

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: 15996

Luminaire Tested: **201IP-S-P-2-T8**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: 15996
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: 201IP-S-P-2-T8
Description: NEORAY DIRECT/INDIRECT SUSPENDED LUMINAIRE SHELL II PERF

WITH SPECULAR REFLECTOR AND WHITE LENS OVER PERFORATIONS
Light Source: TWO PHILIPS 32 WATT T8 LAMPS

F32T8/TL841. LUMEN RATING = 2950 LMS.

Ballast/Driver: ONE MAGNETEK B232IUNVHP-B BALLAST OPERATING AT 120 VAC AND 60 WATTS

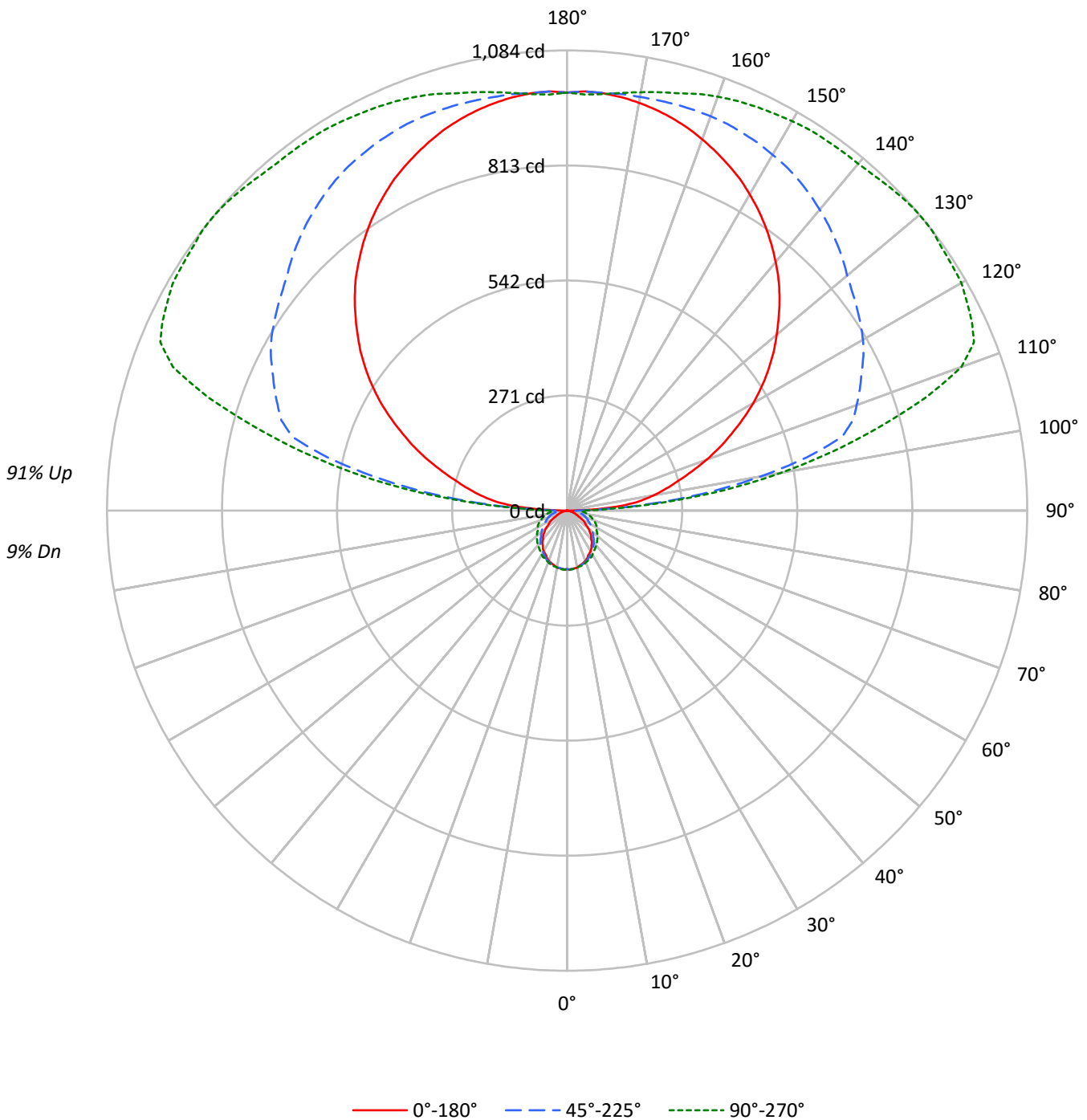
Summary

Lumens per Lamp: 2950 (2 lamps)
Luminaire Lumens: 4808.4 lumens
Efficiency: 81.5%
Efficacy: 80.1 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.28 / 1.35
Luminous Opening: Rectangular w/ Sides (W: 0.88' x L: 4' x H: 0.22')
CIE Type: Indirect

