

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: McGRAW-EDISON

Report Number: P821169

Luminaire Tested: **TT-D4-830-24VDC-RW-UPL**

Issue Date: 10/29/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P821169  
REPORT IS FROM IESNA LM-79-08 TEST DATA - UPLIGHT (G2-2002-677-2) AND  
Test Lab: INNOVATION CENTER  
Issue Date: 10/29/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: TT-D4-830-24VDC-RW-UPL  
Description: TOPTIER LED PARKING GARAGE LUMINAIRE WITH UPLIGHT  
3000K, 80 CRI LEDS AND RECTANGULAR DISTRIBUTION  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

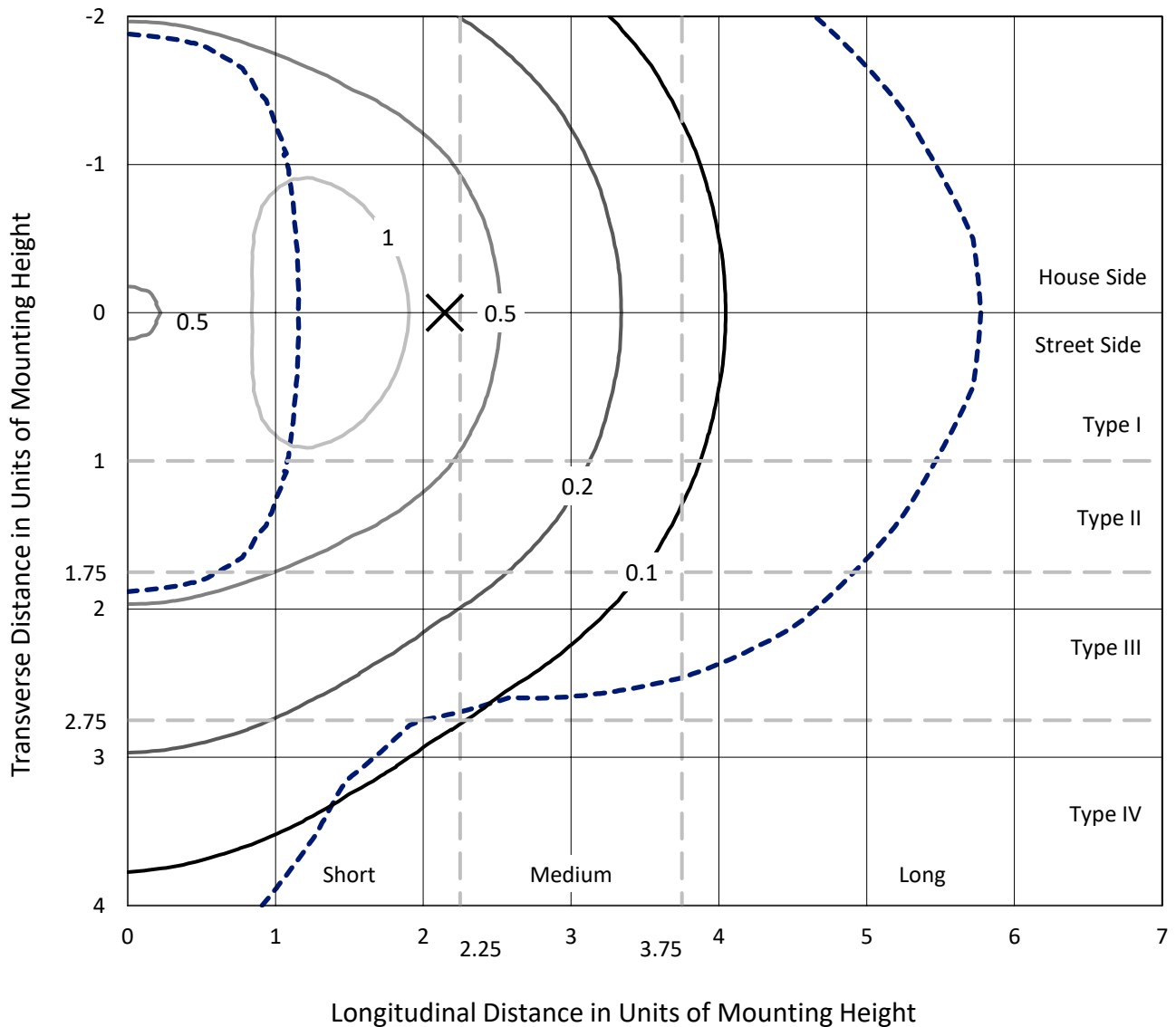
Lumens per Lamp: N/A  
Luminaire Lumens: 6222.7 lumens  
Efficiency: N/A  
Efficacy: 109.2 lumens/watt  
Luminous Opening: Vertical Cylinder (Dia: 1.12' x H: 0.1')  
IES Classification: Type IV - Short  
BUG Rating: B3 - U4 - G3

Input Watts (W): 57  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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

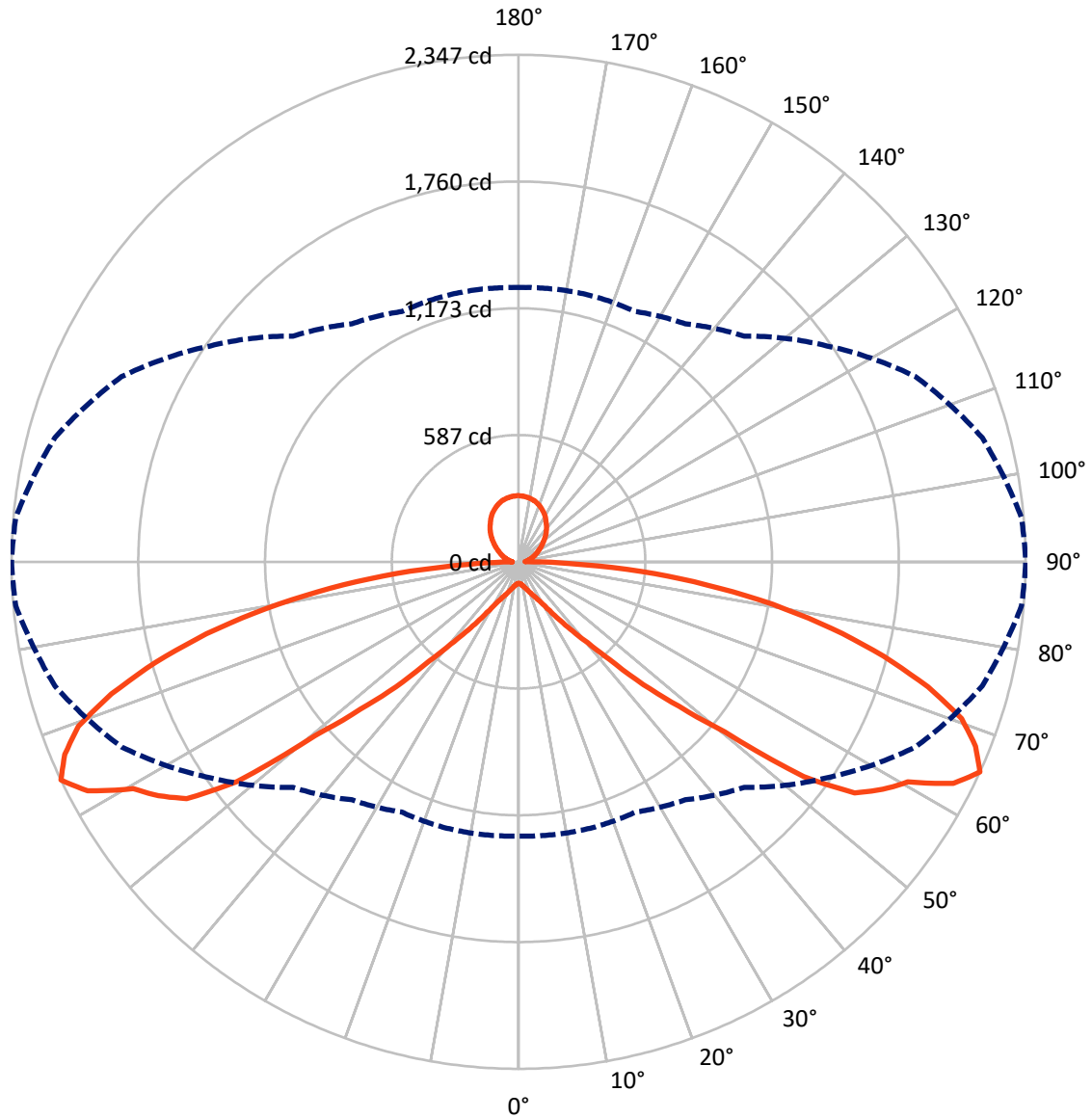
× Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 1.6 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 90-Deg Lateral      - - - Horizontal Cone Through 65-Deg Vertical

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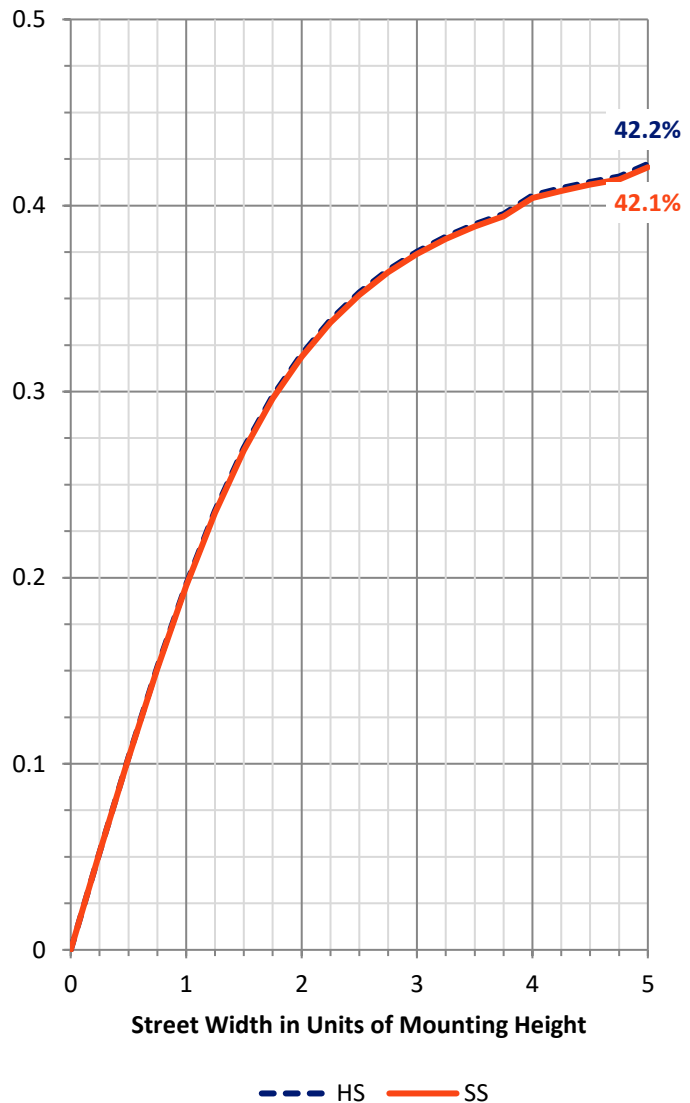
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 2695.5   | 415.9  | 3111.4 |
|                    | % Fixture | 43.3     | 6.7    | 50.0   |
