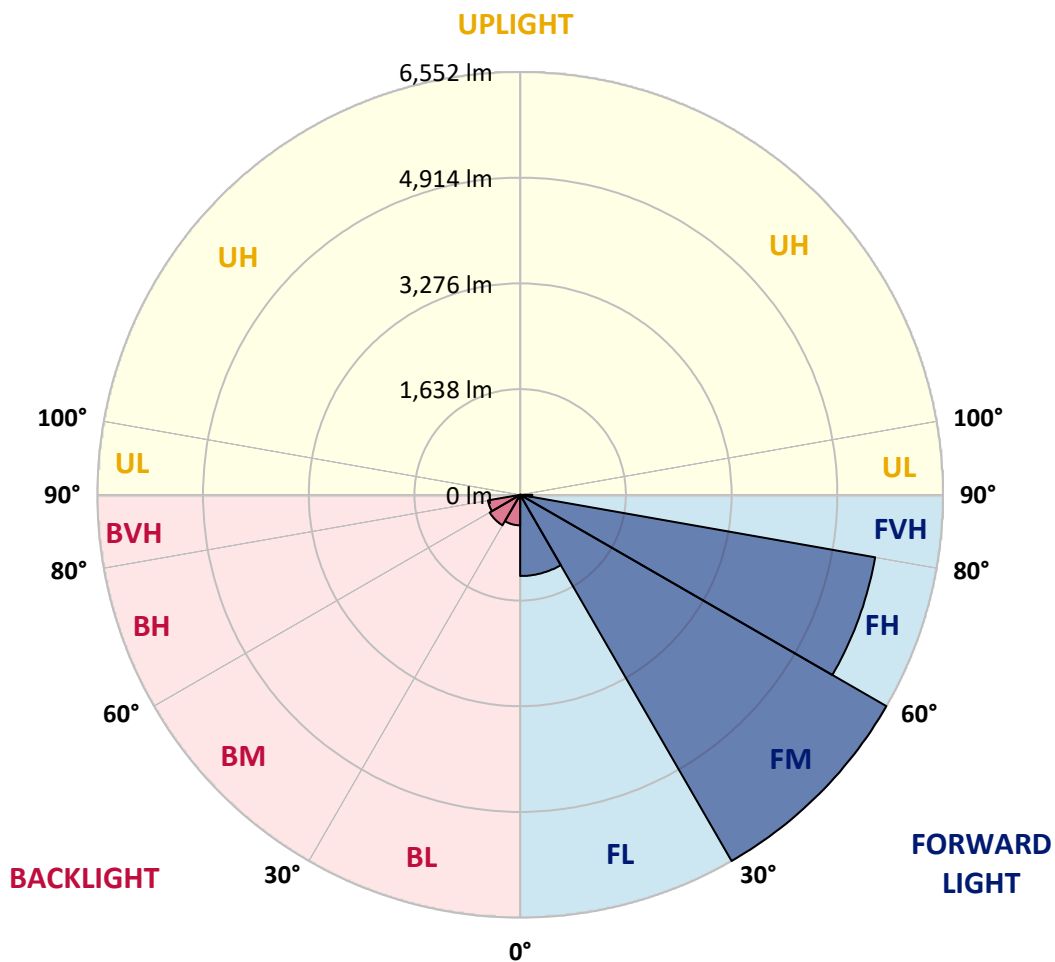
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1258.2 | 8.3 | | | |
| FM (30°-60°) | 6551.6 | 43.3 | | | |
| FH (60°-80°) | 5585.0 | 36.9 | | | G3/7500 |
| FVH (80°-90°) | 189.3 | 1.3 | | | G2/225 |
| BL (0°-30°) | 472.5 | 3.1 | B1/500 | | |
| BM (30°-60°) | 545.2 | 3.6 | B1/1000 | | |
| BH (60°-80°) | 505.8 | 3.3 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 7.4 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G3

Type II Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 66° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|
| 0° | 3367.6 | 3367.6 | 3367.6 | 3367.6 | 3367.6 | 3367.6 | 3367.6 | 3367.6 | 3367.6 | 3367.6 | 3367.6 |
| 2.5° | 3542.0 | 3544.3 | 3543.1 | 3546.7 | 3544.3 | 3526.5 | 3507.5 | 3467.2 | 3470.8 | 3418.5 | 3360.4 |
| 5° | 3292.8 | 3312.9 | 3333.1 | 3353.2 | 3401.9 | 3444.7 | 3495.6 | 3507.5 | 3507.5 | 3462.4 | 3377.0 |
| 7.5° | 3038.8 | 3040.0 | 3062.5 | 3089.8 | 3155.1 | 3233.4 | 3352.1 | 3458.9 | 3461.3 | 3473.1 | 3379.4 |
| 10° | 2847.8 | 2853.7 | 2869.2 | 2898.8 | 2964.1 | 3041.2 | 3174.1 | 3341.4 | 3354.5 | 3442.2 | 3355.7 |
| 12.5° | 2699.5 | 2706.6 | 2723.2 | 2757.6 | 2816.9 | 2896.5 | 3036.4 | 3227.5 | 3245.3 | 3412.6 | 3348.5 |
| 15° | 2585.5 | 2595.0 | 2608.1 | 2642.5 | 2706.6 | 2790.8 | 2943.8 | 3151.5 | 3172.9 | 3400.7 | 3371.0 |
| 17.5° | 2538.0 | 2538.0 | 2536.9 | 2560.7 | 2624.7 | 2710.1 | 2870.3 | 3111.2 | 3138.5 | 3410.2 | 3409.1 |
| 20° | 2558.3 | 2554.7 | 2529.8 | 2523.8 | 2563.0 | 2648.4 | 2812.2 | 3085.1 | 3115.9 | 3428.0 | 3455.3 |
| 22.5° | 2665.1 | 2657.9 | 2602.2 | 2555.8 | 2544.0 | 2601.0 | 2773.0 | 3067.3 | 3104.0 | 3464.8 | 3517.0 |
| 25° | 2891.7 | 2870.3 | 2793.2 | 2688.8 | 2595.0 | 2589.1 | 2745.7 | 3057.8 | 3097.0 | 3507.5 | 3584.6 |
| 27.5° | 3186.0 | 3180.0 | 3056.6 | 2916.6 | 2736.3 | 2628.3 | 2737.4 | 3050.6 | 3089.8 | 3538.4 | 3639.2 |
| 30° | 3551.4 | 3553.8 | 3411.4 | 3228.6 | 2955.7 | 2738.6 | 2763.5 | 3047.2 | 3087.5 | 3540.7 | 3663.0 |
