

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: P242524

Luminaire Tested: S123DRP-S1165D940-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242524
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-15)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DRP-S1165D940-X4F0-XX-UDD-D-W
Description: DEFINE 3 DIRECT RECESSED WITH SATIN DROP DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

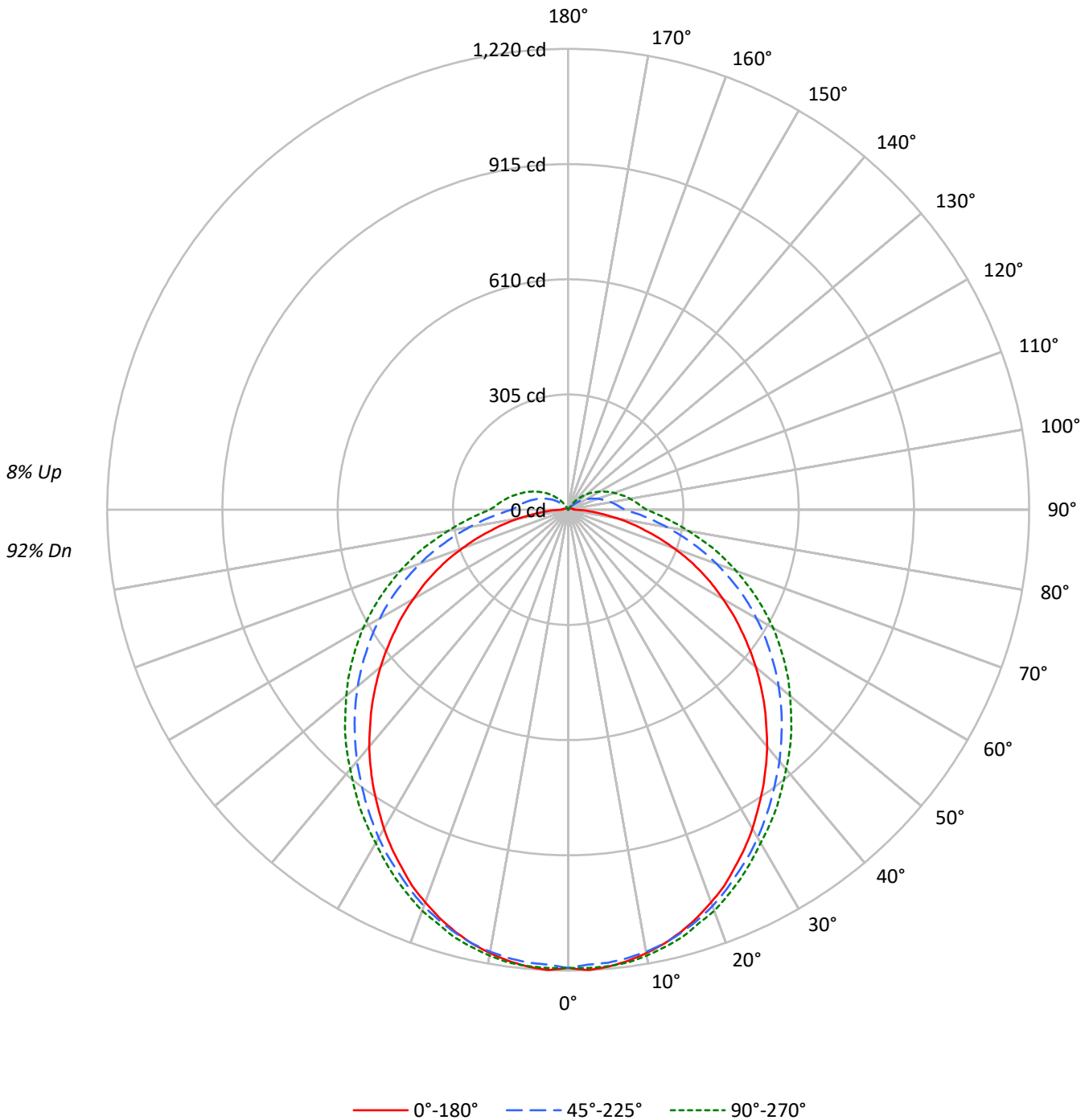
Lumens per Lamp: N/A
Luminaire Lumens: 4077.4 lumens
Efficiency: N/A
Efficacy: 99.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.25 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.23' x L: 3.88' x H: 0.08')
CIE Type: Direct

