

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: P242668

Luminaire Tested: S124DRP-S350D830-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242668
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-16)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S124DRP-S350D830-X4F0-XX-UDD-D-W
Description: DEFINE 4 DIRECT RECESSED WITH SATIN DROP DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

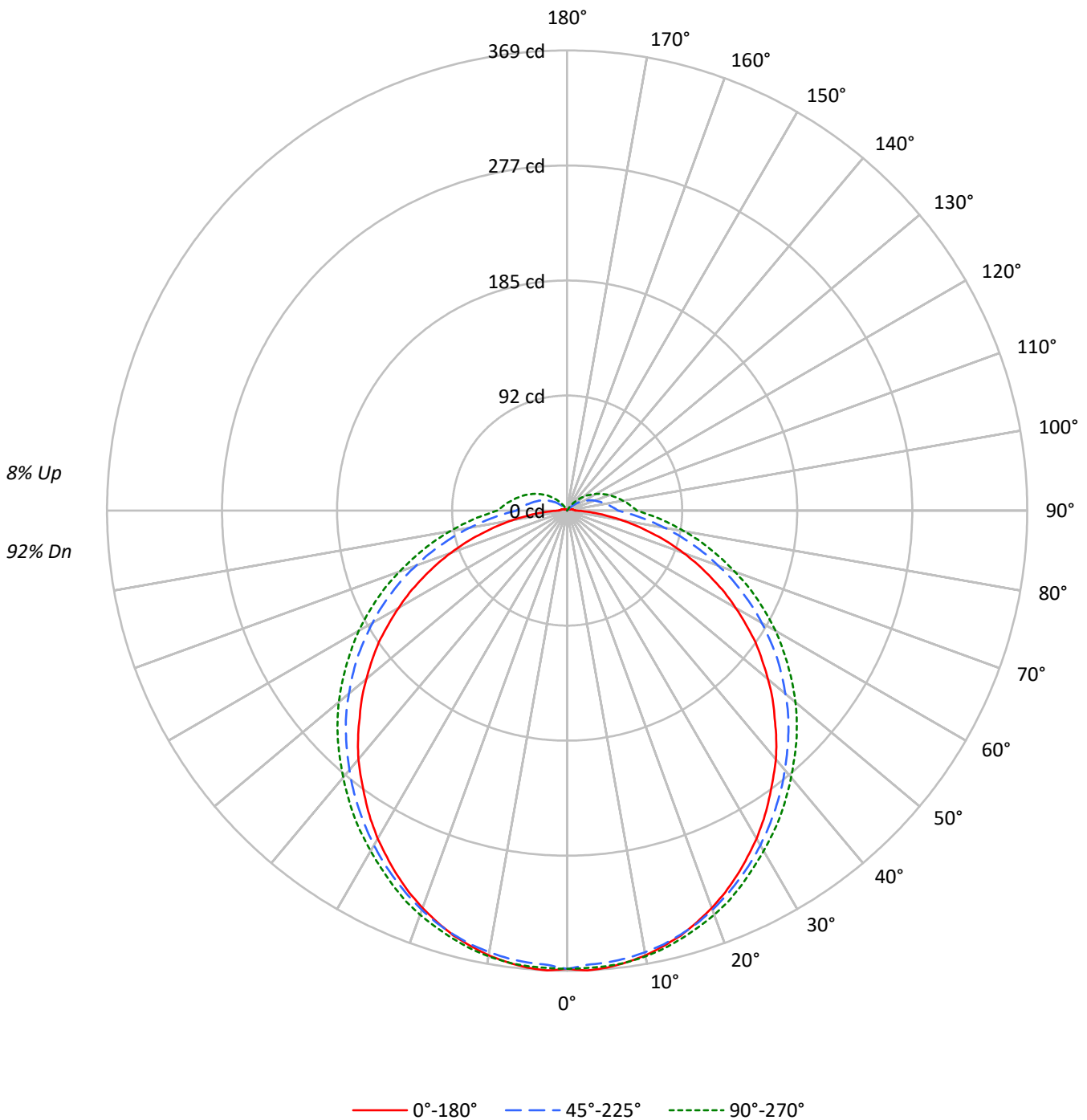
Lumens per Lamp: N/A
Luminaire Lumens: 1253.0 lumens
Efficiency: N/A
Efficacy: 108.0 lumens/watt
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39
Luminous Opening: Rectangular w/ Sides (W: 0.31' x L: 3.88' x H: 0.08')
CIE Type: Direct

