

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: 768851

Luminaire Tested: **BRL-XX-70-MP**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: 768851
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: BRL-XX-70-MP
Description: 70W MP ROUND ARCHITECTURAL BOLLARD WITH STACKED LOUVERS
Light Source: 70 WATT PULSE-START COATED ED-17 VBD BURN
Ballast/Driver: -

Summary

Lumens per Lamp: 6000 (1 lamp)
Luminaire Lumens: 2200.1 lumens
Efficiency: 36.7%
Efficacy: 31.4 lumens/watt
Luminous Opening: Point Source (0' x 0' x 0')
IES Classification: Type V - Medium - Semi-Cutoff
BUG Rating: B1 - U3 - G2

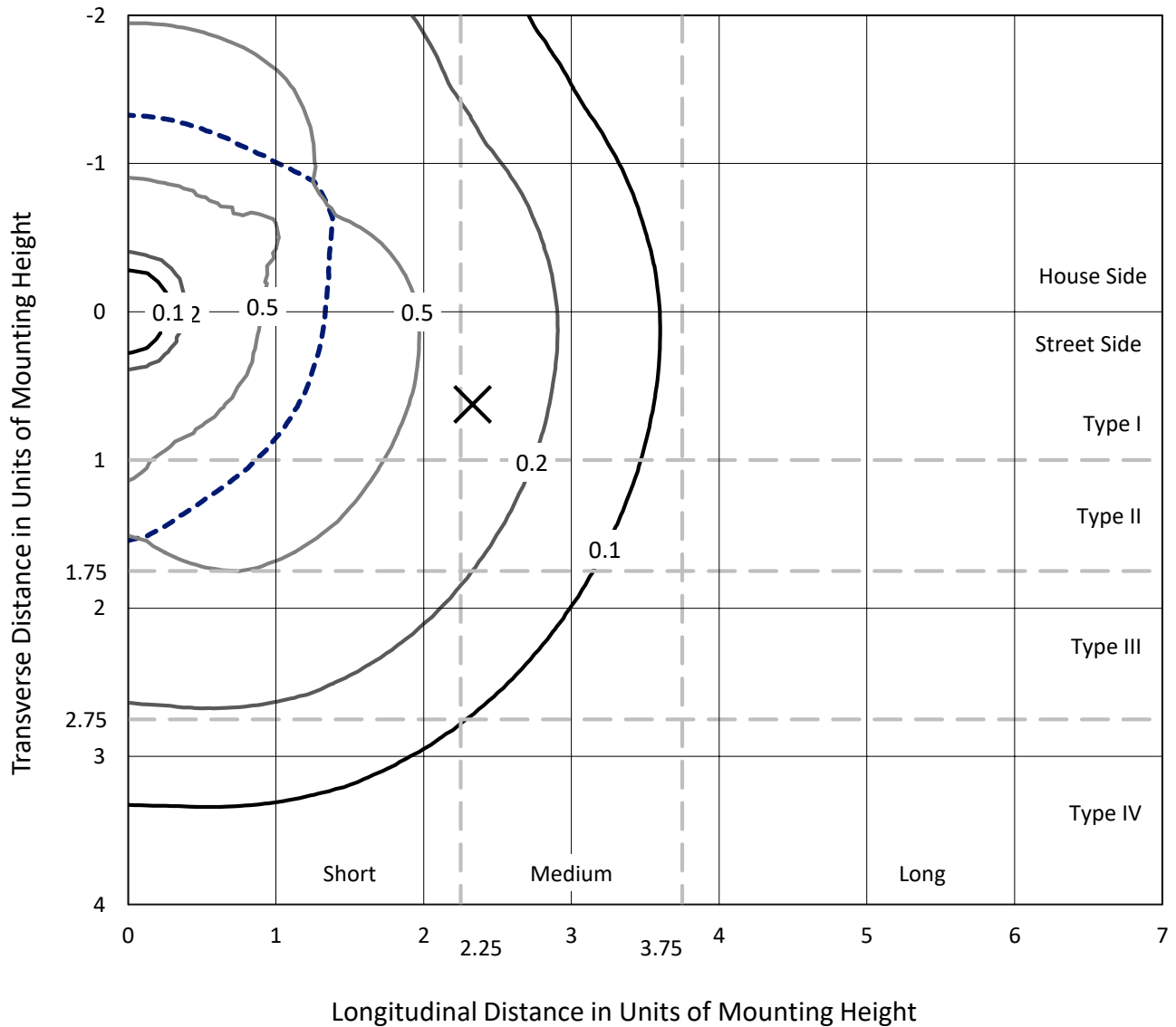
Input Watts (W): 70
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

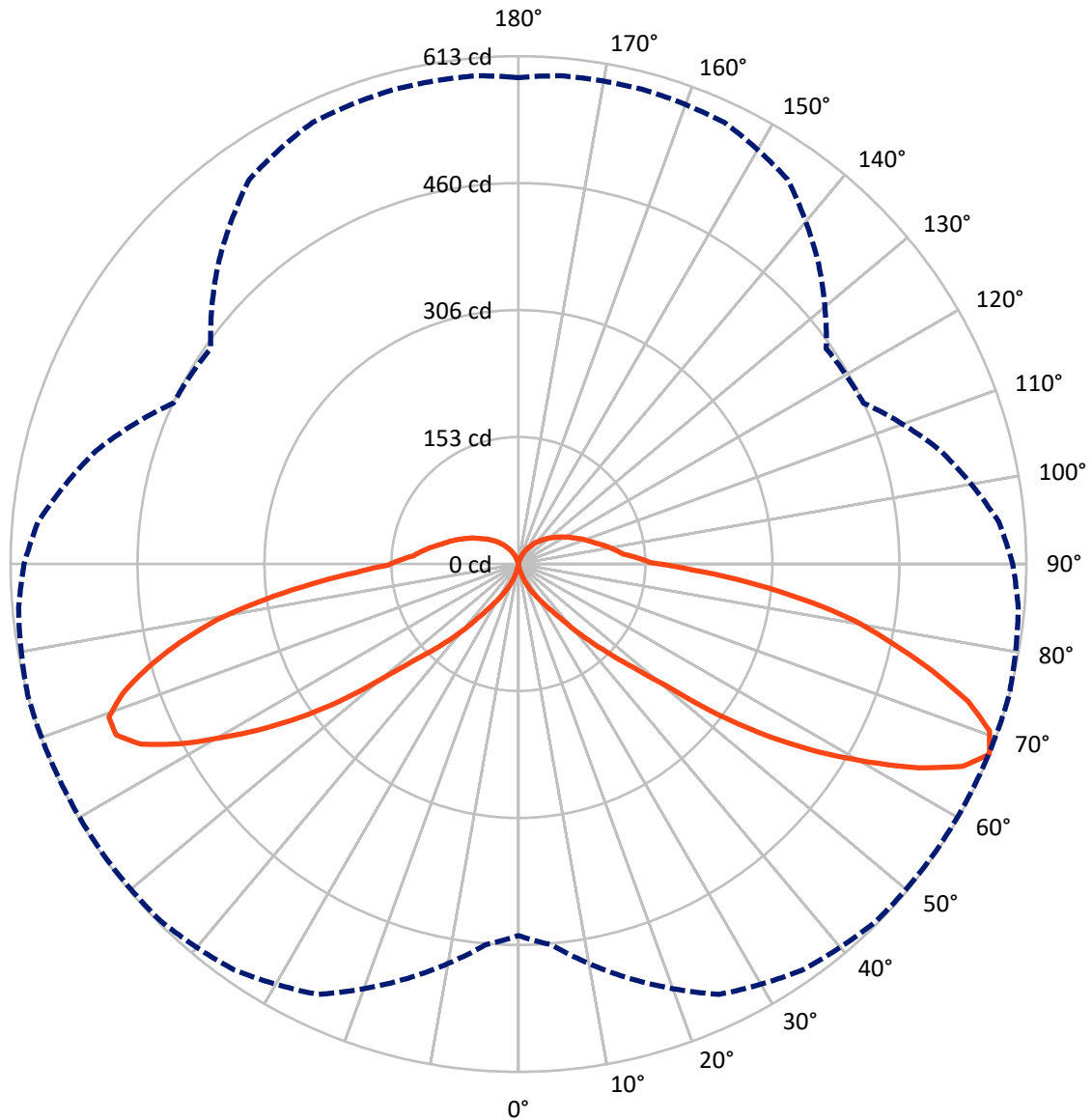
× Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 0.7 fc
 Type V - Medium - Semi-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 75-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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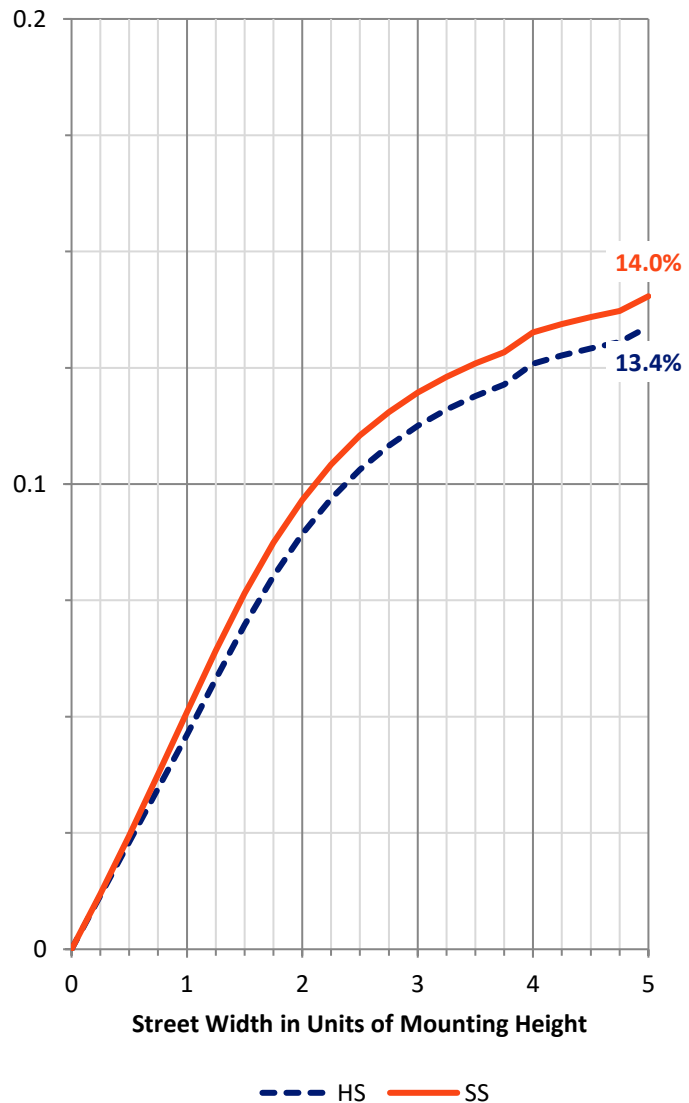
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|--------|----------|--------|--------|
| House Side | Lumens | 870.0 | 208.3 | 1078.3 |
| | % Lamp | 14.5 | 3.5 | 18.0 |
| Street Side | Lumens | 912.9 | 208.9 | 1121.8 |
| | % Lamp | 15.2 | 3.5 | 18.7 |
| Total | Lumens | 1782.9 | 417.2 | 2200.1 |