Input Watts (W): 60
Input Voltage (V): NR
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: 25 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 | 79 | 79 | 79 | 79 | 69 | 69 | 69 | 69 | 49 | 49 | 49 | 31 | 31 | 31 | 15 | 15 | 15 | 7 |
| 1 | 72 | 69 | 66 | 63 | 62 | 60 | 57 | 55 | 43 | 41 | 40 | 27 | 26 | 26 | 13 | 12 | 12 | 6 |
| 2 | 65 | 60 | 55 | 51 | 57 | 52 | 48 | 45 | 37 | 35 | 33 | 24 | 22 | 21 | 11 | 11 | 10 | 5 |
| 3 | 60 | 52 | 47 | 42 | 51 | 46 | 41 | 37 | 33 | 30 | 27 | 21 | 19 | 18 | 10 | 9 | 8 | 4 |
| 4 | 54 | 46 | 40 | 36 | 47 | 40 | 35 | 31 | 29 | 26 | 23 | 18 | 17 | 15 | 9 | 8 | 7 | 3 |
| 5 | 50 | 41 | 35 | 30 | 43 | 36 | 30 | 27 | 26 | 22 | 20 | 16 | 14 | 13 | 8 | 7 | 6 | 3 |
| 6 | 46 | 36 | 30 | 26 | 39 | 32 | 27 | 23 | 23 | 20 | 17 | 15 | 13 | 11 | 7 | 6 | 5 | 2 |
| 7 | 42 | 33 | 27 | 22 | 36 | 29 | 23 | 20 | 21 | 17 | 15 | 13 | 11 | 10 | 6 | 5 | 5 | 2 |
| 8 | 39 | 29 | 24 | 20 | 34 | 26 | 21 | 17 | 19 | 15 | 13 | 12 | 10 | 9 | 6 | 5 | 4 | 2 |
| 9 | 36 | 27 | 21 | 17 | 31 | 23 | 18 | 15 | 17 | 14 | 11 | 11 | 9 | 8 | 5 | 4 | 4 | 2 |
| 10 | 33 | 24 | 19 | 15 | 29 | 21 | 17 | 13 | 15 | 12 | 10 | 10 | 8 | 7 | 5 | 4 | 3 | 2 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-----|-----|-----|
| 0° | 421 | 421 | 421 |
| 5° | 421 | 416 | 418 |
| 10° | 420 | 407 | 405 |
| 15° | 408 | 396 | 400 |
| 20° | 403 | 385 | 386 |
| 25° | 385 | 372 | 374 |
| 30° | 377 | 354 | 370 |
| 35° | 359 | 342 | 358 |
| 40° | 337 | 328 | 350 |
| 45° | 321 | 309 | 345 |
| 50° | 291 | 296 | 340 |
| 55° | 256 | 285 | 334 |
| 60° | 214 | 277 | 343 |
| 65° | 172 | 266 | 350 |
| 70° | 142 | 260 | 350 |
| 75° | 91 | 258 | 360 |
| 80° | 36 | 244 | 360 |
| 85° | 11 | 206 | 358 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture | % Lamp |
|-----------|--------|-----------|--------|
| 0°-10° | 13.1 | 0.3 | 0.2 |
| 10°-20° | 37.4 | 0.8 | 0.6 |
| 20°-30° | 56.0 | 1.2 | 0.9 |
| 30°-40° | 66.5 | 1.4 | 1.1 |
| 40°-50° | 67.9 | 1.4 | 1.2 |
| 50°-60° | 62.2 | 1.3 | 1.1 |
| 60°-70° | 52.0 | 1.1 | 0.9 |
| 70°-80° | 38.5 | 0.8 | 0.7 |
| 80°-90° | 23.2 | 0.5 | 0.4 |
| 90°-100° | 219.2 | 4.6 | 3.7 |
| 100°-110° | 593.6 | 12.3 | 10.1 |
| 110°-120° | 736.2 | 15.3 | 12.5 |
| 120°-130° | 740.4 | 15.4 | 12.5 |
| 130°-140° | 688.1 | 14.3 | 11.7 |
| 140°-150° | 590.4 | 12.3 | 10.0 |
| 150°-160° | 450.3 | 9.4 | 7.6 |
| 160°-170° | 279.5 | 5.8 | 4.7 |
| 170°-180° | 94.1 | 2.0 | 1.6 |
| 0°-30° | 106.5 | 2.2 | 1.8 |
| 0°-40° | 173.0 | 3.6 | 2.9 |