Input Watts (W): 11.6
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 | 117 | 117 | 117 | 117 | 114 | 114 | 114 | 114 | 107 | 107 | 107 | 101 | 101 | 101 | 95 | 95 | 95 | 92 |
| 1 | 105 | 100 | 95 | 91 | 102 | 97 | 93 | 89 | 91 | 88 | 84 | 86 | 83 | 80 | 81 | 79 | 77 | 74 |
| 2 | 95 | 86 | 79 | 73 | 92 | 84 | 77 | 71 | 79 | 73 | 68 | 74 | 70 | 66 | 70 | 67 | 63 | 60 |
| 3 | 87 | 75 | 67 | 60 | 83 | 73 | 65 | 59 | 69 | 62 | 57 | 65 | 60 | 55 | 62 | 57 | 53 | 50 |
| 4 | 79 | 66 | 57 | 50 | 76 | 65 | 56 | 49 | 61 | 54 | 48 | 58 | 52 | 47 | 55 | 49 | 45 | 43 |
| 5 | 73 | 59 | 50 | 43 | 70 | 58 | 49 | 42 | 55 | 47 | 41 | 52 | 45 | 40 | 49 | 44 | 39 | 37 |
| 6 | 67 | 53 | 44 | 37 | 64 | 52 | 43 | 37 | 49 | 42 | 36 | 47 | 40 | 35 | 45 | 39 | 34 | 32 |
| 7 | 62 | 48 | 39 | 33 | 60 | 47 | 38 | 32 | 45 | 37 | 32 | 43 | 36 | 31 | 41 | 35 | 30 | 28 |
| 8 | 58 | 44 | 35 | 29 | 56 | 43 | 35 | 29 | 41 | 33 | 28 | 39 | 32 | 28 | 37 | 31 | 27 | 25 |
| 9 | 54 | 40 | 32 | 26 | 52 | 39 | 31 | 26 | 38 | 30 | 25 | 36 | 29 | 25 | 34 | 29 | 24 | 22 |
| 10 | 50 | 37 | 29 | 24 | 49 | 36 | 29 | 23 | 35 | 28 | 23 | 33 | 27 | 23 | 32 | 26 | 22 | 20 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 3267 | 3267 | 3267 |
| 5° | 3277 | 3189 | 3197 |
| 10° | 3257 | 3134 | 3129 |
| 15° | 3227 | 3071 | 3051 |
| 20° | 3183 | 3001 | 2974 |
| 25° | 3133 | 2923 | 2890 |
| 30° | 3079 | 2846 | 2804 |
| 35° | 3018 | 2767 | 2729 |
| 40° | 2969 | 2691 | 2649 |
| 45° | 2897 | 2621 | 2581 |
| 50° | 2836 | 2541 | 2509 |
| 55° | 2773 | 2466 | 2425 |
| 60° | 2674 | 2369 | 2347 |
| 65° | 2565 | 2264 | 2252 |
| 70° | 2434 | 2146 | 2142 |
| 75° | 2251 | 2015 | 2040 |
| 80° | 2049 | 1886 | 1938 |
| 85° | 1785 | 1765 | 1867 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2897 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 34.8 | 2.8 |
| 10°-20° | 99.8 | 8.0 |
| 20°-30° | 150.9 | 12.0 |
| 30°-40° | 182.5 | 14.6 |
| 40°-50° | 192.9 | 15.4 |
| 50°-60° | 181.6 | 14.5 |
| 60°-70° | 150.7 | 12.0 |
| 70°-80° | 105.7 | 8.4 |
| 80°-90° | 59.6 | 4.8 |
| 90°-100° | 35.5 | 2.8 |
| 100°-110° | 26.3 | 2.1 |
| 110°-120° | 17.6 | 1.4 |
| 120°-130° | 9.9 | 0.8 |
| 130°-140° | 4.3 | 0.3 |
| 140°-150° | 0.8 | 0.1 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-30° | 285.4 | 22.8 |
| 0°-40° | 467.9 | 37.3 |
| 0°-60° | 842.5 | 67.2 |
| 0°-90° | 1158.5 | 92.5 |
| 90°-120° | 79.4 | 6.3 |
| 90°-150° | 94.5 | 7.5 |
| 90°-180° | 94.0 | 7.5 |
| 0°-180° | 1253.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-----|-------|-----|-------|-----|------|
| 0° | 368 | 368 | 368 | 368 | 368 | |
| 5° | 368 | 367 | 364 | 367 | 367 | 35 |
| 15° | 353 | 353 | 352 | 356 | 355 | 99 |
| 25° | 323 | 325 | 326 | 331 | 331 | 149 |
| 35° | 282 | 287 | 291 | 297 | 298 | 177 |
| 45° | 235 | 243 | 251 | 258 | 260 | 182 |
| 55° | 184 | 193 | 205 | 214 | 216 | 164 |
| 65° | 128 | 141 | 155 | 165 | 168 | 126 |
| 75° | 71 | 86 | 103 | 115 | 118 | 75 |
| 85° | 22 | 39 | 58 | 70 | 74 | 23 |
| 90° | 7 | 23 | 41 | 53 | 56 | 5 |
| 95° | 5 | 19 | 36 | 47 | 51 | 4 |
| 105° | 4 | 12 | 27 | 37 | 41 | 4 |
| 115° | 2 | 6 | 19 | 28 | 31 | 3 |
| 125° | 2 | 1 | 12 | 19 | 22 | 2 |
| 135° | 1 | 1 | 4 | 10 | 13 | 1 |
| 145° | 0 | 0 | 0 | 2 | 4 | 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 |



