

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: 15717

Luminaire Tested: **701IP-S-P-2-T8**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: 15717
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: 701IP-S-P-2-T8
Description: NEORAY 2 LAMP T8 DIRECT/INDIRECT LUMINAIRE - NIMBUS II PERF
WITH WHITE INTERIOR, SPECULAR REFLECTORS AND WHITE LENS OVER PERFORATIONS
Light Source: TWO PHILIPS 32 WATT T8 LAMPS

F32T8/TL841. LUMEN RATING = 2950 LMS.

Ballast/Driver: ONE MAGNETEK B232IUNV HP--B BALLAST OPERATING AT 120 VAC AND 60 WATTS

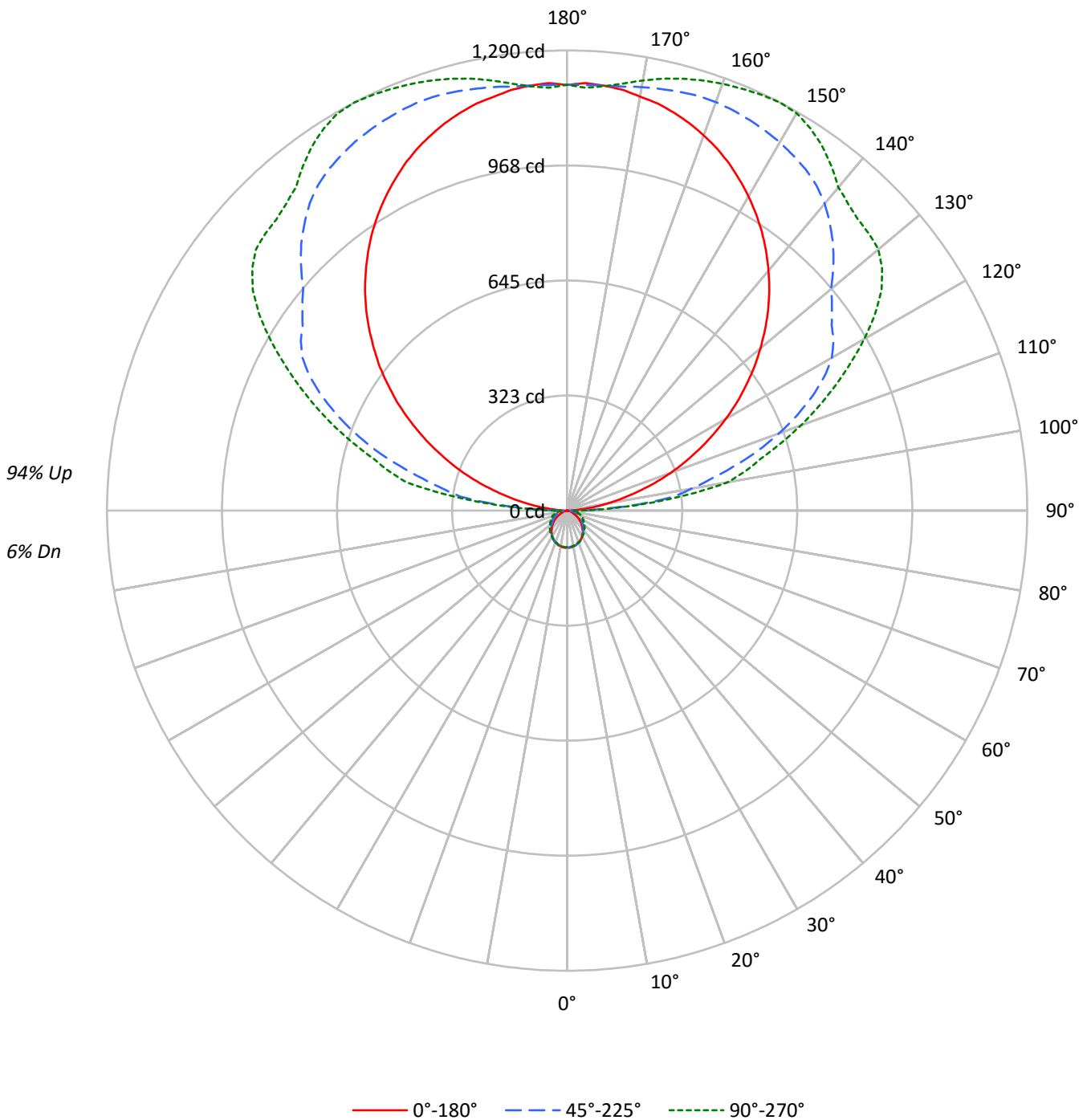
Summary

Lumens per Lamp: 2950 (2 lamps)
Luminaire Lumens: 4943.3 lumens
Efficiency: 83.8%
Efficacy: 82.4 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.23 / 1.33
Luminous Opening: Rectangular w/ Sides (W: 0.75' x L: 4' x H: 0.25')
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 | 81 | 81 | 81 | 81 | 70 | 70 | 70 | 70 | 49 | 49 | 49 | 30 | 30 | 30 | 13 | 13 | 13 | 5 |
| 1 | 74 | 70 | 67 | 64 | 63 | 61 | 58 | 56 | 43 | 41 | 40 | 26 | 26 | 25 | 11 | 11 | 11 | 4 |
| 2 | 67 | 61 | 56 | 52 | 58 | 53 | 49 | 46 | 37 | 35 | 33 | 23 | 22 | 21 | 10 | 9 | 9 | 3 |
| 3 | 61 | 54 | 48 | 43 | 52 | 46 | 42 | 38 | 33 | 30 | 28 | 20 | 19 | 17 | 9 | 8 | 8 | 3 |
| 4 | 56 | 47 | 41 | 36 | 48 | 41 | 36 | 32 | 29 | 26 | 23 | 18 | 16 | 15 | 8 | 7 | 7 | 2 |
| 5 | 51 | 42 | 36 | 31 | 44 | 36 | 31 | 27 | 26 | 22 | 20 | 16 | 14 | 13 | 7 | 6 | 6 | 2 |
| 6 | 47 | 37 | 31 | 26 | 40 | 32 | 27 | 23 | 23 | 20 | 17 | 14 | 12 | 11 | 6 | 5 | 5 | 2 |
| 7 | 43 | 33 | 27 | 23 | 37 | 29 | 24 | 20 | 21 | 17 | 15 | 13 | 11 | 9 | 6 | 5 | 4 | 2 |
| 8 | 40 | 30 | 24 | 20 | 34 | 26 | 21 | 18 | 19 | 15 | 13 | 12 | 10 | 8 | 5 | 4 | 4 | 1 |
| 9 | 37 | 27 | 21 | 17 | 32 | 24 | 19 | 15 | 17 | 14 | 11 | 11 | 9 | 7 | 5 | 4 | 3 | 1 |
| 10 | 34 | 25 | 19 | 15 | 29 | 22 | 17 | 14 | 16 | 12 | 10 | 10 | 8 | 6 | 4 | 4 | 3 | 1 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-----|-----|-----|
| 0° | 370 | 370 | 370 |
