

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: P196954

Luminaire Tested: **NAV-AF-04-D-UNV-AFL-8030-800-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196954
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24283)
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-AFL-8030-800-HSS
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 80 CRI, 3000K, 800mA LIGHTSQUARES WITH 16 LEDS EACH AND AUTOMOTIVE FRONTLINE OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13501 lumens
Efficiency: N/A
Efficacy: 79.0 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Short - Full Cutoff
BUG Rating: B1 - U0 - G2

Input Watts (W): 171
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

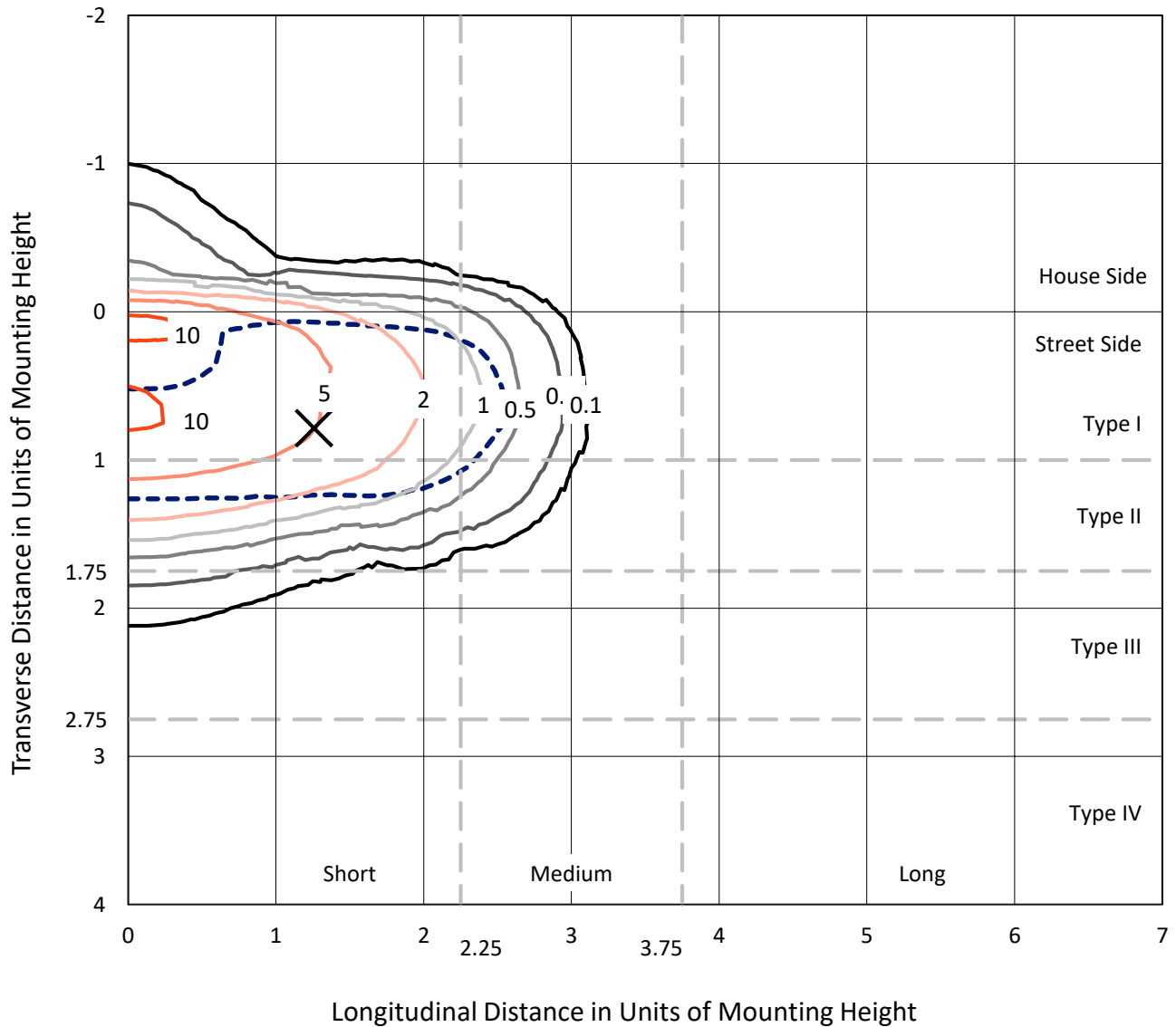


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Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd
 - - - 1/2 Max cd

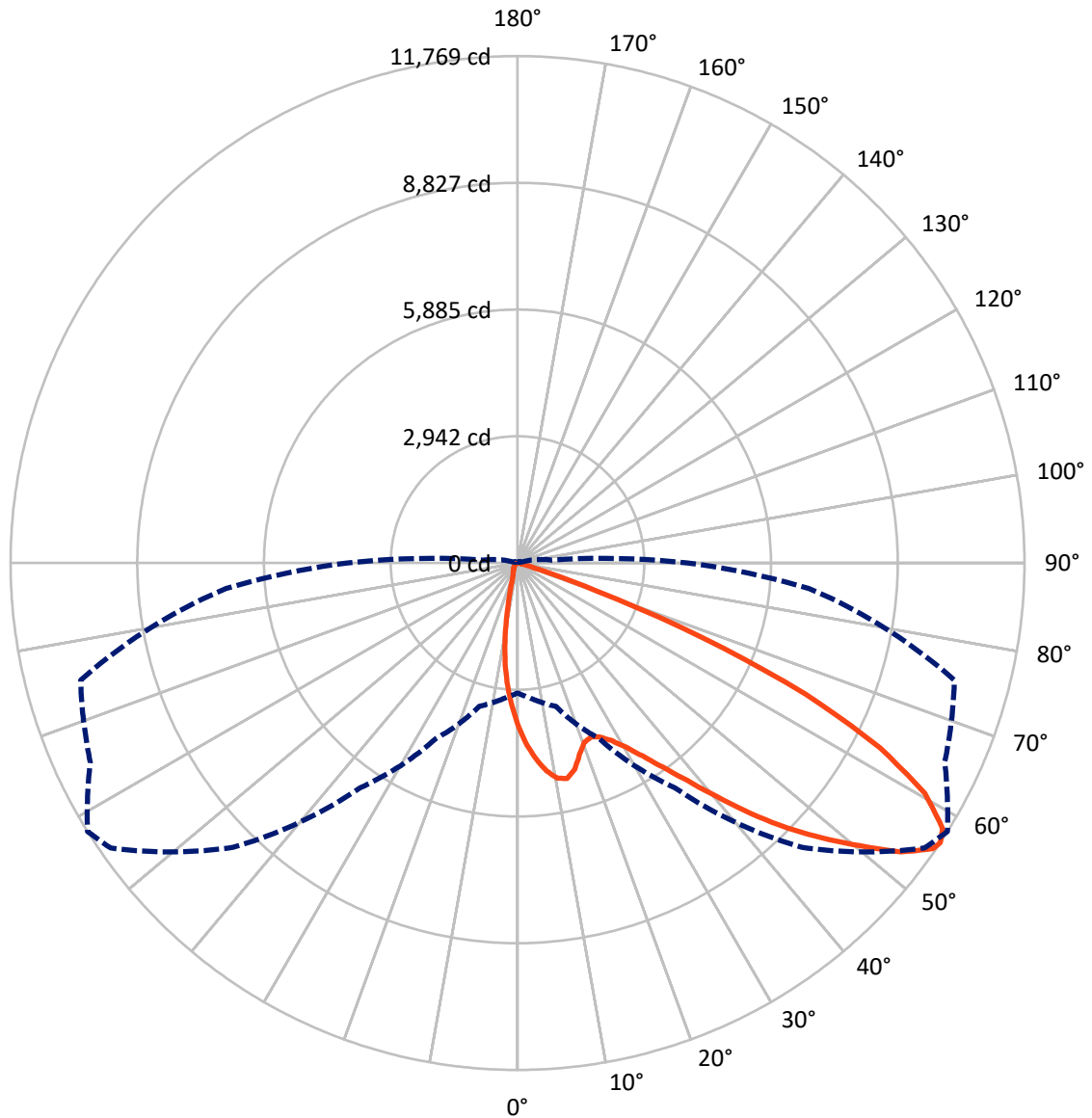


Based on 20 foot mounting height. Maximum calculated value = 11.9 fc
 Type II - Short - Full Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 58-Deg Lateral - - - Horizontal Cone Through 56-Deg Vertical

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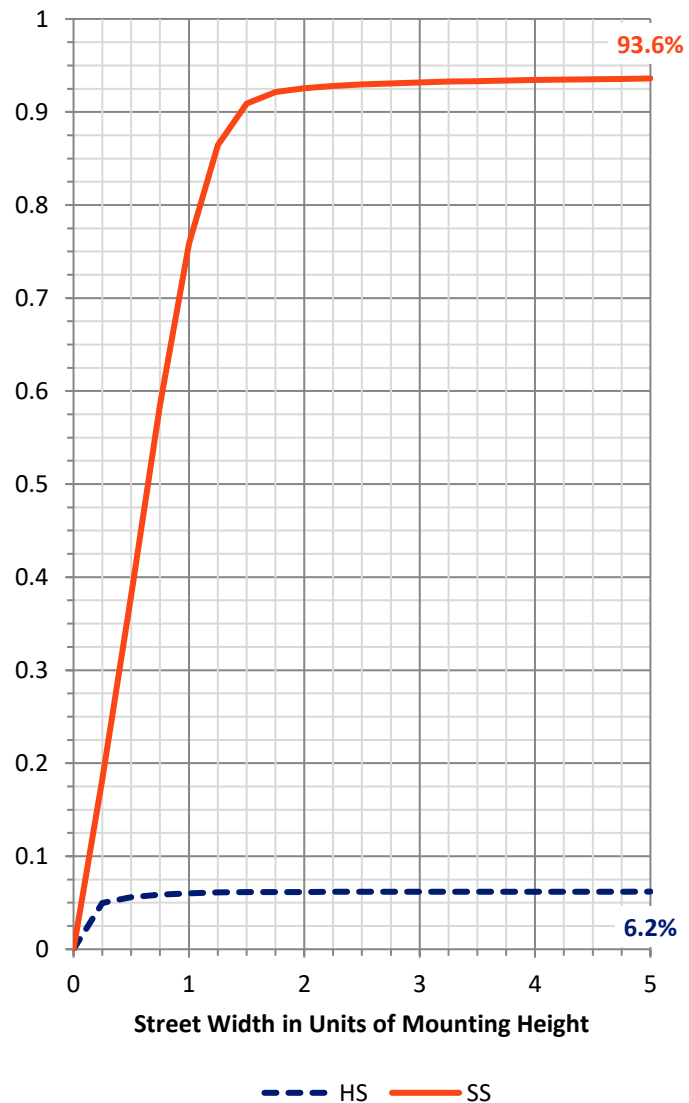
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 842.7 | 0.0 | 842.7 |
| | % Fixture | 6.2 | 0.0 | 6.2 |
| Street Side | Lumens | 12658.3 | 0.0 | 12658.3 |
| | % Fixture | 93.8 | 0.0 | 93.8 |
