

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: FAIL-SAFE

Report Number: P233034

Luminaire Tested: **FCB-12-4-LD4-44-35-UNV-EDD1**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P233034
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P35573)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FCB-12-4-LD4-44-35-UNV-EDD1
Description: FAILSAFE 1X4 FCB LED TROFFER
OPAL DIFFUSER, NO LENS
Light Source: (84)3500K CCT, 80 CRI LEDs
Ballast/Driver: ELECTRONIC DRIVER

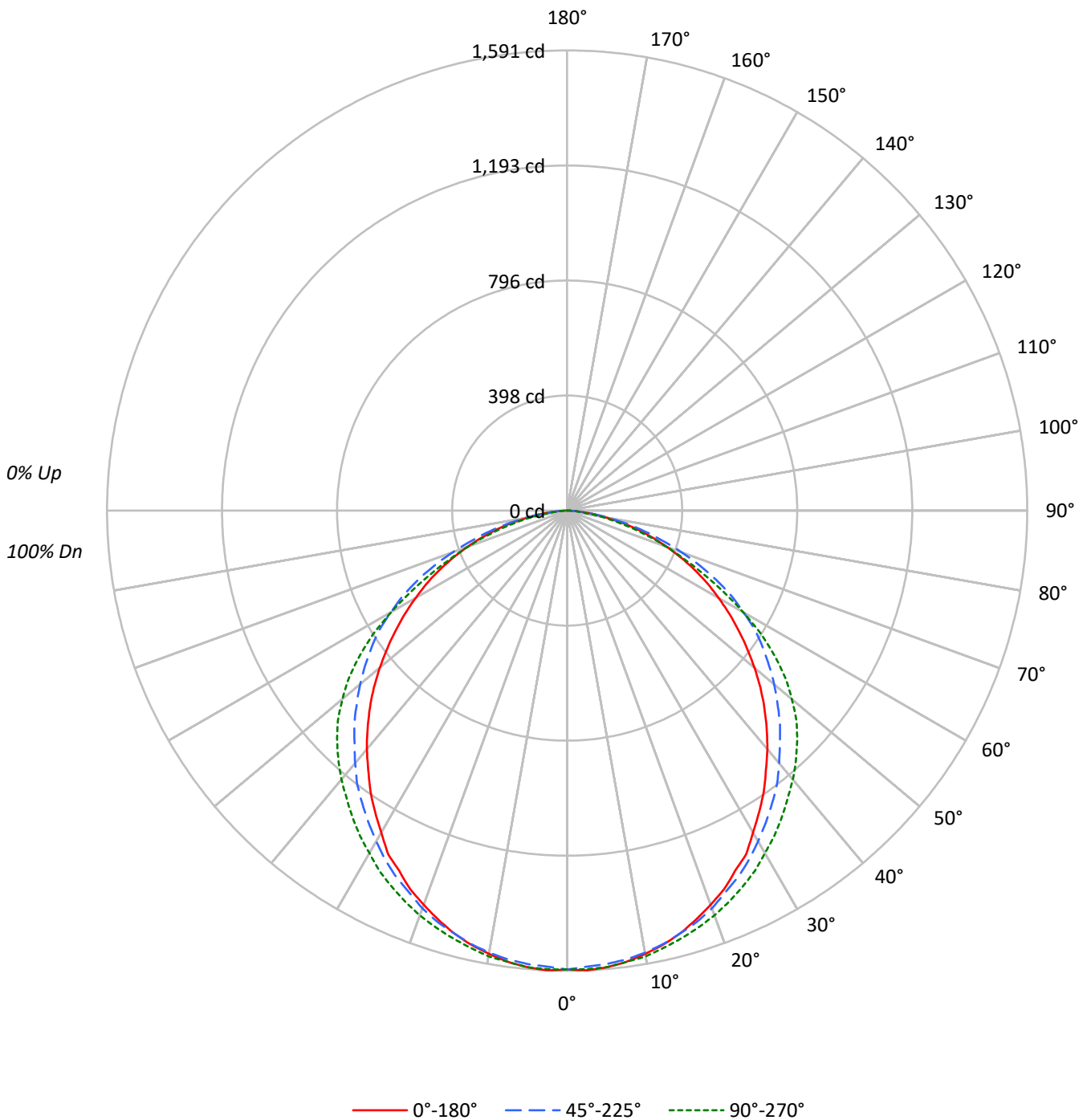
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4397.0 lumens
Efficiency: N/A
Efficacy: 107.0 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.28 / 1.37
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 41.1
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: P233034