| 0°-60° | 303.0 | 6.3 | 5.1 |
| 0°-90° | 416.6 | 8.7 | 7.1 |
| 90°-120° | 1548.9 | 32.2 | 26.3 |
| 90°-150° | 3567.9 | 74.2 | 60.5 |
| 90°-180° | 4392.0 | 91.3 | 74.4 |
| 0°-180° | 4808.4 | 100.0 | 81.5 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-----|-------|-----|-------|------|------|
| 0° | 138 | 138 | 138 | 138 | 138 | |
| 5° | 138 | 138 | 138 | 138 | 139 | 13 |
| 15° | 131 | 132 | 132 | 133 | 135 | 37 |
| 25° | 117 | 120 | 121 | 124 | 124 | 54 |
| 35° | 100 | 101 | 106 | 111 | 113 | 63 |
| 45° | 78 | 79 | 87 | 95 | 100 | 60 |
| 55° | 52 | 57 | 70 | 82 | 85 | 46 |
| 65° | 26 | 36 | 54 | 69 | 74 | 27 |
| 75° | 9 | 18 | 39 | 55 | 59 | 10 |
| 85° | 0 | 6 | 20 | 35 | 39 | 1 |
| 90° | 0 | 4 | 24 | 29 | 36 | 8 |
| 95° | 130 | 162 | 216 | 222 | 236 | 119 |
| 105° | 271 | 366 | 670 | 743 | 762 | 289 |
| 115° | 427 | 492 | 765 | 976 | 1052 | 423 |
| 125° | 579 | 621 | 833 | 1011 | 1078 | 517 |
| 135° | 708 | 749 | 896 | 1021 | 1076 | 546 |
| 145° | 815 | 849 | 951 | 1033 | 1065 | 510 |
| 155° | 898 | 912 | 981 | 1030 | 1050 | 414 |
| 165° | 957 | 959 | 990 | 1009 | 1018 | 270 |
| 175° | 986 | 983 | 988 | 984 | 985 | 94 |
| 180° | 984 | 984 | 984 | 984 | 984 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|-------|-------|-------|
| 0° | 137.8 | 137.8 | 137.8 | 137.8 | 137.8 |
| 2.5° | 139.5 | 138.1 | 138.6 | 137.1 | 139.0 |
| 5° | 137.7 | 137.7 | 138.1 | 137.7 | 139.0 |
| 7.5° | 137.0 | 136.1 | 136.1 | 136.1 | 137.5 |
| 10° | 136.6 | 135.2 | 136.1 | 136.1 | 136.2 |
| 12.5° | 133.2 | 133.4 | 134.1 | 135.7 | 134.8 |
| 15° | 130.9 | 131.9 | 132.3 | 133.4 | 134.7 |
| 17.5° | 128.6 | 129.5 | 130.5 | 131.3 | 132.3 |
| 20° | 126.2 | 126.1 | 127.5 | 128.9 | 129.5 |
| 22.5° | 122.3 | 122.8 | 125.7 | 127.1 | 127.5 |
| 25° | 117.0 | 120.4 | 121.4 | 124.3 | 123.7 |
| 27.5° | 113.7 | 114.8 | 118.0 | 120.9 | 123.7 |
| 30° | 110.3 | 110.9 | 112.7 | 118.0 | 119.8 |
| 32.5° | 106.0 | 106.6 | 109.9 | 115.1 | 115.1 |
| 35° | 99.9 | 101.4 | 105.6 | 111.4 | 112.8 |
| 37.5° | 96.1 | 96.0 | 102.3 | 107.6 | 109.4 |
| 40° | 88.3 | 91.2 | 97.1 | 103.7 | 106.0 |
| 42.5° | 84.2 | 85.5 | 93.2 | 99.4 | 103.7 |
| 45° | 78.3 | 79.4 | 87.0 | 95.1 | 99.8 |
| 47.5° | 71.3 | 73.2 | 82.6 | 92.2 | 96.5 |
| 50° | 65.2 | 68.6 | 78.3 | 88.5 | 92.8 |
| 52.5° | 56.1 | 62.8 | 74.7 | 85.1 | 89.4 |
| 55° | 51.8 | 56.6 | 70.0 | 82.2 | 85.1 |
| 57.5° | 46.0 | 51.8 | 66.1 | 78.5 | 81.7 |
| 60° | 38.4 | 46.6 | 62.2 | 75.6 | 80.4 |
