

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P242334

Luminaire Tested: S122DRP-S485D840-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242334
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-14)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S122DRP-S485D840-X4F0-XX-UDD-D-W
Description: DEFINE 2 DIRECT RECESSED WITH SATIN DROP DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

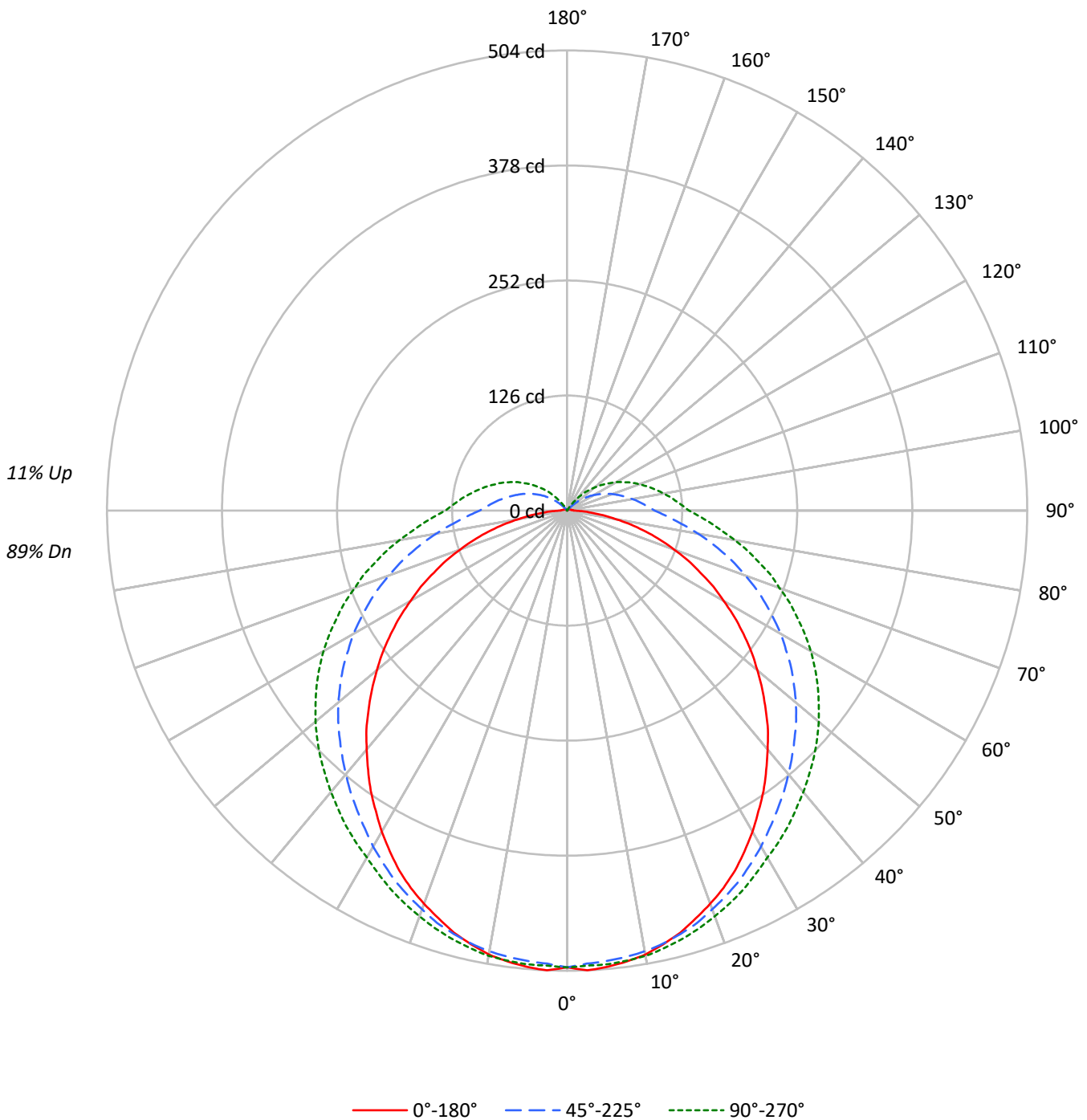
Lumens per Lamp: N/A
Luminaire Lumens: 1909.1 lumens
Efficiency: N/A
Efficacy: 101.5 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.31 / 1.42
Luminous Opening: Rectangular w/ Sides (W: 0.15' x L: 3.88' x H: 0.08')
CIE Type: Semi-Direct

Input Watts (W): 18.8
Input Voltage (V): 120
Input Current (A_{in}): 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: 24 FT

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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|
| RF | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 | |
| RC | 80 | | | | 70 | | | | 50 | | | | 30 | | | | 10 | 0 |
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| RCR | | | | | | | | | | | | | | | | | | |
| 0 | 116 | 116 | 116 | 116 | 112 | 112 | 112 | 112 | 105 | 105 | 105 | 98 | 98 | 98 | 92 | 92 | 92 | 89 |
| 1 | 104 | 98 | 93 | 88 | 100 | 95 | 90 | 86 | 88 | 85 | 81 | 82 | 79 | 77 | 77 | 75 | 72 | 69 |
| 2 | 94 | 84 | 77 | 70 | 90 | 81 | 74 | 68 | 76 | 70 | 65 | 71 | 66 | 62 | 66 | 62 | 59 | 56 |
| 3 | 85 | 73 | 64 | 57 | 81 | 71 | 63 | 56 | 66 | 59 | 54 | 62 | 56 | 51 | 58 | 53 | 49 | 46 |
| 4 | 77 | 64 | 55 | 48 | 74 | 62 | 54 | 47 | 58 | 51 | 45 | 55 | 48 | 43 | 51 | 46 | 42 | 39 |
| 5 | 71 | 57 | 48 | 41 | 68 | 56 | 47 | 40 | 52 | 44 | 39 | 49 | 42 | 37 | 46 | 40 | 36 | 33 |
| 6 | 65 | 51 | 42 | 35 | 63 | 50 | 41 | 35 | 47 | 39 | 34 | 44 | 37 | 32 | 42 | 36 | 31 | 29 |
| 7 | 60 | 46 | 37 | 31 | 58 | 45 | 37 | 31 | 43 | 35 | 30 | 40 | 34 | 29 | 38 | 32 | 28 | 25 |
| 8 | 56 | 42 | 34 | 28 | 54 | 41 | 33 | 27 | 39 | 32 | 26 | 37 | 30 | 25 | 35 | 29 | 25 | 23 |