| | % Lamp | 29.7 | 7.0 | 36.7 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture | % Lamp |
|-----------|--------|-----------|--------|
| 0°-10° | 0.0 | 0.0 | 0.0 |
| 10°-20° | 3.3 | 0.1 | 0.1 |
| 20°-30° | 16.1 | 0.7 | 0.3 |
| 30°-40° | 45.2 | 2.1 | 0.8 |
| 40°-50° | 118.5 | 5.4 | 2.0 |
| 50°-60° | 300.5 | 13.7 | 5.0 |
| 60°-70° | 518.4 | 23.6 | 8.6 |
| 70°-80° | 499.8 | 22.7 | 8.3 |
| 80°-90° | 281.1 | 12.8 | 4.7 |
| 90°-100° | 139.8 | 6.4 | 2.3 |
| 100°-110° | 102.0 | 4.6 | 1.7 |
| 110°-120° | 72.7 | 3.3 | 1.2 |
| 120°-130° | 49.4 | 2.2 | 0.8 |
| 130°-140° | 30.8 | 1.4 | 0.5 |
| 140°-150° | 16.6 | 0.8 | 0.3 |
| 150°-160° | 6.7 | 0.3 | 0.1 |
| 160°-170° | 1.6 | 0.1 | 0.0 |
| 170°-180° | 0.2 | 0.0 | 0.0 |
| 0°-90° | 1782.9 | 81.0 | 29.7 |
| 0°-180° | 2200.1 | 100.0 | 36.7 |

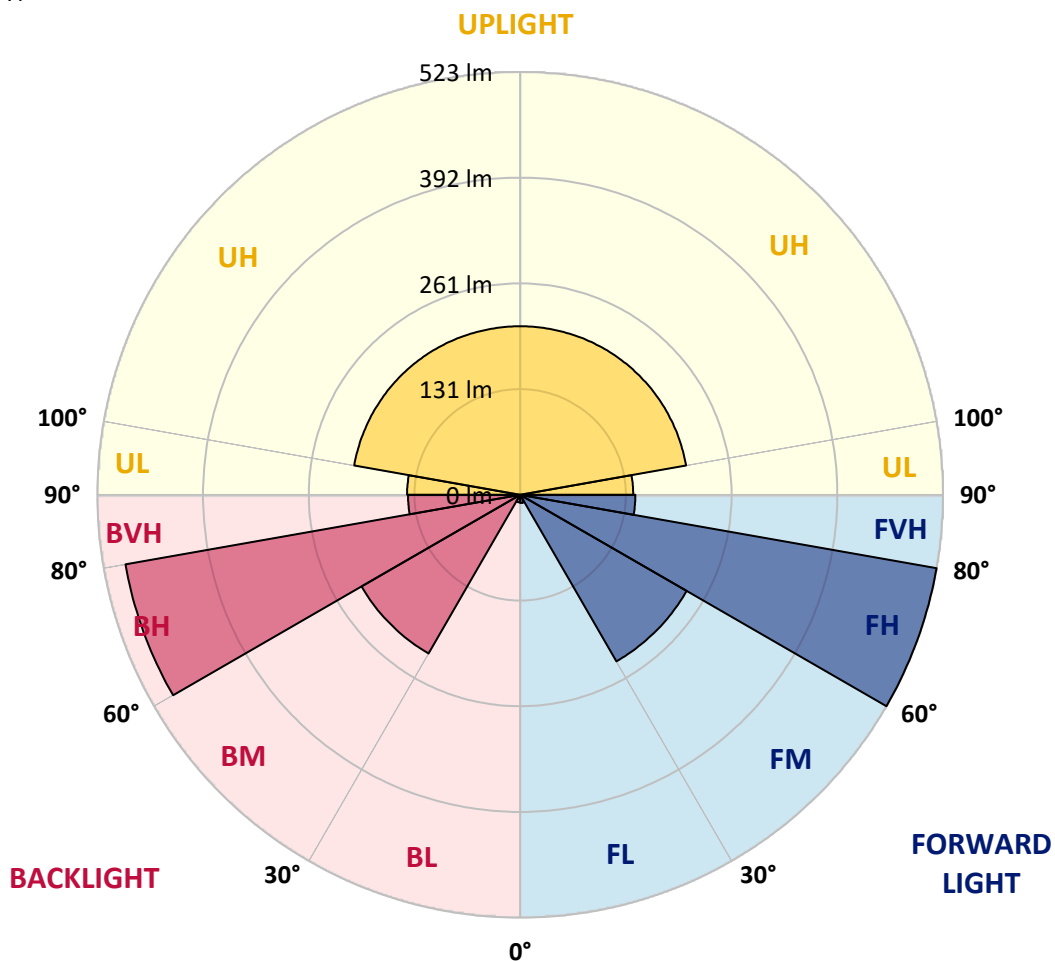


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Lamp | Zone Rating/Lumen Limit | | |
|----------------|--------|--------|-------------------------|--------|--------|
| | | | B | U | G |
| FL (0°-30°) | 10.1 | 0.2 | | | |
| FM (30°-60°) | 237.7 | 4.0 | | | |
| FH (60°-80°) | 522.7 | 8.7 | | | G0/660 |
| FVH (80°-90°) | 142.4 | 2.4 | | | G2/225 |
| BL (0°-30°) | 9.4 | 0.2 | B0/110 | | |
| BM (30°-60°) | 226.5 | 3.8 | B1/1000 | | |
| BH (60°-80°) | 495.5 | 8.3 | B1/500 | | G0/660 |
| BVH (80°-90°) | 138.7 | 2.3 | | | G2/225 |