| Total | Lumens | 13501.0 | 0.0 | 13501.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 326.1 | 2.4 |
| 10°-20° | 758.8 | 5.6 |
| 20°-30° | 1276.7 | 9.5 |
| 30°-40° | 2186.3 | 16.2 |
| 40°-50° | 3299.1 | 24.4 |
| 50°-60° | 3429.3 | 25.4 |
| 60°-70° | 1925.2 | 14.3 |
| 70°-80° | 263.9 | 2.0 |
| 80°-90° | 35.8 | 0.3 |
| 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° | 13501.0 | 100.0 |
| 0°-180° | 13501.0 | 100.0 |



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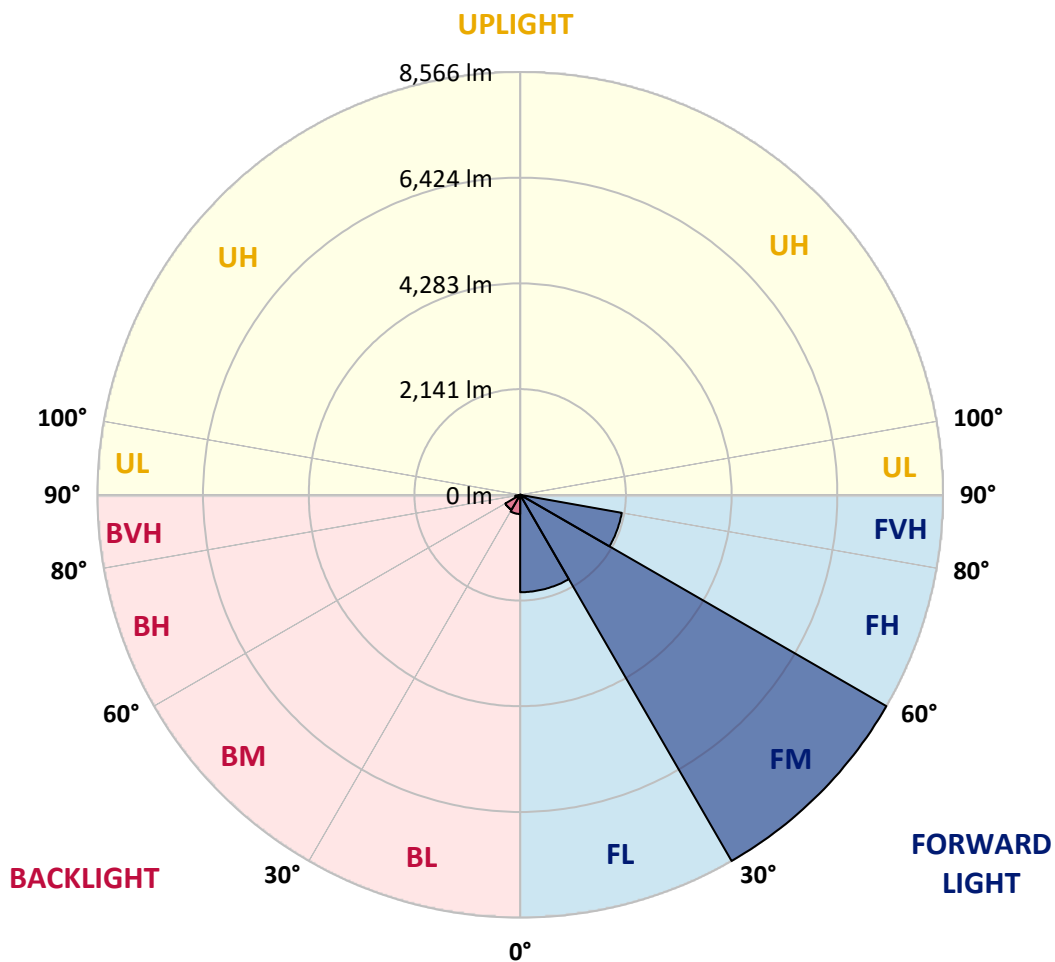
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|---------|
| | | | | B | U | G |
| FL | (0°-30°) | 1972.8 | 14.6 | | | |
| FM | (30°-60°) | 8565.6 | 63.4 | | | |
| FH | (60°-80°) | 2089.1 | 15.5 | | | G2/5000 |
| FVH | (80°-90°) | 30.8 | 0.2 | | | G1/100 |
| BL | (0°-30°) | 388.8 | 2.9 | B1/500 | | |
| BM | (30°-60°) | 349.1 | 2.6 | B1/1000 | | |
| BH | (60°-80°) | 100.0 | 0.7 | B0/110 | | G0/110 |
| BVH | (80°-90°) | 4.9 | 0.0 | | | G0/10 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|--------|
| 0° | 3822.5 | 3822.5 | 3822.5 | 3822.5 | 3822.5 | 3822.5 | 3822.5 | 3822.5 | 3822.5 | 3822.5 | 3822.5 |
| 2.5° | 4599.2 | 4571.4 | 4542.6 | 4489.0 | 4439.5 | 4363.3 | 4258.3 | 4232.5 | 4150.1 | 4014.1 | 3887.4 |
| 5° | 4995.8 | 4990.6 | 4971.1 | 4927.8 | 4874.2 | 4781.5 | 4663.1 | 4583.8 | 4456.0 | 4241.8 | 3997.7 |