| <b>Street Side</b> | Lumens    | 2695.5   | 415.9  | 3111.4 |
|                    | % Fixture | 43.3     | 6.7    | 50.0   |
| <b>Total</b>       | Lumens    | 5391.0   | 831.7  | 6222.7 |
|                    | % Fixture | 86.6     | 13.4   | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 10.3   | 0.2       |
| 10°-20°   | 38.4   | 0.6       |
| 20°-30°   | 88.8   | 1.4       |
| 30°-40°   | 200.7  | 3.2       |
| 40°-50°   | 488.9  | 7.9       |
| 50°-60°   | 1099.4 | 17.7      |
| 60°-70°   | 1606.8 | 25.8      |
| 70°-80°   | 1400.1 | 22.5      |
| 80°-90°   | 457.5  | 7.4       |
| 90°-100°  | 42.6   | 0.7       |
| 100°-110° | 66.0   | 1.1       |
| 110°-120° | 91.9   | 1.5       |
| 120°-130° | 119.0  | 1.9       |
| 130°-140° | 138.7  | 2.2       |
| 140°-150° | 140.5  | 2.3       |
| 150°-160° | 121.9  | 2.0       |
| 160°-170° | 82.2   | 1.3       |
| 170°-180° | 28.9   | 0.5       |
| 0°-90°    | 5391.0 | 86.6      |
| 0°-180°   | 6222.7 | 100.0     |

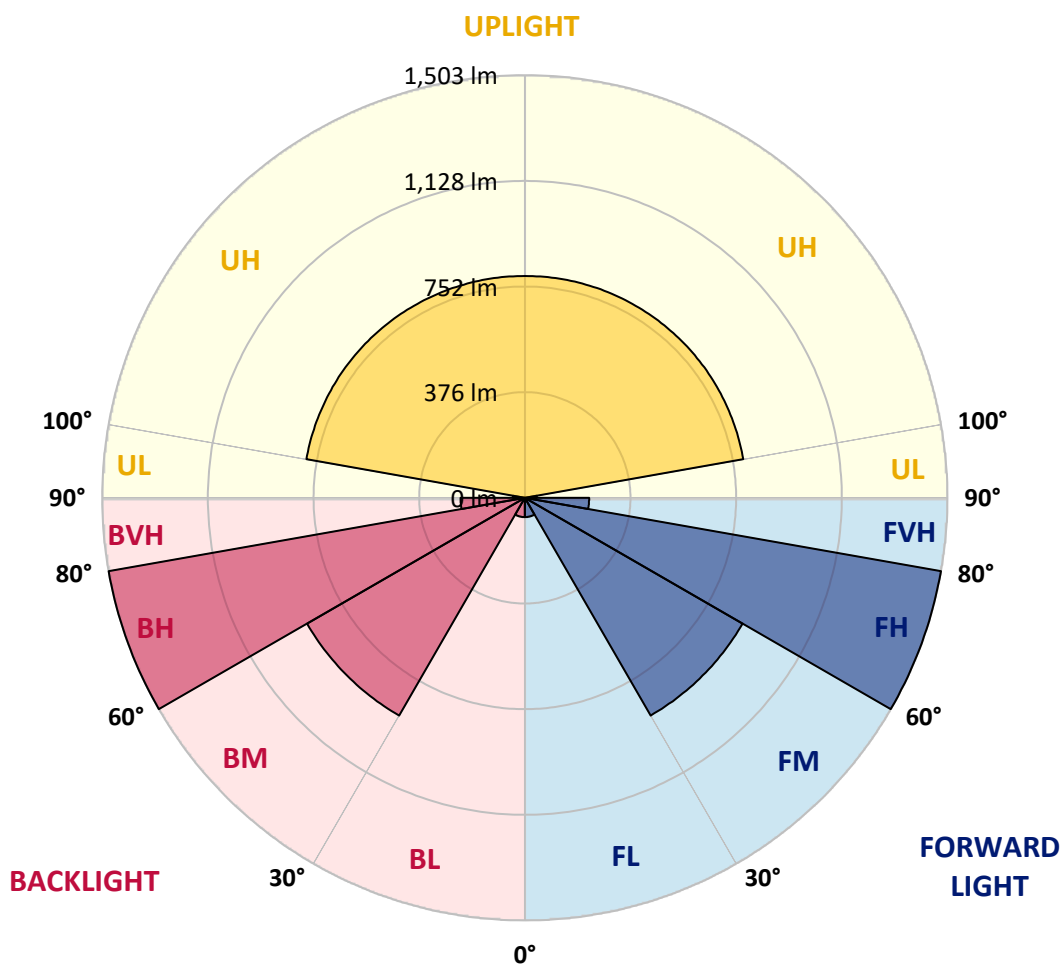


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |         |         |
|----------------|--------|-----------|-------------------------|---------|---------|
|                |        |           | B                       | U       | G       |
| FL (0°-30°)    | 68.7   | 1.1       |                         |         |         |
| FM (30°-60°)   | 894.5  | 14.4      |                         |         |         |