| 32.5° | 3928.7 | 3931.1 | 3812.4 | 3616.6 | 3256.0 | 2928.5 | 2837.2 | 3063.7 | 3100.6 | 3531.2 | 3661.8 |
| 35° | 4291.9 | 4295.4 | 4224.2 | 4066.4 | 3657.0 | 3191.9 | 2976.0 | 3120.7 | 3146.8 | 3537.2 | 3659.4 |
| 37.5° | 4751.1 | 4765.3 | 4677.4 | 4530.3 | 4160.1 | 3578.7 | 3202.6 | 3235.8 | 3257.2 | 3585.9 | 3677.2 |
| 40° | 5534.2 | 5515.2 | 5263.7 | 5014.5 | 4706.0 | 4049.8 | 3530.1 | 3433.9 | 3441.1 | 3711.6 | 3744.8 |
| 42.5° | 6446.6 | 6422.9 | 5992.2 | 5562.7 | 5267.2 | 4618.1 | 3948.9 | 3737.8 | 3736.5 | 3922.8 | 3892.0 |
| 45° | 7232.2 | 7217.9 | 6764.7 | 6191.5 | 5889.0 | 5245.9 | 4465.1 | 4175.6 | 4161.4 | 4288.3 | 4160.1 |
| 47.5° | 7789.9 | 7778.0 | 7435.1 | 6860.8 | 6608.1 | 5936.5 | 5109.4 | 4772.4 | 4742.7 | 4766.4 | 4595.6 |
| 50° | 7844.5 | 7831.4 | 7711.5 | 7342.5 | 7448.1 | 6949.8 | 5905.6 | 5554.4 | 5516.4 | 5479.6 | 5254.2 |
| 52.5° | 7334.3 | 7333.0 | 7395.9 | 7372.2 | 8036.7 | 8253.8 | 6882.1 | 6521.4 | 6476.3 | 6382.6 | 6158.4 |
| 55° | 6291.2 | 6285.3 | 6523.8 | 6870.2 | 8023.6 | 9599.4 | 8371.3 | 7672.4 | 7613.1 | 7425.6 | 7131.3 |
| 57.5° | 4596.8 | 4565.9 | 5064.3 | 5798.8 | 7460.0 | 10188.0 | 10736.2 | 9102.2 | 9003.7 | 8409.3 | 7956.0 |
| 60° | 2538.0 | 2549.9 | 3190.7 | 4060.5 | 6125.1 | 10071.7 | 12912.3 | 10769.4 | 10510.7 | 9257.7 | 8800.9 |
| 62.5° | 1422.7 | 1452.4 | 1929.4 | 2638.9 | 3905.0 | 9128.3 | 14079.9 | 13638.5 | 13015.5 | 10247.3 | 9868.7 |
| 65° | 1076.2 | 1094.0 | 1333.7 | 2036.2 | 2462.1 | 6379.0 | 14266.2 | 17650.3 | 17112.8 | 11747.2 | 11569.2 |
| 67.5° | 1013.3 | 1027.6 | 1145.1 | 1688.5 | 2242.6 | 3308.2 | 12863.7 | 20023.4 | 20091.2 | 13792.8 | 12886.2 |
| 68° | 1020.5 | 1038.3 | 1155.7 | 1624.4 | 2239.0 | 2959.3 | 12265.7 | 20035.3 | 20178.9 | 14122.7 | 12841.1 |
| 70° | 937.4 | 942.1 | 1222.2 | 1593.6 | 2170.3 | 2331.6 | 8873.2 | 18662.5 | 18920.0 | 14515.4 | 11656.9 |
| 72.5° | 358.3 | 359.6 | 548.2 | 1380.0 | 2273.5 | 2344.7 | 4469.9 | 14750.3 | 14763.4 | 12632.3 | 9088.0 |
| 75° | 186.3 | 156.6 | 172.1 | 431.9 | 2171.4 | 2285.4 | 2242.6 | 10071.7 | 10008.8 | 8543.4 | 5568.6 |
