

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: 17899

Luminaire Tested: **MB-SB-2T5**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: 17899
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: MB-SB-2T5
Description: DIRECT/INDIRECT SUSPENDED LUMINAIRE - MINIGATOR WHITE INTERIOR WITH
SPECULAR REFLECTORS AND 19 CELL SEMI-SPECULAR LOUVER BLADE
Light Source: TWO PHILIPS 54 WATT T5 LAMPS

F54T5.841HO. LUMEN RATING = 4500 LMS.

Ballast/Driver: -

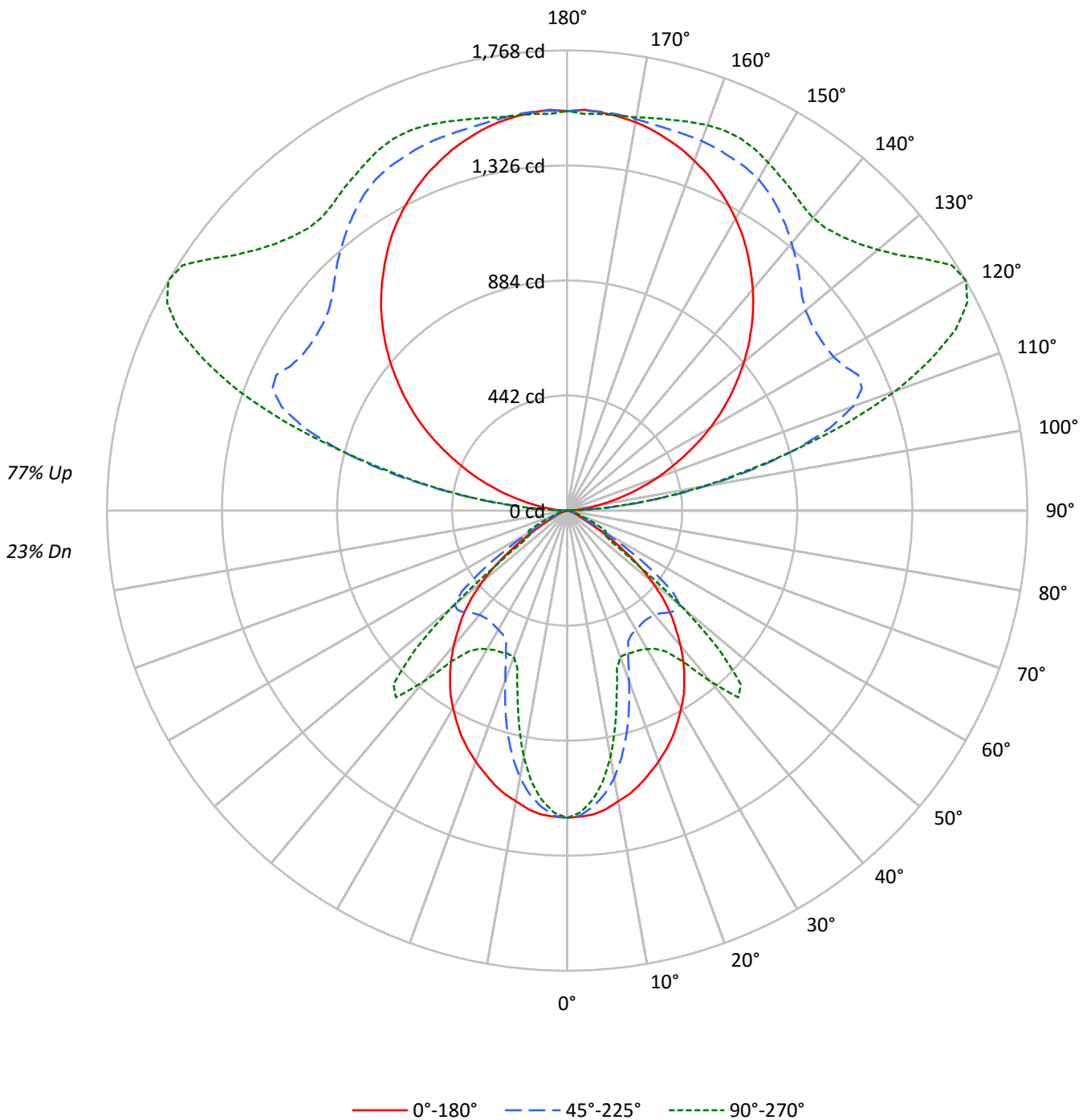
Summary

Lumens per Lamp: 4500 (2 lamps)
Luminaire Lumens: 8197.4 lumens
Efficiency: 91.1%
Efficacy: 67.2 lumens/watt
Spacing Criteria (0/90/45): 1.12 / 0.6 / 0.97
Luminous Opening: Rectangular (W 0.22' x L: 3.59' x H: 0')
CIE Type: Semi-Indirect