| UL (90°-100°) | 139.8 | 2.3 | | U3/500 | |
| UH (100°-180°) | 208.3 | 3.5 | | U3/500 | |
| Trapped Light | 3799.9 | 63.3 | | | |

BUG Rating: B1-U3-G2
 Type V Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 7.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 10° | 2.0 | 1.5 | 1.0 | 1.5 | 2.5 | 2.0 | 2.5 | 2.5 | 2.0 | 2.0 | 1.5 |
| 12.5° | 5.0 | 5.5 | 5.5 | 5.5 | 5.5 | 7.0 | 6.5 | 6.0 | 6.0 | 5.5 | 5.5 |
| 15° | 10.0 | 10.0 | 9.5 | 10.0 | 11.0 | 11.0 | 11.5 | 11.5 | 10.5 | 10.5 | 10.5 |
| 17.5° | 15.9 | 14.9 | 15.4 | 15.9 | 15.9 | 16.4 | 17.4 | 16.9 | 15.9 | 16.4 | 15.4 |
| 20° | 21.9 | 21.9 | 21.4 | 22.4 | 22.9 | 22.9 | 22.4 | 23.4 | 22.9 | 22.9 | 21.9 |
| 22.5° | 26.9 | 27.9 | 27.4 | 27.9 | 28.9 | 28.9 | 28.9 | 28.4 | 28.4 | 28.9 | 27.9 |
| 25° | 33.9 | 33.4 | 33.9 | 33.9 | 34.9 | 34.9 | 35.4 | 34.4 | 34.9 | 34.4 | 33.9 |
| 27.5° | 41.8 | 40.8 | 41.3 | 41.8 | 41.8 | 41.8 | 41.8 | 41.3 | 41.8 | 40.8 | 41.3 |
| 30° | 48.8 | 49.3 | 49.8 | 49.8 | 49.3 | 49.3 | 49.3 | 49.3 | 49.3 | 49.8 | 48.8 |
| 32.5° | 57.8 | 57.8 | 58.3 | 58.8 | 58.3 | 57.8 | 57.8 | 57.8 | 58.3 | 58.3 | 57.8 |
| 35° | 68.7 | 68.7 | 69.2 | 69.7 | 69.7 | 68.7 | 68.7 | 69.2 | 69.2 | 69.7 | 69.2 |
| 37.5° | 82.7 | 82.2 | 83.2 | 83.7 | 83.7 | 82.7 | 83.2 | 83.2 | 83.7 | 84.7 | 84.2 |
| 40° | 100.6 | 100.6 | 101.6 | 102.6 | 102.6 | 103.1 | 104.1 | 103.6 | 104.6 | 104.6 | 104.6 |