Input Watts (W): 41.1
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





TEST NUMBER: P242524

CATALOG NUMBER: S123DRP-S1165D940-X4F0-XX-UDD-D-W

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 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 | | | | | | | | | | | | | | | | |
| RCR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 117 | 117 | 117 | 117 | 113 | 113 | 113 | 113 | 106 | 106 | 106 | 100 | 100 | 100 | 94 | 94 | 94 | 92 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 105 | 100 | 95 | 90 | 102 | 97 | 92 | 88 | 91 | 87 | 84 | 85 | 82 | 80 | 80 | 78 | 76 | 73 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 95 | 86 | 79 | 72 | 92 | 83 | 77 | 71 | 79 | 73 | 68 | 74 | 69 | 65 | 70 | 66 | 63 | 60 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 86 | 75 | 67 | 60 | 83 | 73 | 65 | 59 | 69 | 62 | 56 | 65 | 59 | 54 | 61 | 56 | 52 | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 79 | 66 | 57 | 50 | 76 | 64 | 56 | 49 | 61 | 54 | 48 | 57 | 51 | 46 | 54 | 49 | 45 | 42 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 72 | 59 | 50 | 43 | 70 | 58 | 49 | 42 | 54 | 47 | 41 | 52 | 45 | 40 | 49 | 43 | 39 | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 67 | 53 | 44 | 37 | 64 | 52 | 43 | 37 | 49 | 42 | 36 | 47 | 40 | 35 | 44 | 38 | 34 | 32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 62 | 48 | 39 | 33 | 60 | 47 | 38 | 32 | 45 | 37 | 32 | 42 | 36 | 31 | 40 | 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 | 37 | 30 | 25 | 36 | 29 | 25 | 34 | 28 | 24 | 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 50 | 37 | 29 | 24 | 49 | 36 | 29 | 24 | 35 | 28 | 23 | 33 | 27 | 23 | 32 | 26 | 22 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 14705 | 14705 | 14705 |
| 5° | 14750 | 14309 | 14307 |
| 10° | 14617 | 13953 | 13865 |
| 15° | 14428 | 13555 | 13389 |
| 20° | 14158 | 13105 | 12872 |
| 25° | 13825 | 12594 | 12332 |
| 30° | 13483 | 12132 | 11786 |
| 35° | 13101 | 11645 | 11347 |
| 40° | 12736 | 11200 | 10880 |
| 45° | 12331 | 10773 | 10499 |
| 50° | 11931 | 10349 | 10084 |
| 55° | 11490 | 9913 | 9706 |
| 60° | 11057 | 9470 | 9317 |
| 65° | 10616 | 8997 | 8860 |
| 70° | 9952 | 8466 | 8387 |
| 75° | 9109 | 7858 | 7904 |
| 80° | 8138 | 7251 | 7351 |
| 85° | 7234 | 6794 | 6986 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 12331 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 115.1 | 2.8 |
| 10°-20° | 328.1 | 8.0 |
| 20°-30° | 490.6 | 12.0 |
| 30°-40° | 585.8 | 14.4 |
| 40°-50° | 612.9 | 15.0 |
| 50°-60° | 575.2 | 14.1 |
| 60°-70° | 480.4 | 11.8 |
| 70°-80° | 343.5 | 8.4 |
| 80°-90° | 204.4 | 5.0 |
| 90°-100° | 128.4 | 3.2 |
| 100°-110° | 94.4 | 2.3 |
| 110°-120° | 63.0 | 1.5 |
| 120°-130° | 36.0 | 0.9 |
| 130°-140° | 16.1 | 0.4 |
| 140°-150° | 3.4 | 0.1 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-30° | 933.8 | 22.9 |
| 0°-40° | 1519.6 | 37.3 |
| 0°-60° | 2707.6 | 66.4 |
| 0°-90° | 3736.0 | 91.6 |
| 90°-120° | 285.9 | 7.0 |
| 90°-150° | 341.4 | 8.4 |
| 90°-180° | 341.0 | 8.4 |
| 0°-180° | 4077.4 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 1213 | 1213 | 1213 | 1213 | 1213 | |
| 5° | 1214 | 1212 | 1204 | 1214 | 1213 | 115 |
| 15° | 1156 | 1160 | 1159 | 1172 | 1171 | 326 |
| 25° | 1044 | 1057 | 1061 | 1078 | 1078 | 481 |
| 35° | 899 | 920 | 937 | 957 | 962 | 562 |
| 45° | 735 | 766 | 800 | 825 | 835 | 567 |
| 55° | 560 | 604 | 652 | 687 | 698 | 502 |
| 65° | 387 | 439 | 497 | 537 | 550 | 383 |
| 75° | 210 | 272 | 338 | 382 | 398 | 224 |
| 85° | 65 | 131 | 201 | 246 | 259 | 67 |
| 90° | 17 | 82 | 149 | 194 | 208 | 12 |
| 95° | 14 | 66 | 131 | 172 | 185 | 11 |
| 105° | 11 | 42 | 99 | 136 | 148 | 11 |
| 115° | 7 | 22 | 70 | 102 | 112 | 7 |
| 125° | 4 | 4 | 42 | 70 | 79 | 4 |
| 135° | 3 | 1 | 16 | 40 | 46 | 2 |
| 145° | 1 | 0 | 0 | 11 | 16 | 1 |
| 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: P242524