Input Watts (W): 122
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 | 92 | 92 | 92 | 92 | 81 | 81 | 81 | 81 | 62 | 62 | 62 | 45 | 45 | 45 | 29 | 29 | 29 | 21 |
| 1 | 84 | 80 | 77 | 74 | 75 | 72 | 69 | 67 | 55 | 53 | 52 | 40 | 39 | 38 | 26 | 25 | 25 | 19 |
| 2 | 77 | 71 | 66 | 61 | 68 | 63 | 59 | 55 | 49 | 46 | 44 | 36 | 34 | 32 | 23 | 22 | 22 | 16 |
| 3 | 70 | 62 | 56 | 51 | 62 | 56 | 51 | 47 | 43 | 40 | 37 | 32 | 30 | 28 | 21 | 20 | 19 | 14 |
| 4 | 64 | 55 | 49 | 44 | 57 | 49 | 44 | 40 | 39 | 35 | 32 | 28 | 26 | 24 | 19 | 18 | 16 | 12 |
| 5 | 59 | 49 | 42 | 37 | 52 | 44 | 38 | 34 | 35 | 30 | 27 | 26 | 23 | 21 | 17 | 16 | 15 | 11 |
| 6 | 54 | 44 | 37 | 32 | 48 | 40 | 34 | 29 | 31 | 27 | 24 | 23 | 20 | 18 | 16 | 14 | 13 | 10 |
| 7 | 50 | 40 | 33 | 28 | 45 | 36 | 30 | 26 | 28 | 24 | 21 | 21 | 18 | 16 | 14 | 13 | 11 | 9 |
| 8 | 46 | 36 | 29 | 25 | 41 | 32 | 27 | 23 | 26 | 21 | 19 | 19 | 16 | 14 | 13 | 12 | 10 | 8 |
| 9 | 43 | 33 | 26 | 22 | 38 | 30 | 24 | 20 | 23 | 19 | 17 | 18 | 15 | 13 | 12 | 10 | 9 | 7 |
| 10 | 40 | 30 | 24 | 20 | 36 | 27 | 22 | 18 | 21 | 17 | 15 | 16 | 14 | 12 | 11 | 10 | 8 | 7 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 16090 | 16090 | 16090 |
| 5° | 16020 | 15625 | 15264 |
| 10° | 15686 | 14430 | 13278 |
| 15° | 15338 | 12476 | 10373 |
| 20° | 14889 | 10060 | 8673 |
| 25° | 14407 | 8331 | 9033 |
| 30° | 13795 | 8322 | 9670 |
| 35° | 13050 | 8603 | 10979 |
| 40° | 12052 | 9310 | 15217 |
| 45° | 10869 | 10678 | 18181 |
| 50° | 9017 | 11986 | 12255 |
| 55° | 6206 | 9329 | 4785 |
| 60° | 3080 | 4487 | 4691 |
| 65° | 1648 | 2180 | 3767 |
| 70° | 1132 | 1474 | 2132 |
| 75° | 843 | 1295 | 1638 |
| 80° | 738 | 1036 | 1523 |
| 85° | 516 | 1470 | 1642 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture | % Lamp |
|-----------|--------|-----------|--------|
| 0°-10° | 106.0 | 1.3 | 1.2 |
| 10°-20° | 250.1 | 3.1 | 2.8 |
| 20°-30° | 312.8 | 3.8 | 3.5 |
| 30°-40° | 376.0 | 4.6 | 4.2 |
| 40°-50° | 462.2 | 5.6 | 5.1 |
| 50°-60° | 265.5 | 3.2 | 3.0 |
| 60°-70° | 80.4 | 1.0 | 0.9 |
| 70°-80° | 25.5 | 0.3 | 0.3 |
| 80°-90° | 8.1 | 0.1 | 0.1 |
| 90°-100° | 214.2 | 2.6 | 2.4 |
| 100°-110° | 784.2 | 9.6 | 8.7 |
| 110°-120° | 1113.3 | 13.6 | 12.4 |
| 120°-130° | 1087.9 | 13.3 | 12.1 |
| 130°-140° | 981.5 | 12.0 | 10.9 |
| 140°-150° | 868.0 | 10.6 | 9.6 |
| 150°-160° | 684.8 | 8.4 | 7.6 |
| 160°-170° | 430.6 | 5.3 | 4.8 |
| 170°-180° | 146.4 | 1.8 | 1.6 |
| 0°-30° | 668.9 | 8.2 | 7.4 |
| 0°-40° | 1044.9 | 12.7 | 11.6 |