TEST NUMBER: P242668

CATALOG NUMBER: S124DRP-S350D830-X4F0-XX-UDD-D-W

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|-------|-------|-------|
| 0° | 367.5 | 367.5 | 367.5 | 367.5 | 367.5 |
| 2.5° | 369.1 | 367.9 | 364.6 | 367.5 | 367.1 |
| 5° | 367.9 | 366.7 | 363.8 | 367.1 | 366.7 |
| 7.5° | 365.4 | 364.6 | 362.2 | 365.9 | 365.4 |
| 10° | 362.2 | 361.7 | 359.7 | 363.4 | 363.0 |
| 12.5° | 357.6 | 357.6 | 356.4 | 359.7 | 359.7 |
| 15° | 352.7 | 353.1 | 351.9 | 355.6 | 355.2 |
| 17.5° | 346.1 | 347.3 | 346.9 | 350.6 | 350.2 |
| 20° | 339.1 | 340.3 | 340.8 | 344.9 | 344.9 |
| 22.5° | 331.3 | 332.9 | 333.8 | 337.9 | 338.7 |
| 25° | 322.6 | 325.1 | 326.3 | 330.9 | 331.3 |
| 27.5° | 313.2 | 316.9 | 318.5 | 322.6 | 323.1 |
| 30° | 303.7 | 307.0 | 309.9 | 314.4 | 315.2 |
| 32.5° | 293.4 | 297.5 | 300.8 | 306.2 | 307.0 |
| 35° | 282.3 | 287.3 | 291.4 | 297.1 | 298.4 |
| 37.5° | 271.2 | 277.0 | 281.9 | 287.7 | 288.9 |
| 40° | 260.5 | 265.9 | 271.6 | 277.8 | 279.4 |
| 42.5° | 248.2 | 254.3 | 261.3 | 268.3 | 269.6 |
| 45° | 235.4 | 243.2 | 251.0 | 258.0 | 260.1 |
| 47.5° | 223.5 | 231.3 | 240.3 | 247.3 | 249.8 |
| 50° | 210.3 | 219.3 | 228.4 | 236.6 | 239.1 |
| 52.5° | 197.1 | 206.2 | 216.9 | 225.1 | 227.6 |
| 55° | 184.4 | 193.0 | 205.4 | 213.6 | 216.1 |
| 57.5° | 170.0 | 180.7 | 192.6 | 202.5 | 204.5 |
| 60° | 156.0 | 166.7 | 180.3 | 189.7 | 193.0 |
| 62.5° | 142.4 | 154.3 | 167.9 | 177.4 | 180.7 |
| 65° | 127.6 | 140.7 | 154.7 | 165.0 | 168.3 |
| 67.5° | 113.6 | 127.6 | 142.4 | 152.7 | 156.0 |
| 70° | 99.2 | 113.2 | 128.8 | 139.9 | 142.8 |
| 72.5° | 85.2 | 99.6 | 116.5 | 127.2 | 130.5 |
| 75° | 70.8 | 86.0 | 103.3 | 114.8 | 118.5 |
| 77.5° | 57.2 | 73.3 | 91.4 | 102.9 | 107.0 |
| 80° | 44.9 | 61.3 | 79.4 | 91.8 | 95.1 |
| 82.5° | 32.5 | 49.8 | 67.9 | 80.7 | 84.4 |
| 85° | 21.8 | 39.1 | 57.6 | 70.0 | 74.1 |
| 87.5° | 13.6 | 30.5 | 48.6 | 60.5 | 64.2 |
| 90° | 6.6 | 23.0 | 40.7 | 52.7 | 56.0 |
| 92.5° | 6.2 | 20.6 | 38.3 | 49.8 | 53.1 |
| 95° | 5.3 | 18.9 | 35.8 | 46.9 | 50.6 |
| 97.5° | 4.9 | 16.9 | 33.7 | 44.4 | 48.1 |
| 100° | 4.5 | 15.2 | 31.3 | 42.4 | 45.3 |
| 102.5° | 4.5 | 13.6 | 29.2 | 39.9 | 43.2 |
| 105° | 3.7 | 11.9 | 27.2 | 37.4 | 40.7 |
| 107.5° | 3.7 | 10.7 | 25.1 | 35.4 | 38.3 |
| 110° | 3.3 | 9.1 | 23.5 | 32.9 | 36.2 |