| 42.5° | 117.6 | 119.1 | 122.0 | 124.0 | 125.0 | 125.5 | 126.5 | 126.0 | 128.0 | 127.0 | 126.0 |
| 45° | 137.5 | 138.5 | 144.0 | 148.9 | 150.9 | 152.4 | 153.4 | 153.9 | 154.4 | 153.4 | 151.4 |
| 47.5° | 160.4 | 160.9 | 168.4 | 176.3 | 181.3 | 182.8 | 184.8 | 184.8 | 185.8 | 183.3 | 181.3 |
| 50° | 187.3 | 189.8 | 204.7 | 216.2 | 222.7 | 226.7 | 228.7 | 228.7 | 229.6 | 226.7 | 223.7 |
| 52.5° | 231.1 | 235.1 | 260.5 | 282.5 | 292.9 | 299.9 | 303.4 | 302.9 | 301.9 | 295.9 | 290.9 |
| 55° | 273.0 | 278.0 | 310.3 | 341.2 | 356.2 | 366.1 | 371.1 | 369.6 | 367.6 | 359.7 | 353.7 |
| 57.5° | 313.8 | 320.8 | 357.7 | 395.5 | 413.5 | 425.4 | 429.9 | 428.9 | 427.9 | 418.4 | 409.5 |
| 60° | 352.7 | 363.2 | 409.5 | 453.3 | 471.7 | 483.7 | 486.2 | 484.7 | 484.7 | 474.2 | 465.8 |
| 62.5° | 389.6 | 403.5 | 460.8 | 511.6 | 531.5 | 542.5 | 541.5 | 541.0 | 541.5 | 532.0 | 524.1 |
| 65° | 424.4 | 438.4 | 499.6 | 555.4 | 576.4 | 587.8 | 586.8 | 587.8 | 588.8 | 580.3 | 570.4 |
| 67.5° | 448.3 | 461.3 | 517.6 | 572.9 | 597.8 | 609.7 | 611.2 | 611.7 | 612.7 | 605.3 | 596.3 |
| 70° | 449.3 | 459.8 | 509.1 | 560.9 | 583.8 | 596.8 | 600.3 | 602.3 | 602.8 | 598.8 | 592.8 |
| 72.5° | 429.4 | 436.9 | 479.7 | 525.0 | 546.0 | 557.9 | 560.9 | 564.4 | 567.4 | 564.9 | 557.4 |
| 75° | 393.5 | 401.5 | 439.9 | 476.2 | 494.2 | 504.1 | 508.6 | 512.1 | 516.1 | 515.6 | 510.6 |