| 9 | 52 | 39 | 30 | 25 | 50 | 38 | 30 | 24 | 36 | 29 | 24 | 34 | 27 | 23 | 32 | 26 | 22 | 20 |
| 10 | 49 | 36 | 28 | 22 | 47 | 35 | 27 | 22 | 33 | 26 | 21 | 31 | 25 | 21 | 30 | 24 | 20 | 18 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 9530 | 9530 | 9530 |
| 5° | 9577 | 9135 | 9085 |
| 10° | 9515 | 8829 | 8703 |
| 15° | 9384 | 8509 | 8308 |
| 20° | 9218 | 8174 | 7934 |
| 25° | 9054 | 7853 | 7592 |
| 30° | 8822 | 7524 | 7255 |
| 35° | 8588 | 7208 | 7009 |
| 40° | 8341 | 6936 | 6763 |
| 45° | 8106 | 6689 | 6550 |
| 50° | 7856 | 6462 | 6341 |
| 55° | 7594 | 6221 | 6126 |
| 60° | 7272 | 5970 | 5901 |
| 65° | 6936 | 5679 | 5638 |
| 70° | 6557 | 5368 | 5359 |
| 75° | 6077 | 5056 | 5093 |
| 80° | 5319 | 4732 | 4822 |
| 85° | 4579 | 4434 | 4588 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 8106 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 47.4 | 2.5 |
| 10°-20° | 136.0 | 7.1 |
| 20°-30° | 206.1 | 10.8 |
| 30°-40° | 251.0 | 13.1 |
| 40°-50° | 270.0 | 14.1 |
| 50°-60° | 262.3 | 13.7 |
| 60°-70° | 229.0 | 12.0 |
| 70°-80° | 176.3 | 9.2 |
| 80°-90° | 118.1 | 6.2 |
| 90°-100° | 81.5 | 4.3 |
| 100°-110° | 59.5 | 3.1 |
| 110°-120° | 39.3 | 2.1 |
| 120°-130° | 21.9 | 1.1 |
| 130°-140° | 9.2 | 0.5 |
| 140°-150° | 1.6 | 0.1 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-30° | 389.6 | 20.4 |
| 0°-40° | 640.6 | 33.6 |
| 0°-60° | 1172.9 | 61.4 |
| 0°-90° | 1696.3 | 88.9 |
| 90°-120° | 180.2 | 9.4 |
| 90°-150° | 212.8 | 11.1 |
| 90°-180° | 213.0 | 11.2 |
| 0°-180° | 1909.1 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-----|-------|-----|-------|-----|------|
| 0° | 500 | 500 | 500 | 500 | 500 | |
| 5° | 502 | 500 | 495 | 500 | 499 | 48 |
| 15° | 479 | 480 | 480 | 486 | 486 | 135 |
| 25° | 435 | 440 | 447 | 455 | 458 | 200 |
| 35° | 375 | 387 | 401 | 417 | 422 | 234 |
| 45° | 307 | 327 | 352 | 375 | 382 | 237 |
| 55° | 236 | 262 | 300 | 326 | 335 | 211 |
| 65° | 161 | 196 | 239 | 269 | 278 | 160 |
| 75° | 89 | 130 | 176 | 207 | 217 | 94 |
| 85° | 26 | 71 | 118 | 148 | 158 | 28 |
| 90° | 7 | 49 | 96 | 125 | 133 | 5 |