TEST NUMBER: P242668

CATALOG NUMBER: S124DRP-S350D830-X4F0-XX-UDD-D-W

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|------|-------|------|
| 112.5° | 2.9 | 7.8 | 21.4 | 30.5 | 33.7 |
| 115° | 2.5 | 6.2 | 19.3 | 28.4 | 31.3 |
| 117.5° | 2.5 | 4.9 | 17.3 | 25.9 | 29.2 |
| 120° | 2.1 | 3.3 | 15.2 | 23.5 | 26.7 |
| 122.5° | 2.1 | 2.1 | 13.2 | 21.4 | 24.3 |
| 125° | 1.6 | 1.2 | 11.5 | 19.3 | 21.8 |
| 127.5° | 1.6 | 1.2 | 9.5 | 16.9 | 19.8 |
| 130° | 1.2 | 0.8 | 7.4 | 14.8 | 17.3 |
| 132.5° | 1.2 | 0.8 | 5.8 | 12.8 | 15.2 |
| 135° | 0.8 | 0.8 | 3.7 | 10.3 | 12.8 |
| 137.5° | 0.8 | 0.4 | 2.1 | 8.2 | 10.3 |
| 140° | 0.8 | 0.4 | 0.8 | 6.2 | 8.2 |
| 142.5° | 0.4 | 0.4 | 0.0 | 4.5 | 6.2 |
| 145° | 0.4 | 0.0 | 0.0 | 2.5 | 4.1 |
| 147.5° | 0.4 | 0.0 | 0.0 | 0.4 | 2.1 |
| 150° | 0.4 | 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 | 13.91 | 15.43 | 14.38 | 15.90 | 16.39 | 15.46 | 16.98 | 15.93 | 17.45 | 17.94 |
| | 3H | 15.54 | 16.93 | 16.03 | 17.41 | 17.95 | 17.76 | 19.15 | 18.25 | 19.63 | 20.17 |
| | 4H | 16.11 | 17.43 | 16.62 | 17.92 | 18.47 | 18.82 | 20.14 | 19.33 | 20.63 | 21.18 |
| | 6H | 16.49 | 17.72 | 17.02 | 18.23 | 18.79 | 19.88 | 21.10 | 20.40 | 21.61 | 22.18 |
| | 8H | 16.60 | 17.77 | 17.14 | 18.30 | 18.88 | 20.40 | 21.57 | 20.93 | 22.10 | 22.67 |
| | 12H | 16.66 | 17.79 | 17.20 | 18.31 | 18.91 | 20.95 | 22.07 | 21.49 | 22.60 | 23.20 |
| 4H | 2H | 14.75 | 16.07 | 15.26 | 16.56 | 17.11 | 15.96 | 17.27 | 16.47 | 17.77 | 18.32 |
| | 3H | 16.63 | 17.75 | 17.16 | 18.29 | 18.86 | 18.48 | 19.60 | 19.01 | 20.14 | 20.71 |
| | 4H | 17.34 | 18.36 | 17.88 | 18.91 | 19.51 | 19.70 | 20.73 | 20.25 | 21.27 | 21.88 |
| | 6H | 17.85 | 18.76 | 18.42 | 19.33 | 19.95 | 20.93 | 21.84 | 21.50 | 22.41 | 23.03 |
| | 8H | 18.01 | 18.86 | 18.58 | 19.43 | 20.06 | 21.55 | 22.39 | 22.11 | 22.97 | 23.60 |
| | 12H | 18.11 | 18.88 | 18.70 | 19.48 | 20.12 | 22.21 | 22.98 | 22.80 | 23.58 | 24.21 |
| 8H | 4H | 17.92 | 18.77 | 18.49 | 19.34 | 19.97 | 19.96 | 20.81 | 20.53 | 21.38 | 22.01 |
| | 6H | 18.61 | 19.33 | 19.21 | 19.94 | 20.58 | 21.35 | 22.07 | 21.95 | 22.68 | 23.32 |
| | 8H | 18.86 | 19.51 | 19.48 | 20.13 | 20.78 | 22.09 | 22.74 | 22.71 | 23.36 | 24.01 |
| | 12H | 19.05 | 19.63 | 19.66 | 20.24 | 20.96 | 22.92 | 23.49 | 23.53 | 24.11 | 24.82 |
| 12H | 4H | 18.05 | 18.82 | 18.64 | 19.42 | 20.06 | 19.97 | 20.74 | 20.57 | 21.34 | 21.98 |
| | 6H | 18.82 | 19.47 | 19.44 | 20.10 | 20.75 | 21.40 | 22.05 | 22.01 | 22.67 | 23.32 |
| | 8H | 19.16 | 19.74 | 19.78 | 20.35 | 21.07 | 22.21 | 22.78 | 22.82 | 23.40 | 24.11 |