| 0°-60° | 1772.6 | 21.6 | 19.7 |
| 0°-90° | 1886.6 | 23.0 | 21.0 |
| 90°-120° | 2111.6 | 25.8 | 23.5 |
| 90°-150° | 5049.0 | 61.6 | 56.1 |
| 90°-180° | 6311.0 | 77.0 | 70.1 |
| 0°-180° | 8197.4 | 100.0 | 91.1 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 1181 | 1181 | 1181 | 1181 | 1181 | |
| 5° | 1171 | 1159 | 1142 | 1121 | 1116 | 111 |
| 15° | 1087 | 1014 | 884 | 764 | 735 | 306 |
| 25° | 958 | 777 | 554 | 583 | 601 | 440 |
| 35° | 784 | 511 | 517 | 607 | 660 | 489 |
| 45° | 564 | 371 | 554 | 844 | 943 | 430 |
| 55° | 261 | 260 | 393 | 245 | 201 | 234 |
| 65° | 51 | 54 | 68 | 96 | 117 | 57 |
| 75° | 16 | 21 | 25 | 26 | 31 | 18 |
| 85° | 3 | 6 | 9 | 10 | 10 | 4 |
| 90° | 0 | 0 | 0 | 0 | 0 | 3 |
| 95° | 47 | 182 | 201 | 197 | 184 | 56 |
| 105° | 240 | 590 | 909 | 950 | 912 | 255 |
| 115° | 497 | 705 | 1233 | 1550 | 1647 | 493 |
| 125° | 763 | 908 | 1175 | 1543 | 1683 | 681 |
| 135° | 1002 | 1136 | 1263 | 1420 | 1490 | 773 |
| 145° | 1208 | 1299 | 1414 | 1490 | 1504 | 755 |
| 155° | 1369 | 1407 | 1495 | 1563 | 1577 | 631 |
| 165° | 1479 | 1496 | 1517 | 1552 | 1554 | 417 |
| 175° | 1535 | 1540 | 1538 | 1535 | 1529 | 146 |
| 180° | 1535 | 1535 | 1535 | 1535 | 1535 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 1180.6 | 1180.6 | 1180.6 | 1180.6 | 1180.6 |
| 2.5° | 1177.2 | 1177.6 | 1172.4 | 1166.2 | 1161.1 |
| 5° | 1171.0 | 1158.7 | 1142.1 | 1120.8 | 1115.7 |
| 7.5° | 1156.3 | 1137.3 | 1099.5 | 1069.2 | 1050.3 |
| 10° | 1133.5 | 1105.7 | 1042.7 | 985.0 | 959.5 |
| 12.5° | 1114.6 | 1065.4 | 968.1 | 886.6 | 851.1 |
| 15° | 1087.1 | 1013.8 | 884.2 | 764.1 | 735.2 |
| 17.5° | 1056.8 | 968.4 | 789.6 | 682.3 | 635.8 |
| 20° | 1026.6 | 905.2 | 693.6 | 604.2 | 598.0 |
| 22.5° | 993.6 | 842.5 | 613.1 | 586.6 | 595.2 |
| 25° | 958.1 | 776.8 | 554.0 | 582.8 | 600.7 |
| 27.5° | 917.9 | 703.6 | 536.1 | 582.8 | 604.2 |
| 30° | 876.6 | 640.6 | 528.8 | 586.6 | 614.5 |
| 32.5° | 834.6 | 572.9 | 522.3 | 590.4 | 629.3 |
| 35° | 784.4 | 511.0 | 517.1 | 606.6 | 659.9 |
| 37.5° | 734.2 | 458.0 | 518.5 | 642.0 | 729.0 |
| 40° | 677.4 | 423.9 | 523.3 | 705.0 | 855.3 |
| 42.5° | 619.3 | 394.0 | 534.7 | 802.0 | 973.3 |
| 45° | 563.9 | 371.0 | 554.0 | 843.6 | 943.3 |
| 47.5° | 498.2 | 351.0 | 567.7 | 760.7 | 794.7 |
| 50° | 425.3 | 332.1 | 565.3 | 577.7 | 578.0 |
| 52.5° | 348.3 | 304.2 | 509.9 | 420.5 | 338.3 |
| 55° | 261.2 | 260.2 | 392.6 | 245.1 | 201.4 |
| 57.5° | 177.3 | 197.3 | 269.1 | 168.4 | 167.0 |
| 60° | 113.0 | 128.1 | 164.6 | 141.9 | 172.1 |
