

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: PORTFOLIO

Report Number: P840144

Luminaire Tested: **LD4C20D010 EU4209040 4LBCSSQMMS**

Issue Date: 5/25/2022

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.



**Test Information**

Test Method: LM-79-08  
Report Number: P840144  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P209253)  
Test Lab: INNOVATION CENTER  
Issue Date: 5/25/2022  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: PORTFOLIO  
Catalog Number: LD4C20D010 EU4209040 4LBCSSQMMS  
Description: 4 INCH 2000 LUMEN PORTFOLIO LED DOWNLIGHT WITH, 4000K, 90CRI LEDS  
AND 4LBCSSQ TRIM WITH MMS FINISH  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

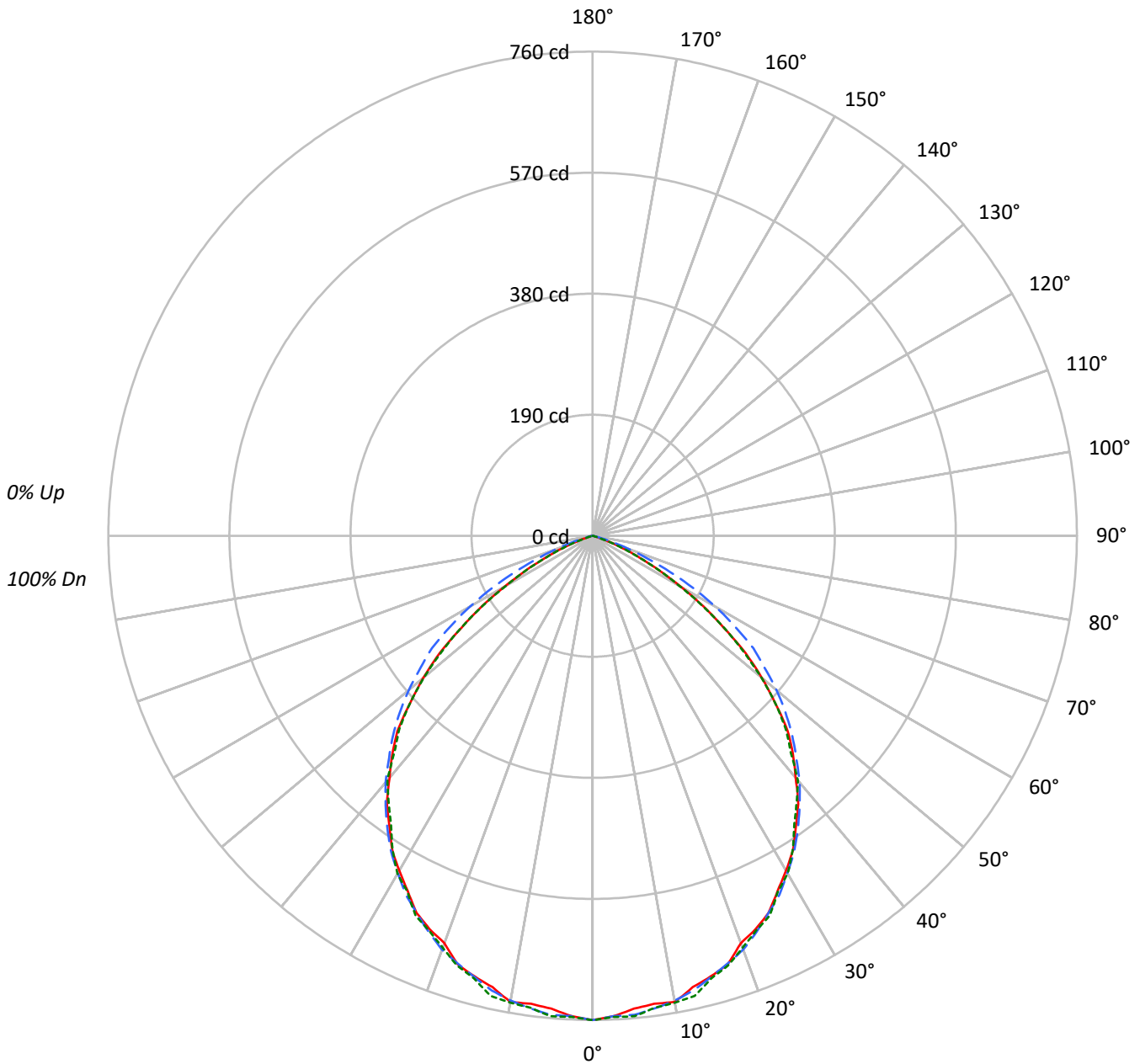
Lumens per Lamp: N/A  
Luminaire Lumens: 1624.0 lumens  
Efficiency: N/A  
Efficacy: 74.5 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct

Input Watts (W): 21.8  
Input Voltage (V):  
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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CATALOG NUMBER: LD4C20D010 EU4209040 4LBCSSQMMS

### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|---|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|---|
| RF  | 20  |     |     |     |     |     |     |     |     | 20  |     |     |     |     |     |     |     |     | 20 |    |   |  |  |  |  |  |  | 20 |  |  |  |  |  |  |  |  |   |
| RC  | 80  |     |     |     |     |     |     |     |     | 50  |     |     |     |     |     |     |     |     | 30 |    |   |  |  |  |  |  |  | 10 |  |  |  |  |  |  |  |  | 0 |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30 | 10 | 0 |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 1   | 111 | 108 | 104 | 101 | 109 | 105 | 102 | 100 | 101 | 99  | 96  | 97  | 95  | 94  | 94  | 92  | 91  | 89  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 2   | 103 | 96  | 91  | 86  | 100 | 94  | 89  | 85  | 91  | 87  | 83  | 88  | 84  | 81  | 85  | 82  | 79  | 77  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 3   | 95  | 86  | 79  | 74  | 93  | 85  | 78  | 73  | 82  | 76  | 72  | 79  | 74  | 71  | 77  | 73  | 69  | 67  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 4   | 88  | 77  | 70  | 64  | 86  | 76  | 69  | 63  | 74  | 67  | 63  | 71  | 66  | 62  | 69  | 65  | 61  | 59  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 5   | 81  | 70  | 62  | 56  | 79  | 69  | 61  | 56  | 67  | 60  | 55  | 65  | 59  | 54  | 63  | 58  | 54  | 52  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 6   | 75  | 63  | 55  | 49  | 73  | 62  | 55  | 49  | 61  | 54  | 49  | 59  | 53  | 48  | 57  | 52  | 48  | 46  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 7   | 70  | 58  | 50  | 44  | 68  | 57  | 49  | 44  | 55  | 49  | 44  | 54  | 48  | 43  | 53  | 47  | 43  | 41  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 8   | 65  | 53  | 45  | 40  | 64  | 52  | 45  | 39  | 51  | 44  | 39  | 50  | 44  | 39  | 49  | 43  | 39  | 37  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 9   | 61  | 49  | 41  | 36  | 60  | 48  | 41  | 36  | 47  | 40  | 36  | 46  | 40  | 35  | 45  | 39  | 35  | 33  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 10  | 57  | 45  | 38  | 33  | 56  | 44  | 37  | 33  | 44  | 37  | 32  | 43  | 37  | 32  | 42  | 36  | 32  | 31  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 73351 | 73351 | 73351 |
| 5°  | 72168 | 73108 | 73321 |
| 10° | 72797 | 72582 | 72895 |
