

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: METALUX

Report Number: P474420

Luminaire Tested: **24CZ2-35HE-HRP-UNV-L835-CD1-U**

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P474420
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-35HE-HRP-UNV-L835-CD1-U
Description: 2'X4' TROFFER LED MODULE, HIGH EFFICIENCY,SMOOTH LENS W/ HRP INSERT
Light Source: 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2985.3 lumens
Efficiency: N/A
Efficacy: 110.6 lumens/watt
Spacing Criteria (0/90/45): 1.24 / 1.3 / 1.4
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

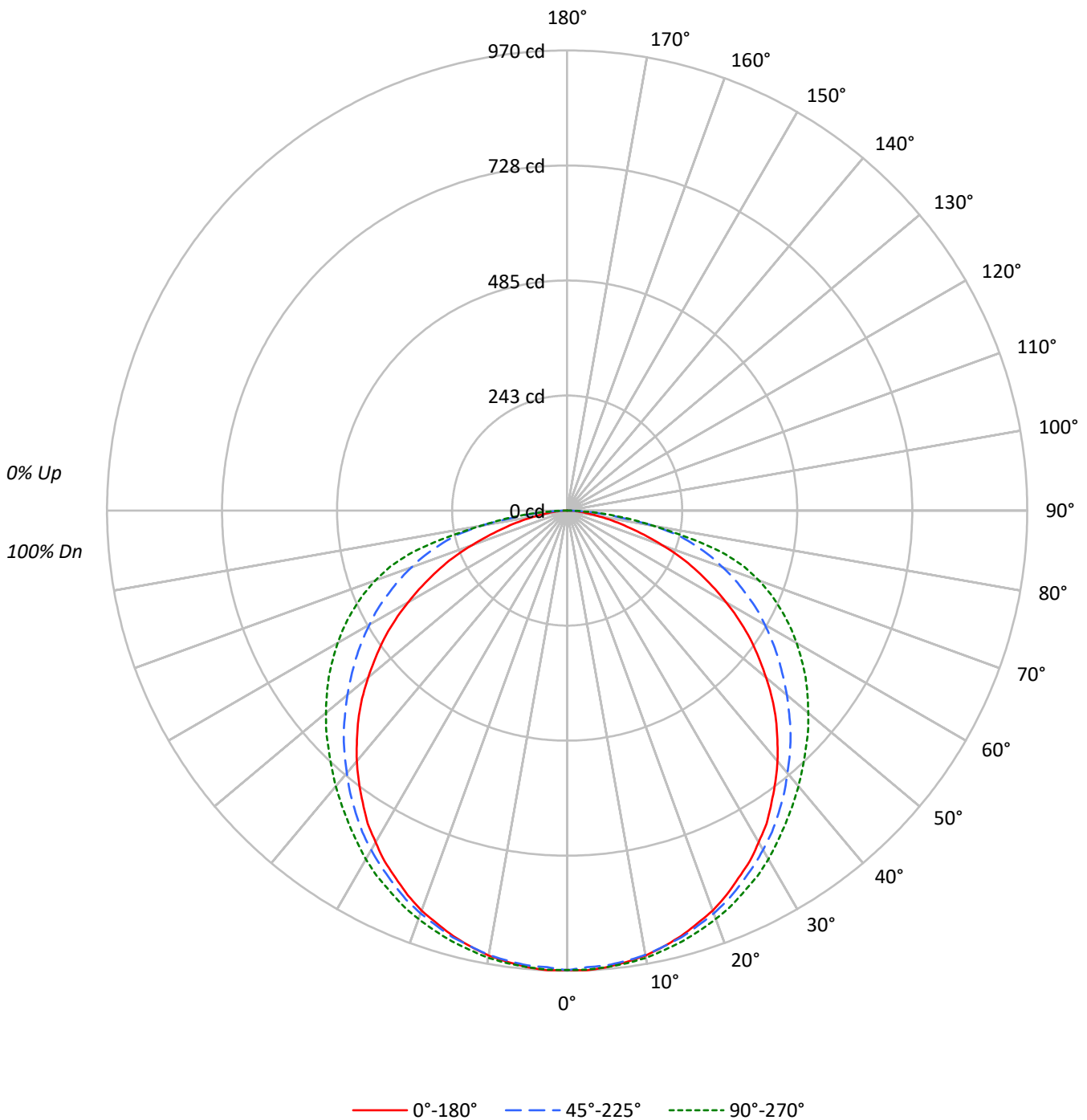
Input Watts (W): 27
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P474420