| 95° | 6 | 40 | 83 | 111 | 120 | 5 |
| 105° | 4 | 25 | 62 | 88 | 96 | 4 |
| 115° | 3 | 11 | 44 | 65 | 73 | 3 |
| 125° | 2 | 2 | 25 | 44 | 51 | 2 |
| 135° | 1 | 1 | 8 | 23 | 29 | 1 |
| 145° | 0 | 0 | 0 | 4 | 8 | 0 |
| 155° | 0 | 0 | 0 | 0 | 0 | 0 |
| 165° | 0 | 0 | 0 | 0 | 0 | 0 |
| 175° | 0 | 0 | 0 | 0 | 0 | 0 |
| 180° | 0 | 0 | 0 | 0 | 0 | 0 |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|-------|-------|-------|
| 0° | 500.3 | 500.3 | 500.3 | 500.3 | 500.3 |
| 2.5° | 504.0 | 501.8 | 496.7 | 500.3 | 498.9 |
| 5° | 501.8 | 499.6 | 495.3 | 499.6 | 498.9 |
| 7.5° | 498.2 | 496.7 | 493.1 | 498.2 | 497.4 |
| 10° | 493.8 | 492.3 | 490.2 | 496.0 | 495.3 |
| 12.5° | 486.5 | 487.3 | 485.8 | 491.6 | 490.9 |
| 15° | 478.6 | 480.0 | 480.0 | 486.5 | 485.8 |
| 17.5° | 468.4 | 471.3 | 473.5 | 480.0 | 480.0 |
| 20° | 458.3 | 461.9 | 464.8 | 472.8 | 472.8 |
| 22.5° | 447.4 | 451.7 | 456.1 | 464.1 | 465.5 |
| 25° | 435.1 | 440.1 | 446.7 | 455.4 | 457.5 |
| 27.5° | 420.6 | 428.5 | 435.8 | 446.7 | 448.1 |
| 30° | 406.1 | 415.5 | 424.9 | 436.5 | 438.7 |
| 32.5° | 390.1 | 401.0 | 412.6 | 426.4 | 430.7 |
| 35° | 374.9 | 387.2 | 401.0 | 416.9 | 422.0 |
| 37.5° | 358.2 | 372.0 | 389.4 | 406.8 | 411.9 |
| 40° | 341.5 | 357.5 | 377.1 | 395.9 | 402.4 |
| 42.5° | 325.6 | 341.5 | 364.7 | 385.8 | 392.3 |
| 45° | 307.4 | 327.0 | 352.4 | 374.9 | 382.1 |
| 47.5° | 290.0 | 311.1 | 340.1 | 363.3 | 371.3 |
| 50° | 271.9 | 294.4 | 327.0 | 351.7 | 359.7 |
| 52.5° | 254.5 | 278.4 | 313.2 | 338.6 | 347.3 |
| 55° | 235.7 | 261.8 | 299.5 | 325.6 | 335.0 |
| 57.5° | 217.5 | 246.5 | 284.2 | 312.5 | 321.9 |
| 60° | 198.0 | 229.1 | 270.5 | 298.0 | 308.2 |
| 62.5° | 180.6 | 213.2 | 254.5 | 284.2 | 293.7 |
| 65° | 161.0 | 196.5 | 239.3 | 269.0 | 278.4 |
| 67.5° | 143.6 | 180.6 | 224.1 | 253.8 | 263.9 |
| 70° | 124.7 | 162.4 | 207.4 | 238.6 | 247.3 |
| 72.5° | 107.3 | 146.5 | 192.2 | 222.6 | 233.5 |
| 75° | 89.2 | 129.8 | 176.2 | 207.4 | 216.8 |
| 77.5° | 71.8 | 113.8 | 161.0 | 192.2 | 202.3 |
| 80° | 54.4 | 98.6 | 145.7 | 176.2 | 186.4 |
| 82.5° | 39.9 | 83.4 | 131.2 | 161.7 | 171.1 |