CATALOG NUMBER: S123DRP-S1165D940-X4F0-XX-UDD-D-W

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 1213.2 | 1213.2 | 1213.2 | 1213.2 | 1213.2 |
| 2.5° | 1219.8 | 1215.9 | 1205.3 | 1215.9 | 1214.5 |
| 5° | 1214.5 | 1211.9 | 1204.0 | 1214.5 | 1213.2 |
| 7.5° | 1205.3 | 1205.3 | 1197.4 | 1210.6 | 1209.3 |
| 10° | 1192.1 | 1194.7 | 1188.1 | 1201.3 | 1198.7 |
| 12.5° | 1176.2 | 1180.2 | 1176.2 | 1188.1 | 1185.5 |
| 15° | 1156.4 | 1160.4 | 1159.0 | 1172.2 | 1170.9 |
| 17.5° | 1132.6 | 1140.5 | 1139.2 | 1151.1 | 1148.5 |
| 20° | 1106.2 | 1114.1 | 1116.7 | 1128.6 | 1130.0 |
| 22.5° | 1078.4 | 1086.3 | 1090.3 | 1106.2 | 1104.8 |
| 25° | 1044.1 | 1057.3 | 1061.2 | 1078.4 | 1078.4 |
| 27.5° | 1011.0 | 1025.5 | 1033.5 | 1048.0 | 1049.3 |
| 30° | 975.3 | 992.5 | 1003.1 | 1018.9 | 1018.9 |
| 32.5° | 935.7 | 955.5 | 970.0 | 987.2 | 991.2 |
| 35° | 898.7 | 919.8 | 937.0 | 956.8 | 962.1 |
| 37.5° | 859.0 | 882.8 | 902.6 | 925.1 | 929.1 |
| 40° | 819.4 | 843.2 | 869.6 | 892.1 | 897.4 |
| 42.5° | 775.8 | 806.2 | 833.9 | 859.0 | 867.0 |
| 45° | 734.8 | 766.5 | 799.6 | 824.7 | 835.2 |
| 47.5° | 691.2 | 726.9 | 763.9 | 791.6 | 799.6 |
| 50° | 648.9 | 685.9 | 726.9 | 757.3 | 766.5 |
| 52.5° | 604.0 | 643.6 | 689.9 | 721.6 | 733.5 |
| 55° | 560.4 | 604.0 | 651.5 | 687.2 | 697.8 |
| 57.5° | 518.1 | 563.0 | 614.5 | 650.2 | 662.1 |
| 60° | 473.1 | 520.7 | 574.9 | 611.9 | 626.4 |
| 62.5° | 430.8 | 479.7 | 537.9 | 574.9 | 588.1 |
| 65° | 387.2 | 438.8 | 496.9 | 536.6 | 549.8 |
| 67.5° | 343.6 | 397.8 | 455.9 | 499.6 | 510.1 |
| 70° | 297.4 | 354.2 | 417.6 | 459.9 | 473.1 |
| 72.5° | 255.1 | 311.9 | 378.0 | 421.6 | 434.8 |
| 75° | 210.1 | 272.2 | 338.3 | 381.9 | 397.8 |
| 77.5° | 171.8 | 233.9 | 300.0 | 346.3 | 358.1 |
| 80° | 130.8 | 195.6 | 264.3 | 309.3 | 322.5 |
| 82.5° | 95.2 | 161.2 | 231.3 | 276.2 | 289.4 |
| 85° | 64.8 | 130.8 | 200.9 | 245.8 | 259.0 |
| 87.5° | 39.6 | 105.7 | 173.1 | 218.1 | 231.3 |
| 90° | 17.2 | 81.9 | 149.3 | 194.3 | 207.5 |
| 92.5° | 15.9 | 72.7 | 138.8 | 182.4 | 194.3 |
| 95° | 14.5 | 66.1 | 130.8 | 171.8 | 185.0 |
| 97.5° | 13.2 | 60.8 | 122.9 | 162.6 | 175.8 |
| 100° | 11.9 | 54.2 | 115.0 | 153.3 | 166.5 |
| 102.5° | 10.6 | 47.6 | 107.0 | 144.1 | 157.3 |
| 105° | 10.6 | 42.3 | 99.1 | 136.1 | 148.0 |
| 107.5° | 9.3 | 37.0 | 91.2 | 126.9 | 138.8 |
| 110° | 7.9 | 31.7 | 84.6 | 118.9 | 129.5 |