| 15° | 71523 | 71623 | 71843 |
| 20° | 69854 | 70963 | 70634 |
| 25° | 69553 | 69553 | 70011 |
| 30° | 67618 | 68097 | 68220 |
| 35° | 65504 | 66140 | 64997 |
| 40° | 62437 | 63659 | 63105 |
| 45° | 59085 | 60423 | 58499 |
| 50° | 52043 | 56576 | 51713 |
| 55° | 42140 | 51779 | 42325 |
| 60° | 30838 | 42938 | 30220 |
| 65° | 18744 | 30571 | 18242 |
| 70° | 7307  | 16447 | 6996  |
| 75° | 820   | 4436  | 820   |
| 80° | 611   | 611   | 611   |
| 85° | 0     | 0     | 0     |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 71.8   | 4.4       |
| 10°-20°   | 203.1  | 12.5      |
| 20°-30°   | 301.3  | 18.6      |
| 30°-40°   | 349.1  | 21.5      |
| 40°-50°   | 334.7  | 20.6      |
| 50°-60°   | 246.1  | 15.2      |
| 60°-70°   | 106.3  | 6.5       |
| 70°-80°   | 11.5   | 0.7       |
| 80°-90°   | 0.1    | 0.0       |
| 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°-30°    | 576.1  | 35.5      |
| 0°-40°    | 925.2  | 57.0      |
| 0°-60°    | 1506.1 | 92.7      |
| 0°-90°    | 1624.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1624.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 760 | 760   | 760 | 760   | 760 |      |
| 5°  | 745 | 753   | 755 | 756   | 757 | 71   |
| 15° | 716 | 720   | 717 | 718   | 719 | 202  |
| 25° | 653 | 652   | 653 | 654   | 658 | 299  |
| 35° | 556 | 559   | 562 | 560   | 552 | 348  |
| 45° | 433 | 434   | 443 | 436   | 429 | 329  |
| 55° | 250 | 276   | 308 | 275   | 252 | 225  |
| 65° | 82  | 103   | 134 | 102   | 80  | 84   |
| 75° | 2   | 3     | 12  | 2     | 2   | 7    |
| 85° | 0   | 0     | 0   | 0     | 0   | 0    |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 5°    | 10°   | 15°   | 20°   | 22.5° | 25°   | 30°   | 35°   | 40°   | 45°   |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 760.2 | 760.2 | 760.2 | 760.2 | 760.2 | 760.2 | 760.2 | 760.2 | 760.2 | 760.2 | 760.2 |
| 2.5°  | 754.8 | 763.5 | 764.6 | 759.1 | 757.0 | 753.8 | 761.3 | 755.9 | 758.1 | 755.9 | 754.8 |
| 5°    | 745.1 | 754.8 | 755.9 | 755.9 | 753.8 | 752.7 | 755.9 | 754.8 | 753.8 | 751.6 | 754.8 |
| 7.5°  | 740.8 | 746.2 | 751.6 | 745.1 | 748.3 | 747.3 | 754.8 | 751.6 | 750.5 | 750.5 | 748.3 |
| 10°   | 743.0 | 741.9 | 746.2 | 739.7 | 741.9 | 739.7 | 746.2 | 746.2 | 744.0 | 741.9 | 740.8 |
| 12.5° | 725.7 | 734.3 | 734.3 | 733.2 | 731.1 | 727.8 | 734.3 | 738.7 | 732.1 | 732.1 | 731.1 |
| 15°   | 716.0 | 718.1 | 719.2 | 719.2 | 718.1 | 720.3 | 723.5 | 719.2 | 720.3 | 714.9 | 717.0 |
| 17.5° | 705.2 | 700.9 | 704.1 | 701.9 | 703.0 | 705.2 | 709.5 | 709.5 | 703.0 | 701.9 | 704.1 |