| 77.5° | 355.7 | 362.2 | 397.5 | 428.9 | 443.4 | 451.8 | 454.3 | 458.8 | 461.8 | 460.3 | 456.8 |
| 80° | 313.8 | 320.3 | 350.7 | 378.1 | 393.0 | 402.0 | 405.5 | 408.0 | 410.0 | 408.5 | 402.5 |
| 82.5° | 257.0 | 263.0 | 288.9 | 312.8 | 326.3 | 333.8 | 338.7 | 342.7 | 343.7 | 343.7 | 337.7 |
| 85° | 210.2 | 213.7 | 231.6 | 248.6 | 258.5 | 265.5 | 271.0 | 274.5 | 276.0 | 276.0 | 272.0 |
| 87.5° | 168.4 | 170.4 | 180.3 | 189.3 | 194.8 | 201.3 | 206.2 | 210.2 | 210.7 | 209.7 | 207.7 |
| 90° | 143.5 | 144.0 | 148.4 | 152.9 | 151.4 | 154.4 | 158.9 | 160.4 | 160.4 | 161.9 | 160.9 |
| 95° | 122.5 | 122.5 | 125.0 | 126.0 | 124.0 | 124.0 | 123.5 | 125.0 | 126.5 | 128.0 | 128.5 |
| 105° | 93.7 | 94.2 | 94.2 | 94.6 | 93.2 | 93.2 | 93.2 | 94.2 | 95.6 | 96.1 | 96.1 |
| 115° | 71.7 | 71.2 | 71.7 | 72.7 | 71.7 | 71.7 | 72.2 | 72.2 | 73.2 | 73.2 | 73.2 |
| 125° | 52.8 | 53.3 | 53.8 | 54.3 | 54.3 | 54.3 | 54.3 | 54.8 | 55.3 | 55.3 | 54.8 |
| 135° | 36.9 | 38.4 | 38.4 | 39.4 | 39.4 | 39.9 | 40.4 | 40.4 | 40.4 | 40.4 | 39.9 |
| 145° | 24.9 | 25.4 | 25.4 | 25.9 | 25.9 | 25.9 | 25.9 | 25.9 | 26.9 | 26.9 | 26.9 |
| 155° | 13.0 | 13.5 | 13.5 | 13.9 | 13.5 | 14.4 | 13.9 | 14.4 | 14.4 | 14.4 | 14.4 |
| 165° | 4.0 | 3.0 | 3.0 | 3.5 | 3.5 | 4.0 | 4.0 | 4.0 | 4.0 | 4.5 | 4.0 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 175° | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 2.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 180° | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |



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CANDELA DISTRIBUTION (continued):

| | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 7.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 10° | 1.5 | 1.5 | 1.5 | 0.5 | 0.5 | 0.5 | 1.0 | 0.5 | 0.5 | 1.0 |
| 12.5° | 5.5 | 5.0 | 4.5 | 4.0 | 5.0 | 5.0 | 4.5 | 5.0 | 5.0 | 5.0 |
| 15° | 10.5 | 9.5 | 9.0 | 9.5 | 9.0 | 9.0 | 9.0 | 9.5 | 9.5 | 10.0 |
| 17.5° | 15.4 | 14.9 | 14.9 | 13.9 | 13.9 | 13.9 | 13.9 | 14.4 | 14.4 | 13.9 |
| 20° | 21.4 | 21.4 | 20.9 | 19.9 | 20.4 | 19.9 | 20.4 | 20.4 | 20.9 | 20.9 |
| 22.5° | 27.9 | 27.4 | 26.4 | 25.9 | 25.4 | 25.4 | 26.9 | 26.9 | 26.4 | 25.9 |
| 25° | 33.9 | 32.9 | 32.9 | 31.9 | 32.4 | 31.9 | 31.9 | 31.9 | 32.4 | 31.9 |
| 27.5° | 40.8 | 39.9 | 40.4 | 38.9 | 38.9 | 38.9 | 39.4 | 39.4 | 39.4 | 38.9 |
| 30° | 48.8 | 48.3 | 47.3 | 46.3 | 46.8 | 46.8 | 46.8 | 47.3 | 46.8 | 46.8 |
| 32.5° | 57.8 | 56.8 | 55.8 | 55.3 | 55.8 | 55.3 | 55.8 | 55.8 | 55.8 | 54.8 |
| 35° | 69.2 | 67.7 | 67.3 | 65.8 | 66.8 | 68.2 | 67.7 | 67.7 | 67.3 | 66.8 |
| 37.5° | 83.7 | 82.2 | 80.7 | 80.2 | 81.2 | 82.2 | 82.7 | 82.2 | 82.7 | 82.7 |
| 40° | 103.6 | 101.1 | 99.1 | 98.1 | 100.6 | 102.1 | 103.6 | 103.6 | 104.1 | 103.6 |
| 42.5° | 124.5 | 121.1 | 118.1 | 118.1 | 121.5 | 124.0 | 125.0 | 126.5 | 126.5 | 126.5 |