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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 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1 | 109 | 104 | 100 | 96 | 106 | 102 | 98 | 95 | 98 | 95 | 92 | 94 | 91 | 89 | 90 | 88 | 86 | 84 |
| 2 | 99 | 91 | 84 | 79 | 97 | 89 | 83 | 78 | 86 | 80 | 76 | 82 | 78 | 74 | 79 | 76 | 73 | 70 |
| 3 | 90 | 80 | 72 | 66 | 88 | 78 | 71 | 65 | 75 | 69 | 64 | 73 | 67 | 63 | 70 | 66 | 62 | 59 |
| 4 | 83 | 71 | 62 | 56 | 81 | 70 | 61 | 55 | 67 | 60 | 54 | 65 | 59 | 54 | 63 | 57 | 53 | 51 |
| 5 | 76 | 63 | 54 | 48 | 74 | 62 | 54 | 48 | 60 | 53 | 47 | 58 | 52 | 46 | 56 | 51 | 46 | 44 |
| 6 | 70 | 57 | 48 | 42 | 68 | 56 | 48 | 42 | 54 | 47 | 41 | 53 | 46 | 41 | 51 | 45 | 40 | 38 |
| 7 | 65 | 52 | 43 | 37 | 63 | 51 | 43 | 37 | 49 | 42 | 36 | 48 | 41 | 36 | 47 | 40 | 36 | 34 |
| 8 | 61 | 47 | 39 | 33 | 59 | 46 | 38 | 33 | 45 | 38 | 33 | 44 | 37 | 32 | 43 | 37 | 32 | 30 |
| 9 | 57 | 43 | 35 | 30 | 55 | 43 | 35 | 29 | 42 | 34 | 29 | 40 | 34 | 29 | 39 | 33 | 29 | 27 |
| 10 | 53 | 40 | 32 | 27 | 52 | 39 | 32 | 27 | 38 | 31 | 27 | 37 | 31 | 26 | 37 | 31 | 26 | 25 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 4270 | 4270 | 4270 |
| 5° | 4280 | 4251 | 4280 |
| 10° | 4253 | 4241 | 4277 |
| 15° | 4215 | 4215 | 4264 |
| 20° | 4153 | 4190 | 4265 |
| 25° | 4081 | 4151 | 4261 |
| 30° | 3994 | 4102 | 4250 |
| 35° | 3895 | 4059 | 4251 |
| 40° | 3784 | 4005 | 4264 |
| 45° | 3671 | 3960 | 4281 |
| 50° | 3539 | 3911 | 4247 |
| 55° | 3397 | 3875 | 4108 |
| 60° | 3255 | 3792 | 3780 |
| 65° | 3105 | 3630 | 3312 |
| 70° | 2882 | 3308 | 2865 |
| 75° | 2615 | 2885 | 2366 |
| 80° | 2083 | 2284 | 1746 |
| 85° | 1473 | 1272 | 1003 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 150.1 | 3.4 |
| 10°-20° | 428.9 | 9.8 |
| 20°-30° | 646.7 | 14.7 |
| 30°-40° | 775.1 | 17.6 |
| 40°-50° | 804.4 | 18.3 |
| 50°-60° | 725.5 | 16.5 |
| 60°-70° | 529.2 | 12.0 |
| 70°-80° | 277.7 | 6.3 |
| 80°-90° | 59.2 | 1.3 |
| 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° | 1225.7 | 27.9 |
| 0°-40° | 2000.8 | 45.5 |
| 0°-60° | 3530.8 | 80.3 |
| 0°-90° | 4397.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4397.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1587 | 1587 | 1587 | 1587 | 1587 | |
| 5° | 1585 | 1580 | 1574 | 1585 | 1585 | 150 |
| 15° | 1513 | 1513 | 1513 | 1530 | 1530 | 426 |
| 25° | 1374 | 1381 | 1398 | 1428 | 1435 | 634 |
| 35° | 1186 | 1199 | 1236 | 1281 | 1294 | 741 |
| 45° | 965 | 984 | 1040 | 1103 | 1125 | 744 |
| 55° | 724 | 750 | 826 | 880 | 876 | 648 |
| 65° | 488 | 516 | 570 | 548 | 520 | 482 |
| 75° | 252 | 286 | 278 | 241 | 228 | 264 |
| 85° | 48 | 58 | 41 | 35 | 32 | 61 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P233034