| 20°   | 680.3 | 693.3 | 694.4 | 687.9 | 689.0 | 689.0 | 696.5 | 690.1 | 694.4 | 689.0 | 691.1 |
| 22.5° | 668.4 | 677.1 | 678.2 | 669.5 | 674.9 | 668.4 | 676.0 | 666.3 | 677.1 | 669.5 | 672.7 |
| 25°   | 653.3 | 652.3 | 655.5 | 651.2 | 652.3 | 652.3 | 657.6 | 653.3 | 656.6 | 652.3 | 653.3 |
| 27.5° | 628.5 | 637.1 | 636.0 | 631.7 | 633.9 | 632.8 | 643.6 | 631.7 | 638.2 | 632.8 | 635.0 |
| 30°   | 606.9 | 614.5 | 612.3 | 608.0 | 608.0 | 604.7 | 616.6 | 613.4 | 612.3 | 612.3 | 611.2 |
| 32.5° | 585.3 | 586.4 | 584.2 | 585.3 | 586.4 | 582.1 | 591.8 | 587.4 | 586.4 | 587.4 | 588.5 |
| 35°   | 556.1 | 556.1 | 558.3 | 555.1 | 559.4 | 559.4 | 568.0 | 562.6 | 561.5 | 558.3 | 561.5 |
| 37.5° | 530.2 | 527.0 | 528.1 | 528.1 | 530.2 | 532.4 | 536.7 | 534.5 | 534.5 | 531.3 | 533.5 |
| 40°   | 495.7 | 493.5 | 496.7 | 496.7 | 500.0 | 500.0 | 504.3 | 502.1 | 505.4 | 505.4 | 505.4 |
| 42.5° | 465.4 | 465.4 | 463.3 | 466.5 | 467.6 | 466.5 | 474.1 | 473.0 | 474.1 | 471.9 | 473.0 |
| 45°   | 433.0 | 433.0 | 430.9 | 429.8 | 435.2 | 434.1 | 442.8 | 439.5 | 443.8 | 441.7 | 442.8 |
| 47.5° | 388.7 | 394.2 | 390.9 | 394.2 | 400.6 | 401.7 | 407.1 | 405.0 | 409.3 | 406.1 | 410.4 |
| 50°   | 346.7 | 346.7 | 349.9 | 354.2 | 360.7 | 361.8 | 368.2 | 372.6 | 374.7 | 375.8 | 376.9 |
| 52.5° | 302.4 | 301.3 | 304.5 | 309.9 | 315.3 | 319.7 | 326.1 | 332.6 | 336.9 | 343.4 | 340.1 |
| 55°   | 250.5 | 252.7 | 255.9 | 262.4 | 271.1 | 276.4 | 281.8 | 290.5 | 298.1 | 301.3 | 307.8 |
| 57.5° | 206.2 | 204.1 | 206.2 | 214.9 | 224.6 | 228.9 | 236.5 | 245.1 | 255.9 | 262.4 | 264.6 |
| 60°   | 159.8 | 160.9 | 163.1 | 170.6 | 178.2 | 184.7 | 187.9 | 201.9 | 211.7 | 218.1 | 222.5 |
| 62.5° | 117.7 | 119.9 | 122.0 | 128.5 | 136.1 | 141.5 | 146.9 | 158.7 | 167.4 | 173.9 | 178.2 |
| 65°   | 82.1  | 83.1  | 86.4  | 89.6  | 97.2  | 102.6 | 106.9 | 116.6 | 125.3 | 130.7 | 133.9 |
| 67.5° | 50.8  | 51.8  | 54.0  | 58.3  | 63.7  | 68.0  | 72.3  | 78.8  | 86.4  | 91.8  | 92.9  |
| 70°   | 25.9  | 27.0  | 28.1  | 31.3  | 35.6  | 37.8  | 41.0  | 46.4  | 51.8  | 56.1  | 58.3  |
| 72.5° | 8.6   | 8.6   | 9.7   | 11.9  | 14.1  | 16.2  | 17.3  | 22.7  | 27.0  | 29.2  | 30.2  |
| 75°   | 2.2   | 2.2   | 2.2   | 2.2   | 2.2   | 3.3   | 3.3   | 6.5   | 8.6   | 10.8  | 11.9  |
| 77.5° | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 2.2   | 2.2   |
| 80°   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   |
| 82.5° | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 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):**