| 7.5° | 4760.9 | 4804.2 | 4875.3 | 4976.2 | 5044.2 | 5034.9 | 4944.3 | 4875.3 | 4748.6 | 4456.0 | 4105.8 |
| 10° | 4013.1 | 4021.3 | 4119.2 | 4331.4 | 4667.2 | 4980.3 | 5098.8 | 5080.2 | 4963.8 | 4643.5 | 4200.6 |
| 12.5° | 3749.4 | 3754.6 | 3777.2 | 3845.2 | 4063.6 | 4500.3 | 5037.0 | 5133.8 | 5124.5 | 4822.7 | 4301.5 |
| 15° | 3770.0 | 3773.1 | 3779.3 | 3800.9 | 3862.7 | 4082.1 | 4723.8 | 4970.0 | 5227.5 | 4992.7 | 4400.4 |
| 17.5° | 3932.8 | 3930.7 | 3911.1 | 3890.5 | 3910.1 | 3982.2 | 4404.5 | 4664.1 | 5205.9 | 5135.9 | 4481.8 |
| 20° | 4250.0 | 4260.3 | 4194.4 | 4102.7 | 4055.3 | 4058.4 | 4246.9 | 4441.6 | 5084.4 | 5247.1 | 4542.6 |
| 22.5° | 4696.0 | 4703.2 | 4595.1 | 4436.5 | 4297.4 | 4227.4 | 4279.9 | 4382.9 | 4944.3 | 5350.1 | 4592.0 |
| 25° | 5228.6 | 5228.6 | 5077.2 | 4851.6 | 4636.3 | 4482.8 | 4437.5 | 4476.6 | 4890.7 | 5466.5 | 4641.4 |
| 27.5° | 5803.3 | 5823.9 | 5626.2 | 5330.5 | 5046.2 | 4821.7 | 4679.5 | 4672.3 | 4931.9 | 5612.8 | 4697.1 |
| 30° | 6428.6 | 6447.1 | 6212.3 | 5850.7 | 5513.9 | 5226.5 | 5008.1 | 4960.8 | 5089.5 | 5809.5 | 4778.4 |
| 32.5° | 7050.7 | 7066.2 | 6806.6 | 6437.9 | 6045.4 | 5707.5 | 5420.2 | 5345.0 | 5372.8 | 6096.9 | 4897.9 |
| 35° | 7841.8 | 7844.9 | 7516.3 | 7077.5 | 6658.3 | 6261.7 | 5898.1 | 5823.9 | 5793.0 | 6459.5 | 5069.9 |
| 37.5° | 8471.2 | 8446.5 | 8238.4 | 7823.3 | 7342.2 | 6928.2 | 6500.7 | 6403.9 | 6329.7 | 6969.4 | 5336.7 |
| 40° | 8619.5 | 8619.5 | 8588.6 | 8464.0 | 8081.8 | 7683.2 | 7269.1 | 7124.9 | 6961.1 | 7569.9 | 5695.2 |