| 62.5° | 72.4 | 83.7 | 101.6 | 129.1 | 166.0 |
| 65° | 51.1 | 53.5 | 67.6 | 96.5 | 116.8 |
| 67.5° | 38.7 | 39.7 | 48.3 | 63.8 | 71.4 |
| 70° | 28.4 | 29.4 | 37.0 | 44.9 | 53.5 |
| 72.5° | 18.4 | 23.2 | 29.4 | 33.2 | 39.7 |
| 75° | 16.0 | 20.8 | 24.6 | 25.6 | 31.1 |
| 77.5° | 13.2 | 15.6 | 18.4 | 19.4 | 25.6 |
| 80° | 9.4 | 12.2 | 13.2 | 17.0 | 19.4 |
| 82.5° | 4.6 | 6.7 | 10.8 | 11.9 | 14.6 |
| 85° | 3.3 | 5.7 | 9.4 | 10.5 | 10.5 |
| 87.5° | 2.6 | 1.2 | 5.7 | 5.7 | 8.4 |
| 90° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 92.5° | 16.0 | 61.0 | 62.4 | 68.6 | 48.7 |
| 95° | 47.3 | 182.1 | 201.0 | 197.3 | 183.5 |
| 97.5° | 85.1 | 326.9 | 359.6 | 363.4 | 349.6 |
| 100° | 129.1 | 472.1 | 533.7 | 594.2 | 522.3 |
| 102.5° | 179.7 | 513.4 | 729.0 | 689.8 | 705.0 |
| 105° | 239.9 | 590.4 | 908.9 | 949.5 | 911.7 |
| 107.5° | 301.8 | 613.1 | 1060.3 | 1146.3 | 1137.0 |
| 110° | 367.2 | 637.2 | 1167.3 | 1321.0 | 1342.3 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 429.1 | 668.5 | 1225.4 | 1455.9 | 1507.8 |
| 115° | 496.9 | 705.0 | 1233.0 | 1550.4 | 1647.4 |
| 117.5° | 565.3 | 746.6 | 1200.3 | 1604.4 | 1733.4 |
| 120° | 633.4 | 803.3 | 1181.4 | 1604.4 | 1768.5 |
| 122.5° | 698.8 | 877.6 | 1175.2 | 1563.2 | 1753.4 |
| 125° | 763.1 | 907.9 | 1175.2 | 1542.9 | 1682.9 |
| 127.5° | 824.7 | 980.8 | 1181.4 | 1485.1 | 1611.0 |
| 130° | 886.6 | 1036.5 | 1196.5 | 1452.4 | 1558.0 |
| 132.5° | 945.7 | 1088.1 | 1223.0 | 1429.4 | 1517.8 |
| 135° | 1002.5 | 1136.0 | 1263.2 | 1420.4 | 1489.9 |
| 137.5° | 1057.9 | 1180.0 | 1303.5 | 1419.4 | 1471.3 |
| 140° | 1109.8 | 1216.4 | 1341.3 | 1429.7 | 1468.6 |
| 142.5° | 1158.7 | 1255.7 | 1380.2 | 1454.8 | 1481.3 |
| 145° | 1207.8 | 1298.7 | 1414.2 | 1489.9 | 1503.7 |
| 147.5° | 1254.3 | 1314.8 | 1445.9 | 1502.6 | 1522.9 |
| 150° | 1294.5 | 1350.3 | 1470.0 | 1531.5 | 1544.3 |
| 152.5° | 1333.7 | 1380.2 | 1486.1 | 1550.4 | 1564.2 |
| 155° | 1368.8 | 1406.7 | 1495.1 | 1563.2 | 1576.9 |
| 157.5° | 1401.8 | 1432.1 | 1505.4 | 1568.0 | 1580.7 |
| 160° | 1429.4 | 1455.9 | 1511.6 | 1564.5 | 1575.6 |
| 162.5° | 1457.2 | 1476.1 | 1514.0 | 1559.4 | 1565.6 |
| 165° | 1478.6 | 1496.4 | 1516.7 | 1551.8 | 1554.2 |
| 167.5° | 1499.9 | 1515.4 | 1520.5 | 1544.3 | 1544.3 |
| 170° | 1515.4 | 1521.6 | 1526.7 | 1542.9 | 1533.9 |
| 172.5° | 1526.7 | 1533.9 | 1533.9 | 1538.1 | 1530.5 |
| 175° | 1535.3 | 1540.5 | 1538.1 | 1535.3 | 1529.1 |
| 177.5° | 1541.5 | 1543.2 | 1537.7 | 1534.3 | 1525.3 |
| 180° | 1534.6 | 1534.6 | 1534.6 | 1534.6 | 1534.6 |

(END OF REPORT)