| 5° | 373 | 362 | 359 |
| 10° | 364 | 354 | 346 |
| 15° | 366 | 342 | 335 |
| 20° | 352 | 332 | 324 |
| 25° | 345 | 314 | 314 |
| 30° | 335 | 297 | 295 |
| 35° | 321 | 284 | 283 |
| 40° | 298 | 267 | 274 |
| 45° | 279 | 254 | 264 |
| 50° | 256 | 235 | 245 |
| 55° | 233 | 223 | 245 |
| 60° | 196 | 215 | 239 |
| 65° | 156 | 197 | 237 |
| 70° | 130 | 186 | 235 |
| 75° | 103 | 172 | 217 |
| 80° | 58 | 155 | 195 |
| 85° | 12 | 124 | 188 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture | % Lamp |
|-----------|--------|-----------|--------|
| 0°-10° | 9.8 | 0.2 | 0.2 |
| 10°-20° | 27.7 | 0.6 | 0.5 |
| 20°-30° | 41.4 | 0.8 | 0.7 |
| 30°-40° | 48.5 | 1.0 | 0.8 |
| 40°-50° | 48.9 | 1.0 | 0.8 |
| 50°-60° | 44.1 | 0.9 | 0.7 |
| 60°-70° | 35.6 | 0.7 | 0.6 |
| 70°-80° | 25.3 | 0.5 | 0.4 |
| 80°-90° | 14.8 | 0.3 | 0.3 |
| 90°-100° | 187.5 | 3.8 | 3.2 |
| 100°-110° | 476.0 | 9.6 | 8.1 |
| 110°-120° | 685.5 | 13.9 | 11.6 |
| 120°-130° | 795.0 | 16.1 | 13.5 |
| 130°-140° | 785.9 | 15.9 | 13.3 |
| 140°-150° | 709.3 | 14.3 | 12.0 |
| 150°-160° | 551.4 | 11.2 | 9.3 |
| 160°-170° | 342.1 | 6.9 | 5.8 |
| 170°-180° | 114.3 | 2.3 | 1.9 |
| 0°-30° | 78.9 | 1.6 | 1.3 |
| 0°-40° | 127.4 | 2.6 | 2.2 |
| 0°-60° | 220.5 | 4.5 | 3.7 |
| 0°-90° | 296.2 | 6.0 | 5.0 |
| 90°-120° | 1349.0 | 27.3 | 22.9 |
| 90°-150° | 3639.3 | 73.6 | 61.7 |
| 90°-180° | 4647.0 | 94.0 | 78.8 |
| 0°-180° | 4943.3 | 100.0 | 83.8 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 103 | 103 | 103 | 103 | 103 | |
| 5° | 104 | 102 | 103 | 102 | 102 | 10 |
| 15° | 100 | 98 | 99 | 98 | 98 | 28 |
| 25° | 90 | 89 | 90 | 90 | 92 | 41 |
| 35° | 77 | 77 | 78 | 79 | 80 | 47 |
| 45° | 58 | 60 | 64 | 66 | 69 | 45 |
| 55° | 40 | 43 | 50 | 57 | 58 | 36 |
| 65° | 21 | 27 | 37 | 45 | 48 | 21 |
| 75° | 9 | 14 | 25 | 34 | 35 | 10 |
| 85° | 0 | 4 | 13 | 18 | 22 | 1 |
| 90° | 0 | 7 | 26 | 26 | 42 | 2 |
| 95° | 39 | 137 | 202 | 210 | 219 | 48 |
| 105° | 206 | 384 | 488 | 545 | 562 | 219 |
| 115° | 410 | 576 | 758 | 817 | 830 | 406 |