| FH (60°-80°)   | 1503.5 | 24.2      |                         |         | G1/1800 |
| FVH (80°-90°)  | 228.8  | 3.7       |                         |         | G3/500  |
| BL (0°-30°)    | 68.7   | 1.1       | B0/110                  |         |         |
| BM (30°-60°)   | 894.5  | 14.4      | B1/1000                 |         |         |
| BH (60°-80°)   | 1503.5 | 24.2      | B3/2500                 |         | G3/2500 |
| BVH (80°-90°)  | 228.8  | 3.7       |                         |         | G3/500  |
| UL (90°-100°)  | 42.6   | 0.7       |                         | U2/50   |         |
| UH (100°-180°) | 789.1  | 12.7      |                         | U4/1000 |         |

**BUG Rating: B3-U4-G3**  
 Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 85°    | 90°    |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°     | 98.4   | 98.4   | 98.4   | 98.4   | 98.4   | 98.4   | 98.4   | 98.4   | 98.4   | 98.4   | 98.4   |
| 2.5°   | 99.7   | 99.7   | 101.0  | 101.0  | 101.0  | 101.0  | 101.0  | 101.0  | 101.0  | 101.0  | 101.0  |
| 5°     | 103.5  | 103.5  | 103.5  | 103.5  | 104.8  | 104.8  | 103.5  | 103.5  | 103.5  | 103.5  | 103.5  |
| 7.5°   | 109.9  | 108.6  | 109.9  | 109.9  | 109.9  | 108.6  | 108.6  | 108.6  | 107.4  | 107.4  | 107.4  |
| 10°    | 116.3  | 116.3  | 117.6  | 116.3  | 116.3  | 115.0  | 115.0  | 115.0  | 113.8  | 113.8  | 113.8  |
| 12.5°  | 125.3  | 125.3  | 125.3  | 125.3  | 124.0  | 124.0  | 122.7  | 121.4  | 120.2  | 120.2  | 120.2  |