| 77.5° | 128.2 | 109.1 | 115.1 | 149.6 | 903.0 | 2284.1 | 1619.6 | 5791.6 | 5778.6 | 3634.4 | 1588.8 |
| 80° | 72.4 | 62.9 | 68.8 | 125.8 | 316.8 | 2144.1 | 1509.4 | 2489.5 | 2345.8 | 638.4 | 257.5 |
| 82.5° | 36.8 | 30.9 | 36.8 | 105.6 | 197.0 | 1349.2 | 1467.8 | 976.5 | 869.7 | 151.9 | 167.4 |
| 85° | 9.5 | 9.5 | 17.8 | 73.6 | 122.2 | 442.6 | 1315.9 | 704.8 | 633.6 | 66.5 | 118.7 |
| 87.5° | 2.4 | 1.2 | 7.2 | 27.3 | 43.9 | 96.2 | 729.8 | 392.7 | 338.2 | 34.4 | 68.8 |
| 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° | 3367.6 | 3367.6 | 3367.6 | 3367.6 | 3367.6 | 3367.6 | 3367.6 | 3367.6 | 3367.6 | 3367.6 | 3367.6 |
| 2.5° | 3336.7 | 3303.4 | 3238.2 | 3164.6 | 3112.4 | 3055.5 | 3022.2 | 2981.9 | 2951.0 | 2923.7 | 2943.8 |
| 5° | 3324.8 | 3260.8 | 3115.9 | 2953.4 | 2816.9 | 2686.4 | 2589.1 | 2496.5 | 2426.5 | 2382.7 | 2400.5 |
| 7.5° | 3293.9 | 3199.0 | 2964.1 | 2710.1 | 2487.1 | 2277.1 | 2106.2 | 1953.1 | 1834.5 | 1770.4 | 1790.6 |
| 10° | 3241.7 | 3107.6 | 2792.0 | 2439.6 | 2127.5 | 1830.9 | 1577.0 | 1349.2 | 1177.1 | 1096.4 | 1115.4 |
| 12.5° | 3203.8 | 3026.9 | 2614.0 | 2178.6 | 1768.0 | 1346.7 | 1009.8 | 748.7 | 614.7 | 534.0 | 541.0 |
| 15° | 3187.1 | 2964.1 | 2447.9 | 1903.3 | 1375.3 | 865.0 | 545.8 | 395.2 | 348.8 | 332.3 | 333.4 |
| 17.5° | 3189.6 | 2914.3 | 2290.1 | 1617.3 | 979.0 | 497.2 | 334.6 | 301.4 | 294.3 | 290.7 | 290.7 |
| 20° | 3195.5 | 2864.4 | 2126.3 | 1319.5 | 626.6 | 320.4 | 278.9 | 268.1 | 264.6 | 259.8 | 261.1 |
| 22.5° | 3213.3 | 2826.4 | 1961.4 | 1020.5 | 385.7 | 261.1 | 246.8 | 237.3 | 231.4 | 224.2 | 225.5 |
| 25° | 3240.5 | 2798.0 | 1798.9 | 734.5 | 271.7 | 227.8 | 214.8 | 201.7 | 191.1 | 182.7 | 183.9 |
| 27.5° | 3257.2 | 2757.6 | 1625.6 | 500.7 | 225.5 | 199.4 | 181.6 | 163.8 | 151.9 | 144.7 | 143.6 |
| 30° | 3245.3 | 2692.3 | 1428.7 | 328.7 | 199.4 | 172.1 | 150.7 | 130.5 | 118.7 | 112.7 | 112.7 |
| 32.5° | 3213.3 | 2608.1 | 1211.5 | 239.7 | 176.8 | 148.3 | 122.2 | 104.4 | 96.2 | 92.6 | 93.7 |
| 35° | 3176.5 | 2520.2 | 980.1 | 203.0 | 159.0 | 125.8 | 99.6 | 85.4 | 81.8 | 80.7 | 80.7 |