| 42.5° | 8233.2 | 8258.0 | 8461.9 | 8732.8 | 8735.9 | 8480.5 | 8075.6 | 7954.1 | 7665.7 | 8253.8 | 6086.6 |
| 45° | 7369.0 | 7376.2 | 7865.5 | 8596.9 | 9093.3 | 9239.6 | 8940.9 | 8773.0 | 8373.3 | 8964.6 | 6445.1 |
| 47.5° | 7058.0 | 7080.6 | 7288.7 | 8182.8 | 9120.1 | 9854.6 | 9771.1 | 9540.4 | 9028.4 | 9613.5 | 6779.8 |
| 50° | 6580.0 | 6607.8 | 6862.2 | 7573.0 | 8879.1 | 10249.1 | 10565.3 | 10318.1 | 9624.9 | 10154.3 | 6945.7 |
| 52.5° | 5436.6 | 5479.9 | 5839.4 | 6766.4 | 8276.5 | 10265.5 | 11292.5 | 11144.2 | 10235.7 | 10443.7 | 6926.1 |
| 55° | 3741.2 | 3773.1 | 4192.3 | 5282.1 | 7061.0 | 9761.9 | 11605.7 | 11707.6 | 10780.6 | 10508.6 | 6831.3 |
| 56° | 3018.1 | 3137.6 | 3444.5 | 4500.3 | 6368.8 | 9333.3 | 11533.5 | 11769.4 | 10942.3 | 10498.3 | 6790.1 |
| 57.5° | 1995.2 | 2017.9 | 2352.7 | 3261.2 | 5114.2 | 8403.2 | 11208.1 | 11637.6 | 11150.4 | 10445.8 | 6760.3 |
| 60° | 938.4 | 948.7 | 1069.2 | 1504.9 | 2767.8 | 6123.7 | 10150.2 | 10863.0 | 11226.6 | 10335.6 | 6759.2 |
| 62.5° | 611.9 | 613.9 | 628.3 | 717.9 | 1132.0 | 3335.3 | 8414.5 | 9440.5 | 10595.2 | 10323.2 | 6739.7 |
| 65° | 503.7 | 508.8 | 491.3 | 502.7 | 592.3 | 1257.7 | 5935.2 | 7359.8 | 9112.9 | 10032.8 | 6519.2 |
| 67.5° | 444.0 | 445.0 | 421.3 | 407.9 | 433.7 | 552.1 | 2990.3 | 4642.5 | 6815.9 | 8524.8 | 5369.7 |
| 70° | 404.8 | 403.8 | 377.0 | 346.1 | 347.1 | 366.7 | 974.4 | 1928.3 | 3771.0 | 5061.7 | 3083.0 |