| 15°    | 136.8  | 135.5  | 135.5  | 134.2  | 132.9  | 131.7  | 130.4  | 130.4  | 129.1  | 129.1  | 129.1  |
| 17.5°  | 148.3  | 148.3  | 147.0  | 145.7  | 143.2  | 141.9  | 141.9  | 140.6  | 139.3  | 139.3  | 139.3  |
| 20°    | 162.3  | 162.3  | 161.1  | 158.5  | 155.9  | 154.7  | 153.4  | 153.4  | 152.1  | 152.1  | 152.1  |
| 22.5°  | 178.9  | 177.7  | 175.1  | 172.6  | 170.0  | 168.7  | 167.4  | 166.2  | 166.2  | 166.2  | 166.2  |
| 25°    | 196.8  | 195.6  | 194.3  | 190.5  | 186.6  | 185.3  | 182.8  | 182.8  | 181.5  | 182.8  | 182.8  |
| 27.5°  | 218.6  | 217.3  | 214.7  | 210.9  | 205.8  | 203.2  | 202.0  | 202.0  | 203.2  | 203.2  | 204.5  |
| 30°    | 245.4  | 242.9  | 240.3  | 235.2  | 230.1  | 226.2  | 226.2  | 227.5  | 231.4  | 233.9  | 233.9  |
| 32.5°  | 277.4  | 276.1  | 272.3  | 267.1  | 258.2  | 255.6  | 258.2  | 265.9  | 271.0  | 274.8  | 277.4  |
| 35°    | 314.4  | 313.2  | 308.0  | 299.1  | 292.7  | 291.4  | 299.1  | 311.9  | 328.5  | 333.6  | 336.2  |
| 37.5°  | 355.3  | 356.6  | 350.2  | 340.0  | 333.6  | 336.2  | 351.5  | 375.8  | 392.4  | 403.9  | 406.5  |
| 40°    | 406.5  | 409.0  | 401.4  | 389.9  | 383.5  | 393.7  | 418.0  | 446.1  | 475.5  | 489.5  | 493.4  |
| 42.5°  | 466.5  | 470.4  | 460.2  | 448.6  | 444.8  | 461.4  | 495.9  | 542.0  | 594.4  | 611.0  | 617.4  |
| 45°    | 540.7  | 543.2  | 530.5  | 520.2  | 517.7  | 547.1  | 605.9  | 682.6  | 765.6  | 804.0  | 810.4  |