| 45° | 149.4 | 143.5 | 137.5 | 138.0 | 144.0 | 148.0 | 150.9 | 152.4 | 152.9 | 151.4 |
| 47.5° | 177.8 | 167.4 | 159.4 | 158.9 | 166.9 | 174.4 | 179.3 | 181.3 | 182.8 | 182.3 |
| 50° | 219.2 | 205.2 | 188.8 | 188.8 | 204.7 | 217.7 | 224.2 | 227.2 | 227.7 | 227.2 |
| 52.5° | 283.4 | 261.0 | 233.6 | 232.6 | 259.5 | 281.0 | 290.4 | 295.4 | 295.9 | 294.9 |
| 55° | 343.2 | 313.8 | 276.0 | 274.5 | 308.9 | 337.7 | 352.2 | 358.7 | 361.2 | 359.7 |
| 57.5° | 399.0 | 363.2 | 317.8 | 315.8 | 356.2 | 392.0 | 408.0 | 416.0 | 417.9 | 417.4 |
| 60° | 453.8 | 411.0 | 358.2 | 355.7 | 404.0 | 444.3 | 462.8 | 469.8 | 469.8 | 469.3 |
| 62.5° | 509.6 | 462.3 | 397.5 | 394.0 | 452.3 | 500.6 | 518.1 | 521.1 | 520.6 | 519.1 |
| 65° | 556.4 | 504.6 | 433.4 | 428.4 | 491.2 | 544.0 | 562.9 | 565.4 | 565.9 | 560.9 |
| 67.5° | 581.8 | 527.5 | 459.3 | 453.3 | 512.1 | 566.4 | 587.8 | 591.8 | 591.3 | 586.8 |
| 70° | 576.4 | 527.5 | 464.8 | 456.3 | 508.1 | 559.4 | 581.3 | 585.3 | 585.8 | 582.8 |
| 72.5° | 545.0 | 501.1 | 447.8 | 439.4 | 481.7 | 527.0 | 548.0 | 551.0 | 550.0 | 546.0 |
| 75° | 499.1 | 462.3 | 414.5 | 407.5 | 443.4 | 480.7 | 498.1 | 499.6 | 497.7 | 494.2 |
| 77.5° | 447.8 | 418.4 | 374.1 | 369.6 | 404.5 | 435.4 | 447.3 | 447.3 | 444.3 | 441.4 |
| 80° | 396.5 | 370.1 | 333.3 | 327.8 | 358.2 | 384.6 | 395.0 | 396.0 | 393.5 | 390.5 |