| 37.5° | 3156.3 | 2444.3 | 758.2 | 183.9 | 142.4 | 104.4 | 81.8 | 73.6 | 70.0 | 70.0 | 70.0 |
| 40° | 3178.8 | 2386.2 | 561.3 | 169.7 | 125.8 | 86.6 | 68.8 | 62.9 | 61.7 | 61.7 | 61.7 |
| 42.5° | 3275.0 | 2366.1 | 410.5 | 157.8 | 109.1 | 72.4 | 59.3 | 54.6 | 53.4 | 54.6 | 54.6 |
| 45° | 3462.4 | 2410.0 | 310.9 | 146.0 | 93.7 | 59.3 | 51.0 | 47.5 | 47.5 | 48.7 | 48.7 |
| 47.5° | 3780.4 | 2522.7 | 255.1 | 134.1 | 78.4 | 49.8 | 43.9 | 41.5 | 41.5 | 42.8 | 42.8 |
| 50° | 4274.1 | 2731.5 | 229.0 | 121.0 | 65.3 | 42.8 | 36.8 | 35.6 | 35.6 | 36.8 | 38.0 |
| 52.5° | 5024.0 | 3129.0 | 215.9 | 108.0 | 53.4 | 35.6 | 30.9 | 29.7 | 30.9 | 32.0 | 32.0 |
| 55° | 5858.1 | 3638.0 | 200.5 | 94.9 | 45.1 | 29.7 | 25.0 | 25.0 | 26.1 | 28.4 | 28.4 |
| 57.5° | 6635.4 | 4129.2 | 186.3 | 78.4 | 39.2 | 23.7 | 20.2 | 20.2 | 22.5 | 25.0 | 25.0 |
| 60° | 7456.5 | 4611.1 | 167.4 | 62.9 | 33.2 | 19.0 | 16.6 | 16.6 | 20.2 | 22.5 | 23.7 |
| 62.5° | 8471.0 | 5171.1 | 142.4 | 49.8 | 26.1 | 14.2 | 11.9 | 15.4 | 19.0 | 22.5 | 22.5 |
| 65° | 9937.6 | 5867.6 | 111.5 | 39.2 | 20.2 | 10.6 | 9.5 | 14.2 | 17.8 | 21.4 | 22.5 |
| 67.5° | 10470.3 | 5778.6 | 84.3 | 32.0 | 15.4 | 8.3 | 8.3 | 13.1 | 17.8 | 21.4 | 21.4 |
| 68° | 10275.7 | 5584.0 | 80.7 | 30.9 | 14.2 | 8.3 | 8.3 | 13.1 | 17.8 | 21.4 | 21.4 |
| 70° | 8953.9 | 4564.7 | 66.5 | 23.7 | 11.9 | 7.2 | 7.2 | 11.9 | 17.8 | 20.2 | 21.4 |
| 72.5° | 6704.1 | 3032.8 | 57.0 | 15.4 | 10.6 | 7.2 | 5.9 | 11.9 | 16.6 | 20.2 | 20.2 |
| 75° | 3845.7 | 1258.9 | 48.7 | 11.9 | 9.5 | 5.9 | 5.9 | 10.6 | 16.6 | 20.2 | 20.2 |
| 77.5° | 1086.9 | 294.3 | 39.2 | 9.5 | 8.3 | 5.9 | 4.7 | 10.6 | 15.4 | 19.0 | 19.0 |
| 80° | 199.4 | 87.8 | 30.9 | 8.3 | 7.2 | 5.9 | 4.7 | 10.6 | 15.4 | 19.0 | 19.0 |
| 82.5° | 131.8 | 41.5 | 22.5 | 8.3 | 7.2 | 5.9 | 4.7 | 9.5 | 14.2 | 17.8 | 17.8 |
| 85° | 98.5 | 29.7 | 14.2 | 8.3 | 7.2 | 5.9 | 4.7 | 9.5 | 14.2 | 17.8 | 17.8 |
| 87.5° | 54.6 | 13.1 | 10.6 | 9.5 | 8.3 | 5.9 | 4.7 | 8.3 | 13.1 | 16.6 | 16.6 |
| 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)