|       | 50°   | 55°   | 60°   | 65°   | 67.5° | 70°   | 75°   | 80°   | 85°   | 90°   |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 760.2 | 760.2 | 760.2 | 760.2 | 760.2 | 760.2 | 760.2 | 760.2 | 760.2 | 760.2 |
| 2.5°  | 760.2 | 758.1 | 757.0 | 758.1 | 758.1 | 757.0 | 760.2 | 764.6 | 769.9 | 755.9 |
| 5°    | 759.1 | 757.0 | 759.1 | 752.7 | 755.9 | 753.8 | 758.1 | 757.0 | 761.3 | 757.0 |
| 7.5°  | 755.9 | 751.6 | 752.7 | 749.4 | 753.8 | 748.3 | 751.6 | 758.1 | 753.8 | 747.3 |
| 10°   | 745.1 | 743.0 | 750.5 | 739.7 | 737.6 | 741.9 | 750.5 | 744.0 | 741.9 | 744.0 |
| 12.5° | 734.3 | 734.3 | 737.6 | 728.9 | 730.0 | 732.1 | 736.5 | 732.1 | 734.3 | 739.7 |
| 15°   | 722.4 | 720.3 | 725.7 | 719.2 | 718.1 | 716.0 | 720.3 | 720.3 | 722.4 | 719.2 |
| 17.5° | 708.4 | 705.2 | 705.2 | 703.0 | 701.9 | 707.3 | 709.5 | 710.5 | 711.6 | 707.3 |
| 20°   | 691.1 | 690.1 | 693.3 | 690.1 | 691.1 | 692.2 | 692.2 | 690.1 | 699.8 | 687.9 |
| 22.5° | 672.7 | 676.0 | 671.7 | 669.5 | 671.7 | 673.8 | 673.8 | 674.9 | 672.7 | 670.6 |
| 25°   | 654.4 | 656.6 | 657.6 | 651.2 | 654.4 | 651.2 | 658.7 | 659.8 | 655.5 | 657.6 |
| 27.5° | 638.2 | 635.0 | 633.9 | 629.6 | 631.7 | 630.7 | 631.7 | 631.7 | 638.2 | 629.6 |
| 30°   | 613.4 | 610.1 | 611.2 | 608.0 | 609.0 | 608.0 | 609.0 | 609.0 | 613.4 | 612.3 |
| 32.5° | 589.6 | 586.4 | 587.4 | 584.2 | 584.2 | 585.3 | 583.1 | 583.1 | 586.4 | 584.2 |
| 35°   | 566.9 | 559.4 | 560.4 | 559.4 | 560.4 | 556.1 | 556.1 | 555.1 | 557.2 | 551.8 |
| 37.5° | 534.5 | 531.3 | 530.2 | 529.2 | 530.2 | 528.1 | 530.2 | 527.0 | 530.2 | 525.9 |
| 40°   | 505.4 | 503.2 | 504.3 | 497.8 | 497.8 | 498.9 | 496.7 | 495.7 | 496.7 | 501.0 |
| 42.5° | 476.2 | 471.9 | 469.8 | 467.6 | 468.7 | 465.4 | 464.3 | 462.2 | 464.3 | 460.0 |
| 45°   | 441.7 | 441.7 | 440.6 | 435.2 | 436.3 | 436.3 | 432.0 | 427.6 | 428.7 | 428.7 |
| 47.5° | 410.4 | 408.2 | 407.1 | 401.7 | 400.6 | 399.6 | 395.2 | 392.0 | 392.0 | 388.7 |
| 50°   | 375.8 | 373.6 | 370.4 | 365.0 | 362.8 | 356.4 | 353.1 | 348.8 | 344.5 | 344.5 |
| 52.5° | 343.4 | 335.8 | 331.5 | 322.9 | 319.7 | 316.4 | 307.8 | 304.5 | 301.3 | 298.1 |
| 55°   | 304.5 | 298.1 | 289.4 | 279.7 | 275.4 | 270.0 | 261.3 | 254.8 | 250.5 | 251.6 |
| 57.5° | 266.7 | 255.9 | 247.3 | 234.4 | 228.9 | 225.7 | 217.0 | 208.4 | 204.1 | 204.1 |
| 60°   | 220.3 | 211.7 | 200.9 | 189.0 | 184.7 | 179.3 | 168.4 | 163.1 | 159.8 | 156.6 |
| 62.5° | 176.0 | 169.5 | 159.8 | 144.7 | 141.5 | 136.1 | 128.5 | 122.0 | 118.8 | 118.8 |
| 65°   | 131.7 | 125.3 | 116.6 | 105.8 | 101.5 | 97.2  | 90.7  | 84.2  | 81.0  | 79.9  |
| 67.5° | 92.9  | 85.3  | 77.8  | 69.1  | 65.9  | 63.7  | 57.2  | 52.9  | 50.8  | 49.7  |
| 70°   | 56.1  | 51.8  | 46.4  | 40.0  | 36.7  | 34.5  | 30.2  | 27.0  | 25.9  | 24.8  |
| 72.5° | 29.2  | 25.9  | 21.6  | 17.3  | 15.1  | 13.0  | 10.8  | 8.6   | 7.6   | 7.6   |
| 75°   | 10.8  | 8.6   | 5.4   | 3.3   | 2.2   | 2.2   | 2.2   | 2.2   | 2.2   | 2.2   |
| 77.5° | 2.2   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   |
| 80°   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   |
| 82.5° | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |



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— 0°-180°    - - 45°-225°    - - - - 90°-270°









(END OF REPORT)