

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: P233158

Luminaire Tested: **FCB-24-4-LD4-60-35-UNV-EDD1**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P233158
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P25697)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FCB-24-4-LD4-60-35-UNV-EDD1
Description: FAILSAFE 2X4 FCB LED TROFFER
OPAL DIFFUSER, NO LENS
Light Source: (168)3500K CCT, 80 CRI LEDs
Ballast/Driver: ELECTRONIC DRIVER

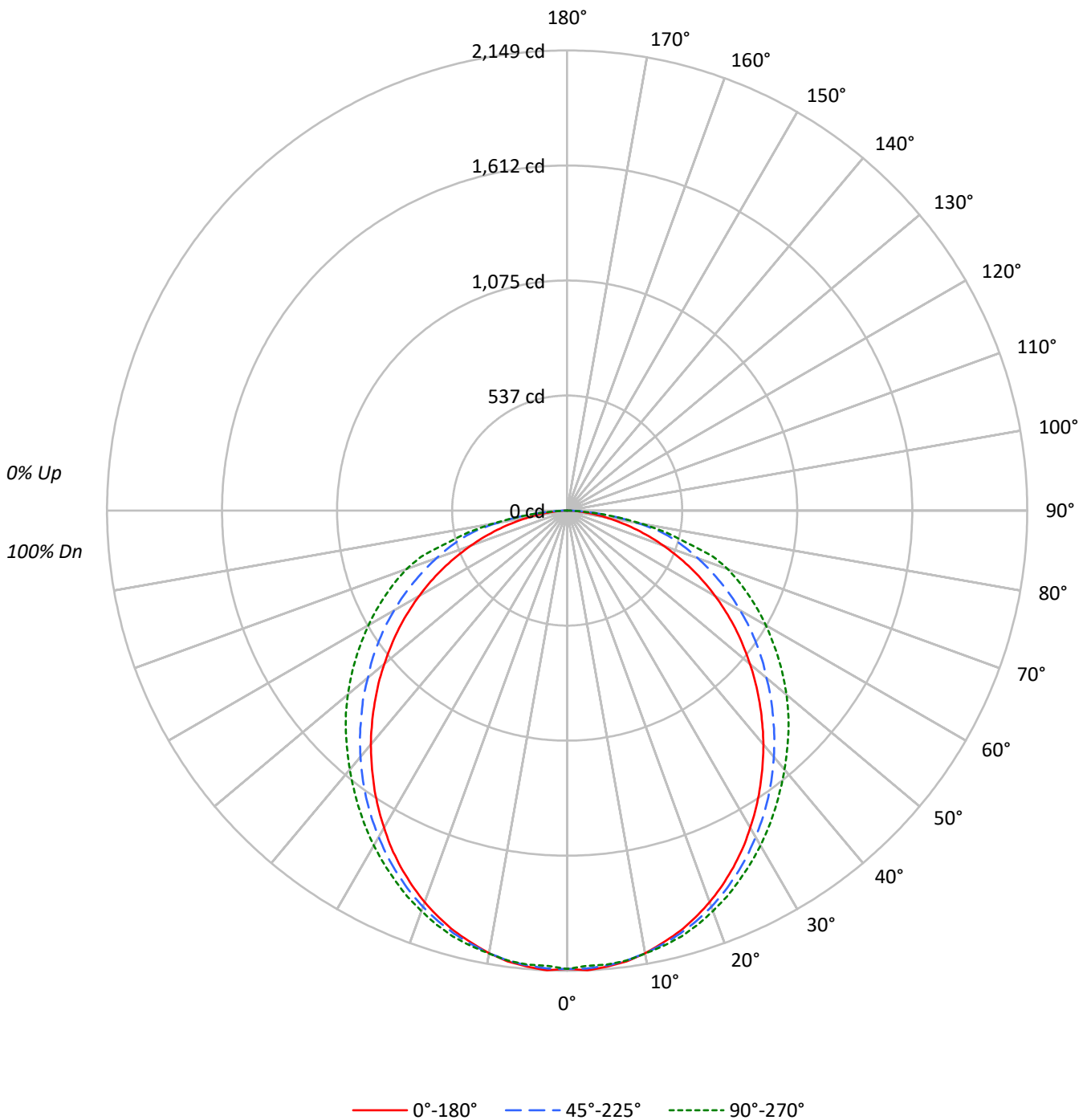
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6099.0 lumens
Efficiency: N/A
Efficacy: 116.8 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.25 / 1.35
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 52.2
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