| 47.5°  | 628.9  | 627.6  | 616.1  | 603.3  | 605.9  | 648.0  | 736.2  | 839.8  | 928.0  | 986.8  | 999.6  |
| 50°    | 729.9  | 723.5  | 714.5  | 699.2  | 715.8  | 777.1  | 888.3  | 1013.6 | 1161.9 | 1214.3 | 1237.3 |
| 52.5°  | 830.8  | 819.3  | 811.7  | 801.4  | 830.8  | 910.1  | 1066.0 | 1284.6 | 1508.3 | 1628.4 | 1652.7 |
| 55°    | 921.6  | 912.6  | 908.8  | 910.1  | 956.1  | 1069.9 | 1274.4 | 1554.3 | 1770.3 | 1870.0 | 1887.9 |
| 57.5°  | 1011.1 | 1005.9 | 1002.1 | 1009.8 | 1082.6 | 1230.9 | 1461.0 | 1723.0 | 1900.7 | 1974.8 | 1987.6 |
| 60°    | 1095.4 | 1100.5 | 1098.0 | 1121.0 | 1209.2 | 1358.7 | 1558.1 | 1816.3 | 1987.6 | 2055.3 | 2069.4 |
| 62.5°  | 1188.7 | 1192.6 | 1192.6 | 1218.1 | 1289.7 | 1421.4 | 1624.6 | 1926.2 | 2143.5 | 2243.2 | 2258.6 |
| 65°    | 1269.3 | 1271.8 | 1276.9 | 1278.2 | 1344.7 | 1476.3 | 1742.2 | 2027.2 | 2221.5 | 2336.5 | 2346.8 |
| 67.5°  | 1329.3 | 1331.9 | 1325.5 | 1319.1 | 1370.2 | 1489.1 | 1733.2 | 2014.4 | 2187.0 | 2273.9 | 2281.6 |
| 70°    | 1377.9 | 1366.4 | 1348.5 | 1316.5 | 1333.2 | 1422.6 | 1659.1 | 1912.2 | 2086.0 | 2164.0 | 2175.5 |
| 72.5°  | 1384.3 | 1374.1 | 1317.8 | 1246.2 | 1225.8 | 1303.8 | 1528.7 | 1756.2 | 1905.8 | 1979.9 | 1981.2 |
| 75°    | 1345.9 | 1319.1 | 1225.8 | 1118.4 | 1080.1 | 1154.2 | 1347.2 | 1554.3 | 1674.4 | 1737.1 | 1743.5 |
| 77.5°  | 1216.8 | 1191.3 | 1073.7 | 951.0  | 907.5  | 971.4  | 1135.0 | 1302.5 | 1417.5 | 1478.9 | 1482.7 |