| 72.5° | 359.5 | 361.6 | 346.1 | 302.8 | 288.4 | 259.6 | 366.7 | 520.2 | 1283.5 | 1625.4 | 812.7 |
| 75° | 315.2 | 311.1 | 295.6 | 267.8 | 241.0 | 174.1 | 184.4 | 221.5 | 334.8 | 331.7 | 175.1 |
| 77.5° | 239.0 | 234.9 | 242.1 | 228.7 | 188.5 | 121.5 | 100.9 | 115.4 | 151.4 | 141.1 | 71.1 |
| 80° | 182.3 | 180.3 | 164.8 | 195.7 | 172.0 | 91.7 | 69.0 | 71.1 | 82.4 | 75.2 | 35.0 |
| 82.5° | 131.8 | 130.8 | 124.6 | 120.5 | 109.2 | 67.0 | 52.5 | 55.6 | 61.8 | 52.5 | 25.8 |
| 85° | 50.5 | 50.5 | 97.9 | 82.4 | 75.2 | 45.3 | 37.1 | 40.2 | 47.4 | 38.1 | 17.5 |
| 87.5° | 8.2 | 8.2 | 65.9 | 54.6 | 34.0 | 22.7 | 23.7 | 25.8 | 27.8 | 22.7 | 13.4 |
| 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° | 3822.5 | 3822.5 | 3822.5 | 3822.5 | 3822.5 | 3822.5 | 3822.5 | 3822.5 | 3822.5 | 3822.5 | 3822.5 |
| 2.5° | 3812.2 | 3743.2 | 3591.8 | 3445.5 | 3317.8 | 3177.7 | 3106.7 | 3024.2 | 2993.3 | 2931.5 | 2937.7 |
| 5° | 3851.4 | 3707.2 | 3403.3 | 3083.0 | 2789.4 | 2490.7 | 2278.5 | 2078.7 | 1967.4 | 1857.2 | 1857.2 |
| 7.5° | 3891.6 | 3671.1 | 3201.4 | 2689.5 | 2195.1 | 1683.1 | 1320.5 | 1030.1 | 868.3 | 760.2 | 757.1 |
| 10° | 3919.4 | 3624.8 | 2971.7 | 2233.2 | 1503.9 | 867.3 | 523.3 | 412.0 | 371.9 | 354.3 | 353.3 |
| 12.5° | 3955.4 | 3578.4 | 2710.1 | 1695.5 | 835.4 | 412.0 | 326.5 | 309.0 | 301.8 | 297.7 | 297.7 |
| 15° | 3986.3 | 3512.5 | 2392.8 | 1140.3 | 438.8 | 309.0 | 281.2 | 275.0 | 274.0 | 273.0 | 274.0 |