| 62.5° | 31.2 | 42.3 | 57.5 | 72.2 | 77.9 |
| 65° | 26.5 | 35.5 | 53.7 | 69.0 | 74.2 |
| 67.5° | 21.7 | 30.8 | 50.9 | 65.7 | 70.9 |
| 70° | 18.3 | 27.4 | 46.4 | 61.8 | 66.1 |
| 72.5° | 13.1 | 22.2 | 43.6 | 58.4 | 62.2 |
| 75° | 9.3 | 18.3 | 39.4 | 54.6 | 58.9 |
| 77.5° | 6.5 | 15.5 | 34.6 | 48.9 | 53.6 |
| 80° | 2.7 | 12.2 | 30.8 | 44.1 | 49.4 |
| 82.5° | 0.5 | 10.3 | 25.5 | 39.4 | 44.6 |
| 85° | 0.5 | 6.5 | 20.3 | 34.6 | 39.4 |
| 87.5° | 0.5 | 2.1 | 17.4 | 29.4 | 35.1 |
| 90° | 0.5 | 4.0 | 24.3 | 29.0 | 35.5 |
| 92.5° | 58.9 | 66.5 | 93.2 | 95.2 | 104.2 |
| 95° | 130.0 | 162.4 | 215.7 | 222.4 | 235.8 |
| 97.5° | 174.2 | 253.0 | 343.9 | 362.0 | 376.8 |
| 100° | 206.8 | 311.1 | 463.1 | 527.9 | 511.7 |
| 102.5° | 239.0 | 326.0 | 578.0 | 587.5 | 638.0 |
| 105° | 271.1 | 366.4 | 670.0 | 742.9 | 762.4 |
| 107.5° | 308.8 | 396.4 | 705.8 | 860.7 | 885.9 |
| 110° | 348.7 | 425.0 | 725.7 | 935.1 | 988.4 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|-------|--------|--------|
| 112.5° | 388.8 | 456.9 | 746.3 | 962.2 | 1037.4 |
| 115° | 427.3 | 491.8 | 765.3 | 976.0 | 1051.9 |
| 117.5° | 466.5 | 529.0 | 786.8 | 988.9 | 1061.9 |
| 120° | 506.1 | 564.6 | 804.9 | 998.9 | 1072.4 |
| 122.5° | 543.2 | 607.1 | 819.3 | 1007.5 | 1075.3 |
| 125° | 578.9 | 621.4 | 833.1 | 1010.9 | 1078.0 |
| 127.5° | 612.8 | 662.4 | 846.4 | 1020.9 | 1083.4 |
| 130° | 644.3 | 692.4 | 861.1 | 1024.1 | 1083.9 |
| 132.5° | 676.2 | 722.0 | 879.7 | 1023.2 | 1081.0 |
| 135° | 707.7 | 749.2 | 896.0 | 1020.9 | 1076.2 |
| 137.5° | 737.3 | 774.8 | 911.7 | 1022.3 | 1070.3 |
| 140° | 764.4 | 799.7 | 925.6 | 1027.1 | 1066.6 |
| 142.5° | 790.5 | 821.5 | 938.9 | 1031.3 | 1065.7 |
| 145° | 815.4 | 848.7 | 950.7 | 1033.3 | 1064.7 |
| 147.5° | 838.8 | 857.8 | 960.8 | 1033.6 | 1063.3 |
| 150° | 860.2 | 882.2 | 967.9 | 1033.6 | 1059.4 |
| 152.5° | 881.1 | 897.0 | 975.6 | 1032.7 | 1054.6 |
| 155° | 898.3 | 912.1 | 980.8 | 1029.5 | 1050.3 |
| 157.5° | 915.1 | 926.9 | 985.6 | 1027.1 | 1044.6 |
| 160° | 930.7 | 938.9 | 988.4 | 1021.9 | 1037.5 |
| 162.5° | 945.0 | 949.8 | 989.8 | 1016.6 | 1029.0 |
| 165° | 957.0 | 958.8 | 990.3 | 1009.4 | 1017.5 |
| 167.5° | 967.0 | 968.4 | 989.8 | 1000.3 | 1009.4 |
| 170° | 975.5 | 971.8 | 989.4 | 998.4 | 1000.8 |
| 172.5° | 982.2 | 979.4 | 989.4 | 989.4 | 992.3 |
| 175° | 986.5 | 982.8 | 988.0 | 983.7 | 984.6 |
| 177.5° | 988.4 | 985.6 | 988.0 | 980.8 | 980.8 |
| 180° | 984.4 | 984.4 | 984.4 | 984.4 | 984.4 |

(END OF REPORT)