| 80°    | 988.0  | 979.1  | 871.7  | 759.2  | 706.8  | 743.9  | 887.1  | 1018.7 | 1112.0 | 1184.9 | 1191.3 |
| 82.5°  | 728.6  | 720.9  | 639.1  | 540.7  | 498.5  | 529.2  | 631.4  | 728.6  | 815.5  | 874.3  | 878.1  |
| 85°    | 455.0  | 439.7  | 388.6  | 319.5  | 291.4  | 311.9  | 379.6  | 444.8  | 522.8  | 568.8  | 571.4  |
| 87.5°  | 152.1  | 145.7  | 125.3  | 103.5  | 86.9   | 90.8   | 111.2  | 135.5  | 198.1  | 218.6  | 231.4  |
| 90°    | 30.1   | 29.1   | 29.1   | 29.1   | 29.1   | 29.1   | 29.1   | 29.1   | 29.1   | 29.1   | 29.1   |
| 92.5°  | 34.8   | 34.2   | 34.2   | 33.8   | 33.8   | 33.8   | 33.8   | 33.8   | 33.8   | 33.8   | 33.8   |
| 95°    | 39.4   | 39.4   | 39.4   | 38.5   | 38.5   | 38.5   | 38.5   | 38.5   | 38.5   | 38.5   | 38.5   |
| 97.5°  | 44.6   | 44.6   | 44.6   | 44.2   | 44.2   | 44.2   | 44.2   | 44.2   | 44.2   | 44.2   | 44.2   |
| 100°   | 49.8   | 49.8   | 49.8   | 49.8   | 49.8   | 49.8   | 49.8   | 49.8   | 49.8   | 49.8   | 49.8   |
| 102.5° | 55.9   | 55.9   | 55.9   | 55.9   | 55.9   | 55.9   | 55.9   | 56.4   | 55.9   | 55.9   | 55.9   |
| 105°   | 62.0   | 62.0   | 62.0   | 62.0   | 62.0   | 62.0   | 62.0   | 62.9   | 62.0   | 62.0   | 62.0   |
| 107.5° | 68.6   | 68.6   | 69.0   | 69.0   | 69.0   | 69.0   | 69.0   | 69.5   | 69.0   | 69.0   | 69.0   |