| 82.5° | 331.8 | 309.4 | 278.0 | 273.0 | 297.9 | 318.8 | 327.8 | 328.3 | 325.8 | 322.8 |
| 85° | 266.5 | 249.6 | 226.7 | 222.7 | 240.1 | 255.6 | 263.5 | 264.0 | 262.5 | 260.0 |
| 87.5° | 206.2 | 196.3 | 183.3 | 178.8 | 188.3 | 197.8 | 201.3 | 200.8 | 200.8 | 200.3 |
| 90° | 161.4 | 157.4 | 150.4 | 148.0 | 150.9 | 152.9 | 151.4 | 150.4 | 149.9 | 149.4 |
| 95° | 128.0 | 127.0 | 123.5 | 123.5 | 125.0 | 124.5 | 124.0 | 121.5 | 121.1 | 119.6 |
| 105° | 96.1 | 95.6 | 95.6 | 95.1 | 94.2 | 94.6 | 93.7 | 92.7 | 93.2 | 92.7 |
| 115° | 73.7 | 73.2 | 72.7 | 71.7 | 72.2 | 71.7 | 71.7 | 71.7 | 71.7 | 71.7 |
| 125° | 55.3 | 53.8 | 54.3 | 53.8 | 53.8 | 54.3 | 54.3 | 54.3 | 53.8 | 54.8 |
| 135° | 39.4 | 39.4 | 38.9 | 38.9 | 38.9 | 39.4 | 39.9 | 40.4 | 39.9 | 38.9 |
| 145° | 25.9 | 25.9 | 25.4 | 25.4 | 25.9 | 25.9 | 25.9 | 26.4 | 25.9 | 26.9 |
| 155° | 13.9 | 13.9 | 13.9 | 13.9 | 13.9 | 14.4 | 14.4 | 14.4 | 14.9 | 13.9 |
| 165° | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 | 4.0 | 4.5 | 4.5 | 4.0 | 4.0 |



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CANDELA DISTRIBUTION (continued):

| | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|------|-----|------|------|------|------|------|------|------|------|------|
| 175° | 0.5 | 2.5 | 2.5 | 0.0 | 0.0 | 0.0 | 2.5 | 0.5 | 0.0 | 0.0 |
| 180° | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.1 |

(END OF REPORT)