| 125° | 612 | 762 | 905 | 1028 | 1075 | 548 |
| 135° | 797 | 922 | 1054 | 1115 | 1154 | 614 |
| 145° | 952 | 1048 | 1167 | 1236 | 1247 | 595 |
| 155° | 1074 | 1124 | 1209 | 1263 | 1286 | 495 |
| 165° | 1155 | 1171 | 1216 | 1242 | 1253 | 326 |
| 175° | 1196 | 1194 | 1196 | 1195 | 1194 | 114 |
| 180° | 1193 | 1193 | 1193 | 1193 | 1193 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|-------|-------|-------|
| 0° | 103.0 | 103.0 | 103.0 | 103.0 | 103.0 |
| 2.5° | 104.5 | 103.4 | 103.0 | 102.9 | 102.5 |
| 5° | 104.0 | 102.5 | 102.9 | 102.5 | 102.5 |
| 7.5° | 103.4 | 102.5 | 102.9 | 101.6 | 101.0 |
| 10° | 101.0 | 102.5 | 102.1 | 100.5 | 100.5 |
| 12.5° | 101.0 | 100.0 | 99.6 | 99.6 | 100.1 |
| 15° | 100.1 | 98.1 | 99.0 | 98.1 | 98.1 |
| 17.5° | 95.6 | 95.7 | 96.1 | 96.6 | 95.6 |
| 20° | 94.2 | 94.6 | 95.7 | 95.2 | 95.2 |
| 22.5° | 92.6 | 91.7 | 93.3 | 92.8 | 93.7 |
| 25° | 89.7 | 89.3 | 89.7 | 89.8 | 91.7 |
| 27.5° | 87.3 | 85.8 | 85.8 | 87.8 | 86.4 |
| 30° | 83.8 | 83.4 | 83.4 | 85.3 | 84.9 |
| 32.5° | 79.6 | 79.4 | 80.1 | 81.6 | 82.4 |
| 35° | 76.6 | 76.8 | 77.6 | 79.0 | 79.6 |
| 37.5° | 71.3 | 72.8 | 73.2 | 76.2 | 77.7 |
| 40° | 66.9 | 68.8 | 70.4 | 73.3 | 74.8 |
| 42.5° | 64.0 | 64.0 | 67.8 | 69.3 | 71.3 |
| 45° | 58.5 | 59.6 | 64.0 | 66.4 | 69.4 |
| 47.5° | 53.2 | 55.7 | 59.6 | 63.6 | 66.0 |
| 50° | 49.3 | 50.4 | 56.1 | 60.6 | 61.4 |
| 52.5° | 44.5 | 48.2 | 51.7 | 58.1 | 60.6 |
| 55° | 40.5 | 43.0 | 49.8 | 56.6 | 57.7 |
| 57.5° | 34.6 | 39.0 | 46.9 | 54.2 | 53.2 |
| 60° | 30.2 | 34.6 | 44.5 | 49.7 | 52.6 |
| 62.5° | 24.0 | 30.8 | 40.1 | 47.3 | 49.3 |
| 65° | 20.9 | 27.3 | 37.2 | 45.4 | 47.8 |
| 67.5° | 17.4 | 24.4 | 33.7 | 42.0 | 44.9 |
| 70° | 14.5 | 20.4 | 31.3 | 39.6 | 42.9 |
| 72.5° | 12.1 | 18.1 | 28.8 | 37.2 | 39.0 |
| 75° | 9.2 | 14.5 | 25.3 | 33.7 | 35.2 |
| 77.5° | 6.8 | 11.2 | 22.9 | 29.7 | 32.2 |
| 80° | 3.8 | 9.2 | 19.4 | 25.8 | 27.3 |
| 82.5° | 1.4 | 6.8 | 15.6 | 22.4 | 26.4 |
| 85° | 0.5 | 4.4 | 12.6 | 18.5 | 22.0 |
| 87.5° | 0.5 | 1.8 | 9.2 | 15.6 | 18.5 |