| 110°   | 75.1   | 75.1   | 76.1   | 76.1   | 76.1   | 76.1   | 76.1   | 76.1   | 76.1   | 76.1   | 76.1   |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°    | 5°    | 15°   | 25°   | 35°   | 45°   | 55°   | 65°   | 75°   | 85°   | 90°   |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 112.5° | 83.1  | 83.1  | 84.0  | 84.0  | 84.0  | 84.0  | 84.6  | 84.6  | 84.0  | 84.0  | 84.0  |
| 115°   | 91.1  | 91.1  | 92.0  | 92.0  | 92.0  | 92.0  | 93.0  | 93.0  | 92.0  | 92.0  | 92.0  |
| 117.5° | 100.5 | 100.5 | 101.0 | 101.4 | 101.4 | 101.4 | 102.4 | 102.4 | 101.4 | 101.4 | 101.4 |
| 120°   | 109.9 | 109.9 | 109.9 | 110.8 | 110.8 | 110.8 | 111.8 | 111.8 | 110.8 | 110.8 | 110.8 |
| 122.5° | 120.7 | 120.7 | 121.2 | 121.6 | 121.6 | 121.6 | 122.6 | 122.6 | 122.1 | 122.1 | 121.6 |
| 125°   | 131.5 | 131.5 | 132.4 | 132.4 | 132.4 | 132.4 | 133.4 | 133.4 | 133.4 | 133.4 | 132.4 |
| 127.5° | 143.2 | 143.2 | 144.2 | 144.2 | 144.2 | 144.2 | 145.1 | 145.1 | 145.1 | 145.1 | 144.2 |
| 130°   | 155.0 | 155.0 | 155.9 | 155.9 | 155.9 | 155.9 | 156.8 | 156.8 | 156.8 | 156.8 | 155.9 |
| 132.5° | 167.2 | 167.2 | 167.6 | 167.6 | 167.6 | 168.1 | 168.6 | 168.6 | 168.6 | 168.6 | 168.1 |
| 135°   | 179.4 | 179.4 | 179.4 | 179.4 | 179.4 | 180.3 | 180.3 | 180.3 | 180.3 | 180.3 | 180.3 |
| 137.5° | 191.2 | 190.6 | 191.2 | 190.6 | 191.2 | 191.6 | 191.6 | 191.6 | 191.6 | 191.6 | 191.6 |
| 140°   | 202.9 | 201.9 | 202.9 | 201.9 | 202.9 | 202.9 | 202.9 | 202.9 | 202.9 | 202.9 | 202.9 |
| 142.5° | 213.7 | 213.2 | 213.7 | 212.7 | 213.7 | 213.7 | 213.7 | 213.7 | 213.7 | 213.7 | 213.7 |