| 85° | 26.1 | 71.1 | 117.5 | 147.9 | 158.1 |
| 87.5° | 16.0 | 59.5 | 105.9 | 135.6 | 145.0 |
| 90° | 7.3 | 49.3 | 95.7 | 124.7 | 133.4 |
| 92.5° | 6.5 | 45.0 | 89.2 | 117.5 | 126.2 |
| 95° | 5.8 | 39.9 | 83.4 | 110.9 | 119.6 |
| 97.5° | 5.1 | 36.3 | 78.3 | 105.1 | 113.8 |
| 100° | 5.1 | 31.9 | 72.5 | 99.3 | 107.3 |
| 102.5° | 4.4 | 28.3 | 67.4 | 93.5 | 101.5 |
| 105° | 3.6 | 24.7 | 62.4 | 87.7 | 95.7 |
| 107.5° | 3.6 | 21.0 | 57.3 | 81.9 | 89.9 |
| 110° | 2.9 | 17.4 | 52.9 | 76.1 | 84.1 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|------|-------|------|
| 112.5° | 2.9 | 14.5 | 47.9 | 71.1 | 79.0 |
| 115° | 2.9 | 10.9 | 43.5 | 65.3 | 73.2 |
| 117.5° | 2.2 | 8.0 | 38.4 | 60.2 | 67.4 |
| 120° | 2.2 | 5.1 | 34.1 | 54.4 | 62.4 |
| 122.5° | 2.2 | 2.9 | 29.7 | 49.3 | 55.8 |
| 125° | 1.5 | 1.5 | 24.7 | 44.2 | 50.8 |
| 127.5° | 1.5 | 0.7 | 20.3 | 38.4 | 45.0 |
| 130° | 1.5 | 0.7 | 16.0 | 33.4 | 39.2 |
| 132.5° | 1.5 | 0.7 | 11.6 | 28.3 | 34.1 |
| 135° | 0.7 | 0.7 | 8.0 | 23.2 | 29.0 |
| 137.5° | 0.7 | 0.7 | 4.4 | 18.1 | 23.2 |
| 140° | 0.7 | 0.0 | 1.5 | 13.1 | 17.4 |
| 142.5° | 0.7 | 0.0 | 0.0 | 8.7 | 12.3 |
| 145° | 0.0 | 0.0 | 0.0 | 4.4 | 8.0 |
| 147.5° | 0.0 | 0.0 | 0.0 | 0.7 | 2.9 |
| 150° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 152.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 155° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 157.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 160° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 162.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 165° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 167.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 170° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 172.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 175° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 177.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 180° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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CIE UGR TABLE:

| Reflectances: | | | | | | | | | | | |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling | | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 |
| Wall | | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 |
| Reference plane | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Room dimensions | | Viewed crosswise | | | | | Viewed endwise | | | | |
| X=2H | Y=2H | 16.05 | 17.53 | 16.58 | 18.06 | 18.64 | 19.11 | 20.59 | 19.64 | 21.12 | 21.70 |
| | 3H | 17.55 | 18.91 | 18.09 | 19.44 | 20.06 | 21.74 | 23.10 | 22.28 | 23.63 | 24.25 |
| | 4H | 18.05 | 19.34 | 18.61 | 19.89 | 20.52 | 23.02 | 24.31 | 23.58 | 24.86 | 25.49 |
| | 6H | 18.37 | 19.57 | 18.94 | 20.13 | 20.78 | 24.35 | 25.55 | 24.93 | 26.12 | 26.76 |
| | 8H | 18.44 | 19.59 | 19.03 | 20.18 | 20.83 | 25.03 | 26.18 | 25.62 | 26.77 | 27.42 |
| | 12H | 18.48 | 19.58 | 19.07 | 20.17 | 20.85 | 25.79 | 26.89 | 26.38 | 27.47 | 28.15 |
| 4H | 2H | 17.16 | 18.45 | 17.72 | 19.00 | 19.63 | 19.50 | 20.79 | 20.06 | 21.34 | 21.97 |
| | 3H | 18.92 | 20.02 | 19.49 | 20.61 | 21.26 | 22.35 | 23.45 | 22.92 | 24.04 | 24.69 |
| | 4H | 19.57 | 20.58 | 20.16 | 21.18 | 21.86 | 23.79 | 24.80 | 24.38 | 25.40 | 26.08 |
| | 6H | 20.02 | 20.91 | 20.62 | 21.54 | 22.23 | 25.30 | 26.19 | 25.90 | 26.82 | 27.51 |
| | 8H | 20.14 | 20.98 | 20.76 | 21.61 | 22.32 | 26.07 | 26.92 | 26.69 | 27.54 | 28.25 |
| | 12H | 20.22 | 20.98 | 20.85 | 21.64 | 22.35 | 26.94 | 27.71 | 27.58 | 28.36 | 29.07 |
| 8H | 4H | 20.41 | 21.25 | 21.02 | 21.88 | 22.58 | 23.98 | 24.83 | 24.60 | 25.45 | 26.16 |
| | 6H | 21.07 | 21.78 | 21.71 | 22.45 | 23.16 | 25.64 | 26.36 | 26.29 | 27.03 | 27.74 |
| | 8H | 21.30 | 21.95 | 21.96 | 22.62 | 23.34 | 26.55 | 27.20 | 27.21 | 27.87 | 28.59 |
| | 12H | 21.46 | 22.04 | 22.12 | 22.71 | 23.49 | 27.58 | 28.16 | 28.24 | 28.82 | 29.61 |
| 12H | 4H | 20.64 | 21.40 | 21.27 | 22.06 | 22.77 | 23.99 | 24.76 | 24.62 | 25.41 | 26.12 |
| | 6H | 21.41 | 22.06 | 22.07 | 22.73 | 23.46 | 25.68 | 26.33 | 26.33 | 27.00 | 27.72 |
| | 8H | 21.75 | 22.33 | 22.41 | 22.99 | 23.78 | 26.64 | 27.22 | 27.30 | 27.89 | 28.67 |