| 17.5° | 3993.5 | 3418.8 | 2012.7 | 667.5 | 318.3 | 269.9 | 257.5 | 252.4 | 252.4 | 251.3 | 251.3 |
| 20° | 3977.1 | 3295.2 | 1592.5 | 412.0 | 275.0 | 248.2 | 234.9 | 228.7 | 227.6 | 227.6 | 227.6 |
| 22.5° | 3943.1 | 3137.6 | 1177.4 | 312.1 | 250.3 | 228.7 | 211.2 | 205.0 | 205.0 | 206.0 | 207.0 |
| 25° | 3900.8 | 2951.1 | 808.6 | 268.8 | 231.8 | 208.1 | 190.6 | 184.4 | 186.4 | 188.5 | 189.5 |
| 27.5° | 3847.3 | 2728.6 | 529.4 | 232.8 | 207.0 | 187.5 | 172.0 | 167.9 | 172.0 | 176.1 | 178.2 |
| 30° | 3793.7 | 2484.5 | 358.5 | 201.9 | 179.2 | 164.8 | 155.5 | 154.5 | 160.7 | 170.0 | 171.0 |
| 32.5° | 3758.7 | 2234.2 | 270.9 | 181.3 | 157.6 | 145.2 | 141.1 | 143.2 | 152.4 | 162.7 | 164.8 |
| 35° | 3755.6 | 1990.1 | 230.7 | 164.8 | 143.2 | 131.8 | 129.8 | 136.0 | 146.3 | 154.5 | 156.6 |
| 37.5° | 3804.0 | 1761.4 | 209.1 | 152.4 | 131.8 | 120.5 | 117.4 | 128.8 | 138.0 | 146.3 | 148.3 |
| 40° | 3901.9 | 1556.4 | 194.7 | 141.1 | 122.6 | 109.2 | 107.1 | 116.4 | 125.7 | 134.9 | 138.0 |
| 42.5° | 4024.4 | 1364.8 | 178.2 | 129.8 | 112.3 | 96.8 | 94.8 | 102.0 | 111.2 | 124.6 | 126.7 |
| 45° | 4130.5 | 1186.6 | 160.7 | 117.4 | 100.9 | 83.4 | 82.4 | 90.6 | 97.9 | 110.2 | 112.3 |
| 47.5° | 4220.1 | 1038.3 | 144.2 | 104.0 | 86.5 | 74.2 | 73.1 | 77.3 | 81.4 | 92.7 | 94.8 |
| 50° | 4172.8 | 912.6 | 127.7 | 85.5 | 70.0 | 63.9 | 62.8 | 62.8 | 68.0 | 79.3 | 81.4 |