CATALOG NUMBER: FCB-12-4-LD4-44-35-UNV-EDD1

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1586.8 | 1586.8 | 1586.8 | 1586.8 | 1586.8 |
| 2.5° | 1591.1 | 1586.8 | 1578.1 | 1586.8 | 1586.8 |
| 5° | 1584.6 | 1580.2 | 1573.7 | 1584.6 | 1584.6 |
| 7.5° | 1573.7 | 1569.4 | 1565.1 | 1575.9 | 1573.7 |
| 10° | 1556.4 | 1554.2 | 1552.1 | 1565.1 | 1565.1 |
| 12.5° | 1536.9 | 1536.9 | 1534.7 | 1549.9 | 1547.7 |
| 15° | 1513.1 | 1513.1 | 1513.1 | 1530.4 | 1530.4 |
| 17.5° | 1482.7 | 1487.0 | 1491.4 | 1510.9 | 1510.9 |
| 20° | 1450.2 | 1454.5 | 1463.2 | 1487.0 | 1489.2 |
| 22.5° | 1417.7 | 1419.8 | 1428.5 | 1456.7 | 1463.2 |
| 25° | 1374.3 | 1380.8 | 1398.2 | 1428.5 | 1435.0 |
| 27.5° | 1339.6 | 1341.8 | 1361.3 | 1396.0 | 1404.7 |
| 30° | 1285.4 | 1300.6 | 1320.1 | 1359.1 | 1367.8 |
| 32.5° | 1235.6 | 1248.6 | 1278.9 | 1320.1 | 1333.1 |
| 35° | 1185.7 | 1198.7 | 1235.6 | 1281.1 | 1294.1 |
| 37.5° | 1129.4 | 1148.9 | 1192.2 | 1237.8 | 1252.9 |
| 40° | 1077.3 | 1094.7 | 1140.2 | 1196.6 | 1213.9 |
| 42.5° | 1021.0 | 1038.3 | 1088.2 | 1151.0 | 1170.6 |
| 45° | 964.6 | 984.1 | 1040.5 | 1103.4 | 1125.0 |
| 47.5° | 906.1 | 927.8 | 986.3 | 1055.7 | 1075.2 |
| 50° | 845.4 | 869.2 | 934.3 | 1005.8 | 1014.5 |
| 52.5° | 784.7 | 810.7 | 880.1 | 942.9 | 951.6 |
| 55° | 724.0 | 750.0 | 825.9 | 880.1 | 875.7 |
| 57.5° | 665.5 | 693.7 | 771.7 | 799.9 | 795.5 |
| 60° | 604.8 | 635.1 | 704.5 | 717.5 | 702.3 |
| 62.5° | 548.4 | 576.6 | 641.6 | 630.8 | 611.3 |
| 65° | 487.7 | 515.9 | 570.1 | 548.4 | 520.2 |
| 67.5° | 427.0 | 461.7 | 496.4 | 459.6 | 437.9 |
| 70° | 366.3 | 405.4 | 420.5 | 383.7 | 364.2 |
| 72.5° | 307.8 | 349.0 | 344.7 | 307.8 | 294.8 |
| 75° | 251.5 | 286.1 | 277.5 | 240.6 | 227.6 |
| 77.5° | 190.8 | 229.8 | 210.3 | 179.9 | 169.1 |
| 80° | 134.4 | 169.1 | 147.4 | 121.4 | 112.7 |
| 82.5° | 88.9 | 112.7 | 91.0 | 71.5 | 65.0 |
| 85° | 47.7 | 58.5 | 41.2 | 34.7 | 32.5 |
| 87.5° | 19.5 | 17.3 | 15.2 | 15.2 | 13.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)