TEST NUMBER: P242524

CATALOG NUMBER: S123DRP-S1165D940-X4F0-XX-UDD-D-W

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|------|-------|-------|
| 112.5° | 7.9 | 26.4 | 76.7 | 109.7 | 121.6 |
| 115° | 6.6 | 22.5 | 70.0 | 101.8 | 112.3 |
| 117.5° | 6.6 | 17.2 | 62.1 | 93.8 | 104.4 |
| 120° | 5.3 | 11.9 | 55.5 | 85.9 | 95.2 |
| 122.5° | 5.3 | 7.9 | 48.9 | 78.0 | 87.2 |
| 125° | 4.0 | 4.0 | 42.3 | 70.0 | 79.3 |
| 127.5° | 4.0 | 2.6 | 35.7 | 62.1 | 71.4 |
| 130° | 4.0 | 2.6 | 29.1 | 54.2 | 62.1 |
| 132.5° | 2.6 | 2.6 | 22.5 | 46.3 | 55.5 |
| 135° | 2.6 | 1.3 | 15.9 | 39.6 | 46.3 |
| 137.5° | 2.6 | 1.3 | 10.6 | 31.7 | 38.3 |
| 140° | 1.3 | 1.3 | 5.3 | 25.1 | 31.7 |
| 142.5° | 1.3 | 0.0 | 0.0 | 17.2 | 23.8 |
| 145° | 1.3 | 0.0 | 0.0 | 10.6 | 15.9 |
| 147.5° | 0.0 | 0.0 | 0.0 | 4.0 | 9.3 |
| 150° | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 |
| 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 | 18.39 | 19.90 | 18.88 | 20.38 | 20.89 | 20.39 | 21.89 | 20.88 | 22.37 | 22.89 |
| | 3H | 19.95 | 21.32 | 20.45 | 21.81 | 22.37 | 22.77 | 24.14 | 23.27 | 24.63 | 25.19 |
| | 4H | 20.47 | 21.77 | 20.99 | 22.28 | 22.85 | 23.88 | 25.18 | 24.40 | 25.69 | 26.26 |
| | 6H | 20.81 | 22.02 | 21.35 | 22.55 | 23.13 | 24.99 | 26.20 | 25.52 | 26.72 | 27.30 |
| | 8H | 20.90 | 22.06 | 21.45 | 22.61 | 23.20 | 25.54 | 26.70 | 26.09 | 27.25 | 27.84 |
| | 12H | 20.95 | 22.06 | 21.50 | 22.60 | 23.22 | 26.15 | 27.26 | 26.70 | 27.80 | 28.42 |
| 4H | 2H | 19.30 | 20.60 | 19.82 | 21.11 | 21.68 | 20.85 | 22.15 | 21.37 | 22.65 | 23.22 |
| | 3H | 21.10 | 22.21 | 21.64 | 22.76 | 23.35 | 23.44 | 24.55 | 23.98 | 25.10 | 25.69 |
| | 4H | 21.76 | 22.78 | 22.32 | 23.34 | 23.96 | 24.71 | 25.72 | 25.26 | 26.28 | 26.91 |
| | 6H | 22.24 | 23.13 | 22.81 | 23.72 | 24.36 | 25.99 | 26.89 | 26.57 | 27.47 | 28.11 |
| | 8H | 22.37 | 23.21 | 22.96 | 23.80 | 24.45 | 26.64 | 27.48 | 27.22 | 28.07 | 28.72 |
| | 12H | 22.46 | 23.22 | 23.06 | 23.84 | 24.49 | 27.36 | 28.12 | 27.96 | 28.73 | 29.39 |
| 8H | 4H | 22.40 | 23.24 | 22.98 | 23.82 | 24.47 | 24.93 | 25.77 | 25.51 | 26.36 | 27.01 |
| | 6H | 23.05 | 23.77 | 23.67 | 24.39 | 25.05 | 26.38 | 27.09 | 26.99 | 27.71 | 28.37 |
| | 8H | 23.29 | 23.93 | 23.91 | 24.57 | 25.23 | 27.15 | 27.79 | 27.78 | 28.43 | 29.10 |
| | 12H | 23.46 | 24.03 | 24.09 | 24.66 | 25.39 | 28.03 | 28.61 | 28.66 | 29.23 | 29.96 |
| 12H | 4H | 22.55 | 23.32 | 23.16 | 23.93 | 24.58 | 24.95 | 25.71 | 25.55 | 26.32 | 26.98 |
| | 6H | 23.30 | 23.94 | 23.92 | 24.58 | 25.24 | 26.42 | 27.06 | 27.04 | 27.69 | 28.36 |
| | 8H | 23.62 | 24.19 | 24.25 | 24.82 | 25.55 | 27.26 | 27.83 | 27.89 | 28.46 | 29.19 |