| 90° | 0.5 | 6.8 | 26.2 | 26.0 | 42.2 |
| 92.5° | 15.6 | 66.8 | 92.4 | 97.2 | 104.0 |
| 95° | 39.4 | 137.2 | 202.1 | 210.5 | 218.8 |
| 97.5° | 74.2 | 199.7 | 303.2 | 331.6 | 341.3 |
| 100° | 113.3 | 277.8 | 353.6 | 439.9 | 457.0 |
| 102.5° | 158.8 | 305.2 | 415.1 | 472.6 | 512.3 |
| 105° | 205.6 | 383.8 | 488.3 | 545.0 | 561.7 |
| 107.5° | 256.9 | 439.4 | 562.6 | 612.9 | 627.9 |
| 110° | 308.2 | 483.4 | 631.4 | 681.8 | 696.9 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 358.9 | 526.9 | 697.0 | 747.7 | 763.3 |
| 115° | 409.7 | 576.2 | 758.5 | 816.6 | 829.8 |
| 117.5° | 461.9 | 633.8 | 812.6 | 882.1 | 896.1 |
| 120° | 513.1 | 685.1 | 857.0 | 945.9 | 962.1 |
| 122.5° | 564.5 | 743.3 | 885.4 | 1008.5 | 1023.1 |
| 125° | 612.3 | 762.3 | 905.4 | 1028.1 | 1075.4 |
| 127.5° | 661.8 | 811.5 | 935.8 | 1069.4 | 1113.0 |
| 130° | 707.1 | 850.2 | 966.5 | 1086.1 | 1138.8 |
| 132.5° | 752.5 | 886.9 | 1011.8 | 1099.3 | 1148.2 |
| 135° | 797.0 | 921.9 | 1054.5 | 1115.4 | 1153.5 |
| 137.5° | 839.0 | 951.4 | 1090.5 | 1135.0 | 1166.2 |
| 140° | 878.1 | 983.0 | 1123.2 | 1171.1 | 1183.2 |
| 142.5° | 916.6 | 1012.5 | 1148.7 | 1204.8 | 1217.1 |
| 145° | 952.3 | 1047.5 | 1166.7 | 1236.4 | 1246.8 |
| 147.5° | 985.5 | 1059.8 | 1179.8 | 1245.2 | 1269.8 |
| 150° | 1016.9 | 1089.5 | 1192.2 | 1259.4 | 1286.3 |
| 152.5° | 1046.1 | 1107.6 | 1201.2 | 1263.4 | 1290.2 |
| 155° | 1073.8 | 1123.8 | 1208.6 | 1262.8 | 1286.4 |
| 157.5° | 1098.3 | 1137.4 | 1214.6 | 1260.6 | 1280.0 |
| 160° | 1119.4 | 1150.2 | 1218.4 | 1257.5 | 1273.2 |
| 162.5° | 1138.8 | 1161.8 | 1219.0 | 1251.2 | 1264.3 |
| 165° | 1155.0 | 1171.0 | 1215.5 | 1242.4 | 1253.1 |
| 167.5° | 1169.1 | 1180.8 | 1210.7 | 1226.3 | 1240.4 |
| 170° | 1178.4 | 1183.8 | 1205.4 | 1220.4 | 1224.3 |
| 172.5° | 1189.6 | 1191.1 | 1199.0 | 1206.2 | 1207.2 |
| 175° | 1195.5 | 1193.6 | 1196.0 | 1195.0 | 1194.0 |
| 177.5° | 1199.5 | 1197.0 | 1194.0 | 1191.1 | 1186.3 |
| 180° | 1193.2 | 1193.2 | 1193.2 | 1193.2 | 1193.2 |

(END OF REPORT)