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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 | 108 | 103 | 99 | 95 | 106 | 101 | 97 | 93 | 97 | 93 | 90 | 93 | 90 | 88 | 89 | 87 | 85 | 83 |
| 2 | 98 | 90 | 83 | 77 | 95 | 88 | 81 | 76 | 84 | 79 | 74 | 81 | 76 | 72 | 78 | 74 | 71 | 68 |
| 3 | 89 | 78 | 70 | 63 | 87 | 77 | 69 | 63 | 74 | 67 | 62 | 71 | 65 | 61 | 68 | 64 | 60 | 57 |
| 4 | 82 | 69 | 60 | 54 | 79 | 68 | 60 | 53 | 66 | 58 | 52 | 63 | 57 | 52 | 61 | 56 | 51 | 49 |
| 5 | 75 | 62 | 53 | 46 | 73 | 61 | 52 | 46 | 59 | 51 | 45 | 57 | 50 | 45 | 55 | 49 | 44 | 42 |
| 6 | 69 | 56 | 47 | 40 | 67 | 55 | 46 | 40 | 53 | 45 | 40 | 51 | 44 | 39 | 50 | 44 | 39 | 37 |
| 7 | 64 | 51 | 42 | 35 | 63 | 50 | 41 | 35 | 48 | 41 | 35 | 47 | 40 | 35 | 45 | 39 | 35 | 32 |
| 8 | 60 | 46 | 38 | 32 | 58 | 45 | 37 | 32 | 44 | 37 | 31 | 43 | 36 | 31 | 42 | 36 | 31 | 29 |
| 9 | 56 | 42 | 34 | 28 | 54 | 42 | 34 | 28 | 41 | 33 | 28 | 40 | 33 | 28 | 38 | 32 | 28 | 26 |
| 10 | 52 | 39 | 31 | 26 | 51 | 39 | 31 | 26 | 38 | 31 | 26 | 37 | 30 | 25 | 36 | 30 | 25 | 24 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2880 | 2880 | 2880 |
| 5° | 2888 | 2880 | 2874 |
| 10° | 2867 | 2867 | 2870 |
| 15° | 2833 | 2848 | 2868 |
| 20° | 2787 | 2820 | 2850 |
| 25° | 2728 | 2781 | 2827 |
| 30° | 2657 | 2735 | 2806 |
| 35° | 2583 | 2689 | 2785 |
| 40° | 2505 | 2637 | 2773 |
| 45° | 2420 | 2587 | 2782 |
| 50° | 2334 | 2544 | 2798 |
| 55° | 2248 | 2528 | 2826 |
| 60° | 2147 | 2512 | 2883 |
| 65° | 2034 | 2513 | 2978 |
| 70° | 1881 | 2555 | 3138 |
| 75° | 1683 | 2671 | 2986 |
| 80° | 1408 | 2556 | 2734 |
| 85° | 1064 | 1967 | 1870 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 202.3 | 3.3 |
| 10°-20° | 575.7 | 9.4 |
| 20°-30° | 860.6 | 14.1 |
| 30°-40° | 1020.9 | 16.7 |
| 40°-50° | 1050.8 | 17.2 |
| 50°-60° | 964.0 | 15.8 |
| 60°-70° | 779.4 | 12.8 |
| 70°-80° | 505.8 | 8.3 |
| 80°-90° | 139.5 | 2.3 |
| 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° | 1638.5 | 26.9 |
| 0°-40° | 2659.5 | 43.6 |
| 0°-60° | 4674.2 | 76.6 |
| 0°-90° | 6099.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 6099.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2140 | 2140 | 2140 | 2140 | 2140 | |
| 5° | 2138 | 2124 | 2132 | 2130 | 2128 | 203 |
| 15° | 2034 | 2026 | 2044 | 2053 | 2059 | 573 |
| 25° | 1838 | 1840 | 1873 | 1890 | 1904 | 846 |
| 35° | 1572 | 1585 | 1637 | 1673 | 1696 | 983 |
| 45° | 1272 | 1293 | 1359 | 1424 | 1462 | 981 |
| 55° | 958 | 988 | 1078 | 1165 | 1205 | 856 |
| 65° | 639 | 677 | 789 | 894 | 936 | 631 |
| 75° | 324 | 384 | 514 | 574 | 574 | 344 |
| 85° | 69 | 117 | 127 | 123 | 121 | 84 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P233158