| 145°   | 224.5 | 224.5 | 224.5 | 223.5 | 224.5 | 224.5 | 224.5 | 224.5 | 224.5 | 224.5 | 224.5 |
| 147.5° | 235.8 | 235.3 | 235.8 | 234.8 | 235.8 | 235.8 | 235.8 | 235.8 | 235.8 | 235.8 | 235.8 |
| 150°   | 247.0 | 246.1 | 247.0 | 246.1 | 247.0 | 247.0 | 247.0 | 247.0 | 247.0 | 247.0 | 247.0 |
| 152.5° | 256.0 | 255.5 | 256.4 | 255.5 | 256.0 | 256.0 | 256.4 | 256.0 | 256.0 | 256.0 | 256.0 |
| 155°   | 264.9 | 264.9 | 265.8 | 264.9 | 264.9 | 264.9 | 265.8 | 264.9 | 264.9 | 264.9 | 264.9 |
| 157.5° | 272.4 | 272.4 | 273.3 | 272.4 | 272.4 | 272.4 | 273.3 | 272.4 | 272.4 | 272.4 | 272.4 |
| 160°   | 279.9 | 279.9 | 280.8 | 279.9 | 279.9 | 279.9 | 280.8 | 279.9 | 279.9 | 279.9 | 279.9 |
| 162.5° | 286.0 | 286.0 | 286.9 | 286.0 | 286.0 | 286.0 | 286.9 | 286.0 | 286.0 | 286.0 | 286.0 |
| 165°   | 292.1 | 292.1 | 293.0 | 292.1 | 292.1 | 292.1 | 293.0 | 292.1 | 292.1 | 292.1 | 292.1 |
| 167.5° | 295.8 | 295.8 | 296.8 | 295.8 | 295.8 | 295.8 | 296.8 | 295.8 | 295.8 | 295.8 | 295.8 |
| 170°   | 299.6 | 299.6 | 300.5 | 299.6 | 299.6 | 299.6 | 300.5 | 299.6 | 299.6 | 299.6 | 299.6 |
| 172.5° | 302.0 | 302.0 | 302.8 | 302.0 | 302.4 | 302.0 | 302.8 | 302.0 | 302.0 | 302.0 | 302.0 |
| 175°   | 304.3 | 304.3 | 305.2 | 304.3 | 305.2 | 304.3 | 305.2 | 304.3 | 304.3 | 304.3 | 304.3 |
| 177.5° | 305.2 | 305.2 | 305.7 | 305.2 | 305.7 | 305.2 | 305.7 | 305.2 | 305.2 | 305.2 | 305.2 |
| 180°   | 306.2 | 306.2 | 306.2 | 306.2 | 306.2 | 306.2 | 306.2 | 306.2 | 306.2 | 306.2 | 306.2 |

(END OF REPORT)