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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 | 50 | 30 | 10 | 50 | 30 | 10 | 0 | | |
| RCR | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | | | | | 100 | | | |
| 1 | 108 | 103 | 98 | 94 | 105 | 101 | 96 | 93 | 96 | 93 | 90 | 92 | 90 | 87 | 89 | 86 | 84 | 82 | | | | | 82 | | | |
| 2 | 98 | 89 | 82 | 76 | 95 | 87 | 80 | 75 | 83 | 78 | 73 | 80 | 75 | 71 | 77 | 73 | 70 | 67 | | | | | 67 | | | |
| 3 | 89 | 78 | 69 | 62 | 86 | 76 | 68 | 62 | 73 | 66 | 61 | 70 | 64 | 59 | 68 | 63 | 58 | 56 | | | | | 56 | | | |
| 4 | 81 | 68 | 59 | 52 | 79 | 67 | 59 | 52 | 65 | 57 | 51 | 62 | 56 | 50 | 60 | 54 | 50 | 48 | | | | | 48 | | | |
| 5 | 74 | 61 | 52 | 45 | 72 | 60 | 51 | 45 | 58 | 50 | 44 | 56 | 49 | 44 | 54 | 48 | 43 | 41 | | | | | 41 | | | |
| 6 | 69 | 55 | 46 | 39 | 67 | 54 | 45 | 39 | 52 | 44 | 38 | 50 | 43 | 38 | 49 | 42 | 38 | 36 | | | | | 36 | | | |
| 7 | 63 | 50 | 41 | 34 | 62 | 49 | 40 | 34 | 47 | 39 | 34 | 46 | 39 | 34 | 44 | 38 | 33 | 31 | | | | | 31 | | | |
| 8 | 59 | 45 | 36 | 30 | 57 | 44 | 36 | 30 | 43 | 36 | 30 | 42 | 35 | 30 | 41 | 34 | 30 | 28 | | | | | 28 | | | |
| 9 | 55 | 41 | 33 | 27 | 54 | 41 | 33 | 27 | 40 | 32 | 27 | 39 | 32 | 27 | 38 | 31 | 27 | 25 | | | | | 25 | | | |
| 10 | 52 | 38 | 30 | 25 | 50 | 38 | 30 | 25 | 37 | 30 | 25 | 36 | 29 | 24 | 35 | 29 | 24 | 23 | | | | | 23 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 1303 | 1303 | 1303 |
| 5° | 1305 | 1300 | 1305 |
| 10° | 1301 | 1299 | 1308 |
| 15° | 1293 | 1297 | 1309 |
| 20° | 1285 | 1294 | 1312 |
| 25° | 1269 | 1288 | 1314 |
| 30° | 1254 | 1283 | 1318 |
| 35° | 1234 | 1277 | 1320 |
| 40° | 1212 | 1269 | 1332 |
| 45° | 1184 | 1267 | 1353 |
| 50° | 1146 | 1266 | 1389 |
| 55° | 1105 | 1275 | 1439 |
| 60° | 1042 | 1295 | 1503 |
| 65° | 963 | 1325 | 1588 |
| 70° | 841 | 1371 | 1692 |
| 75° | 682 | 1442 | 1748 |
| 80° | 504 | 1414 | 1414 |
| 85° | 386 | 1042 | 1176 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 91.8 | 3.1 |
| 10°-20° | 263.5 | 8.8 |
| 20°-30° | 401.1 | 13.4 |
| 30°-40° | 487.1 | 16.3 |
| 40°-50° | 514.6 | 17.2 |
| 50°-60° | 485.5 | 16.3 |
| 60°-70° | 403.7 | 13.5 |
| 70°-80° | 265.6 | 8.9 |
| 80°-90° | 72.4 | 2.4 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-30° | 756.4 | 25.3 |
| 0°-40° | 1243.4 | 41.7 |
| 0°-60° | 2243.5 | 75.2 |
| 0°-90° | 2985.3 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2985.3 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 969 | 969 | 969 | 969 | 969 | |
| 5° | 966 | 966 | 962 | 966 | 966 | 92 |
| 15° | 928 | 930 | 931 | 940 | 940 | 262 |
| 25° | 855 | 860 | 867 | 882 | 885 | 394 |
| 35° | 751 | 760 | 777 | 797 | 804 | 470 |
| 45° | 622 | 635 | 666 | 699 | 711 | 479 |
| 55° | 471 | 491 | 544 | 595 | 614 | 420 |
| 65° | 302 | 338 | 416 | 477 | 499 | 299 |
| 75° | 131 | 191 | 277 | 329 | 336 | 141 |
| 85° | 25 | 55 | 68 | 75 | 76 | 31 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P474420