| 52.5° | 4056.4 | 834.3 | 112.3 | 71.1 | 57.7 | 54.6 | 51.5 | 52.5 | 57.7 | 62.8 | 63.9 |
| 55° | 3962.6 | 797.3 | 98.9 | 62.8 | 48.4 | 45.3 | 42.2 | 41.2 | 42.2 | 40.2 | 38.1 |
| 56° | 3940.0 | 793.1 | 95.8 | 60.8 | 46.4 | 42.2 | 38.1 | 36.1 | 35.0 | 30.9 | 29.9 |
| 57.5° | 3929.7 | 793.1 | 90.6 | 56.7 | 43.3 | 38.1 | 33.0 | 28.8 | 24.7 | 21.6 | 21.6 |
| 60° | 3921.4 | 798.3 | 84.5 | 49.4 | 37.1 | 30.9 | 23.7 | 17.5 | 14.4 | 14.4 | 14.4 |
| 62.5° | 3903.9 | 796.2 | 77.3 | 41.2 | 31.9 | 23.7 | 14.4 | 11.3 | 10.3 | 11.3 | 12.4 |
| 65° | 3707.2 | 739.6 | 68.0 | 33.0 | 24.7 | 16.5 | 8.2 | 8.2 | 9.3 | 11.3 | 12.4 |
| 67.5° | 2987.2 | 560.4 | 55.6 | 25.8 | 17.5 | 12.4 | 7.2 | 7.2 | 9.3 | 11.3 | 12.4 |
| 70° | 1640.9 | 295.6 | 47.4 | 18.5 | 13.4 | 10.3 | 7.2 | 6.2 | 9.3 | 11.3 | 12.4 |
| 72.5° | 400.7 | 123.6 | 43.3 | 14.4 | 12.4 | 9.3 | 6.2 | 6.2 | 9.3 | 11.3 | 12.4 |
| 75° | 98.9 | 92.7 | 35.0 | 11.3 | 10.3 | 8.2 | 6.2 | 6.2 | 9.3 | 11.3 | 12.4 |
| 77.5° | 46.4 | 122.6 | 23.7 | 10.3 | 9.3 | 7.2 | 6.2 | 6.2 | 9.3 | 11.3 | 11.3 |
| 80° | 27.8 | 92.7 | 14.4 | 9.3 | 8.2 | 7.2 | 6.2 | 6.2 | 9.3 | 11.3 | 12.4 |
| 82.5° | 16.5 | 26.8 | 10.3 | 9.3 | 8.2 | 6.2 | 6.2 | 6.2 | 9.3 | 11.3 | 12.4 |
| 85° | 14.4 | 13.4 | 10.3 | 9.3 | 8.2 | 7.2 | 6.2 | 6.2 | 10.3 | 12.4 | 12.4 |
| 87.5° | 11.3 | 10.3 | 9.3 | 8.2 | 8.2 | 7.2 | 6.2 | 6.2 | 9.3 | 11.3 | 12.4 |
| 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)