CATALOG NUMBER: FCB-24-4-LD4-60-35-UNV-EDD1

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2140.4 | 2140.4 | 2140.4 | 2140.4 | 2140.4 |
| 2.5° | 2148.8 | 2132.1 | 2140.4 | 2138.3 | 2127.9 |
| 5° | 2138.3 | 2123.7 | 2132.1 | 2130.0 | 2127.9 |
| 7.5° | 2123.7 | 2109.1 | 2119.5 | 2117.5 | 2119.5 |
| 10° | 2098.7 | 2086.1 | 2098.7 | 2100.8 | 2100.8 |
| 12.5° | 2067.3 | 2056.9 | 2073.6 | 2077.8 | 2082.0 |
| 15° | 2033.9 | 2025.6 | 2044.4 | 2052.7 | 2059.0 |
| 17.5° | 1992.2 | 1985.9 | 2008.9 | 2019.3 | 2027.7 |
| 20° | 1946.2 | 1944.1 | 1969.2 | 1979.6 | 1990.1 |
| 22.5° | 1894.0 | 1894.0 | 1923.3 | 1935.8 | 1950.4 |
| 25° | 1837.6 | 1839.7 | 1873.1 | 1889.8 | 1904.5 |
| 27.5° | 1777.1 | 1779.2 | 1818.8 | 1839.7 | 1856.4 |
| 30° | 1710.3 | 1718.6 | 1760.4 | 1787.5 | 1806.3 |
| 32.5° | 1643.4 | 1653.9 | 1699.8 | 1731.1 | 1752.0 |
| 35° | 1572.4 | 1585.0 | 1637.2 | 1672.7 | 1695.6 |
| 37.5° | 1499.3 | 1514.0 | 1570.3 | 1610.0 | 1637.2 |
| 40° | 1426.3 | 1443.0 | 1501.4 | 1547.4 | 1578.7 |
| 42.5° | 1349.0 | 1367.8 | 1432.5 | 1486.8 | 1520.2 |
| 45° | 1271.7 | 1292.6 | 1359.4 | 1424.2 | 1461.8 |
| 47.5° | 1194.5 | 1219.5 | 1290.5 | 1361.5 | 1401.2 |
| 50° | 1115.1 | 1140.2 | 1215.3 | 1296.8 | 1336.5 |
| 52.5° | 1035.8 | 1065.0 | 1148.5 | 1232.1 | 1271.7 |
| 55° | 958.5 | 987.7 | 1077.5 | 1165.2 | 1204.9 |
| 57.5° | 879.1 | 908.4 | 1006.5 | 1098.4 | 1138.1 |
| 60° | 797.7 | 831.1 | 933.4 | 1027.4 | 1071.3 |
| 62.5° | 718.3 | 753.8 | 862.4 | 962.7 | 1004.4 |
| 65° | 639.0 | 676.6 | 789.3 | 893.8 | 935.5 |
| 67.5° | 557.6 | 601.4 | 718.3 | 824.8 | 868.7 |
| 70° | 478.2 | 526.2 | 649.4 | 755.9 | 797.7 |
| 72.5° | 400.9 | 453.1 | 580.5 | 689.1 | 714.2 |
| 75° | 323.7 | 384.2 | 513.7 | 574.3 | 574.3 |
| 77.5° | 250.6 | 317.4 | 438.5 | 461.5 | 474.0 |
| 80° | 181.7 | 254.8 | 329.9 | 357.1 | 352.9 |
| 82.5° | 121.1 | 194.2 | 236.0 | 236.0 | 229.7 |
| 85° | 68.9 | 116.9 | 127.4 | 123.2 | 121.1 |
| 87.5° | 29.2 | 43.9 | 39.7 | 31.3 | 27.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)