CATALOG NUMBER: 24CZ2-35HE-HRP-UNV-L835-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 968.6 | 968.6 | 968.6 | 968.6 | 968.6 |
| 2.5° | 969.9 | 968.6 | 963.6 | 968.6 | 968.6 |
| 5° | 966.1 | 966.1 | 962.3 | 966.1 | 966.1 |
| 7.5° | 959.8 | 959.8 | 957.3 | 962.3 | 962.3 |
| 10° | 952.3 | 952.3 | 951.1 | 957.3 | 957.3 |
| 12.5° | 941.1 | 942.3 | 941.1 | 948.6 | 948.6 |
| 15° | 928.5 | 929.8 | 931.1 | 939.8 | 939.8 |
| 17.5° | 912.4 | 914.8 | 917.4 | 927.3 | 928.5 |
| 20° | 897.4 | 898.5 | 903.5 | 914.8 | 916.1 |
| 22.5° | 877.4 | 881.1 | 887.4 | 898.5 | 902.4 |
| 25° | 854.8 | 859.8 | 867.4 | 882.4 | 884.8 |
| 27.5° | 833.6 | 837.3 | 847.4 | 863.6 | 868.6 |
| 30° | 807.3 | 813.6 | 826.1 | 842.4 | 848.6 |
| 32.5° | 782.3 | 788.6 | 803.6 | 821.1 | 826.1 |
| 35° | 751.2 | 759.9 | 777.3 | 797.3 | 803.6 |
| 37.5° | 721.1 | 729.9 | 751.2 | 773.6 | 781.2 |
| 40° | 689.8 | 699.8 | 722.4 | 748.6 | 758.6 |
| 42.5° | 656.1 | 669.8 | 694.8 | 723.6 | 734.9 |
| 45° | 622.4 | 634.9 | 666.1 | 698.6 | 711.1 |
| 47.5° | 586.2 | 601.2 | 634.9 | 673.7 | 688.7 |
| 50° | 547.5 | 566.2 | 604.9 | 647.4 | 663.7 |
| 52.5° | 508.7 | 529.9 | 573.6 | 621.1 | 638.7 |
| 55° | 471.1 | 491.1 | 543.6 | 594.9 | 613.6 |
| 57.5° | 430.0 | 455.0 | 512.4 | 567.3 | 586.2 |
| 60° | 387.4 | 415.0 | 481.1 | 538.6 | 558.6 |
| 62.5° | 344.9 | 376.2 | 451.1 | 508.7 | 529.9 |
| 65° | 302.5 | 337.5 | 416.2 | 477.4 | 498.7 |
| 67.5° | 261.2 | 299.9 | 383.7 | 445.0 | 466.1 |
| 70° | 213.7 | 262.4 | 348.6 | 408.7 | 430.0 |
| 72.5° | 170.0 | 226.3 | 314.9 | 371.2 | 389.9 |
| 75° | 131.2 | 191.3 | 277.4 | 328.6 | 336.2 |
| 77.5° | 96.2 | 156.2 | 238.7 | 256.2 | 257.4 |
| 80° | 65.0 | 124.9 | 182.5 | 180.0 | 182.5 |
| 82.5° | 42.5 | 93.8 | 114.9 | 128.8 | 129.9 |
| 85° | 25.0 | 55.0 | 67.5 | 75.0 | 76.2 |
| 87.5° | 12.4 | 18.7 | 23.7 | 25.0 | 27.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)