

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: FAIL-SAFE

Report Number: P590724

Luminaire Tested: FSR-24-2-LD4-4HI-35-UNV-81-97-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590724
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-1)
Test Lab: INNOVATION CENTER
Issue Date: 12/8/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: FSR-24-2-LD4-4HI-35-UNV-81-97-EDD
Description: 2X2 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .375 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8691.0 lumens
Efficiency: N/A
Efficacy: 100.6 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

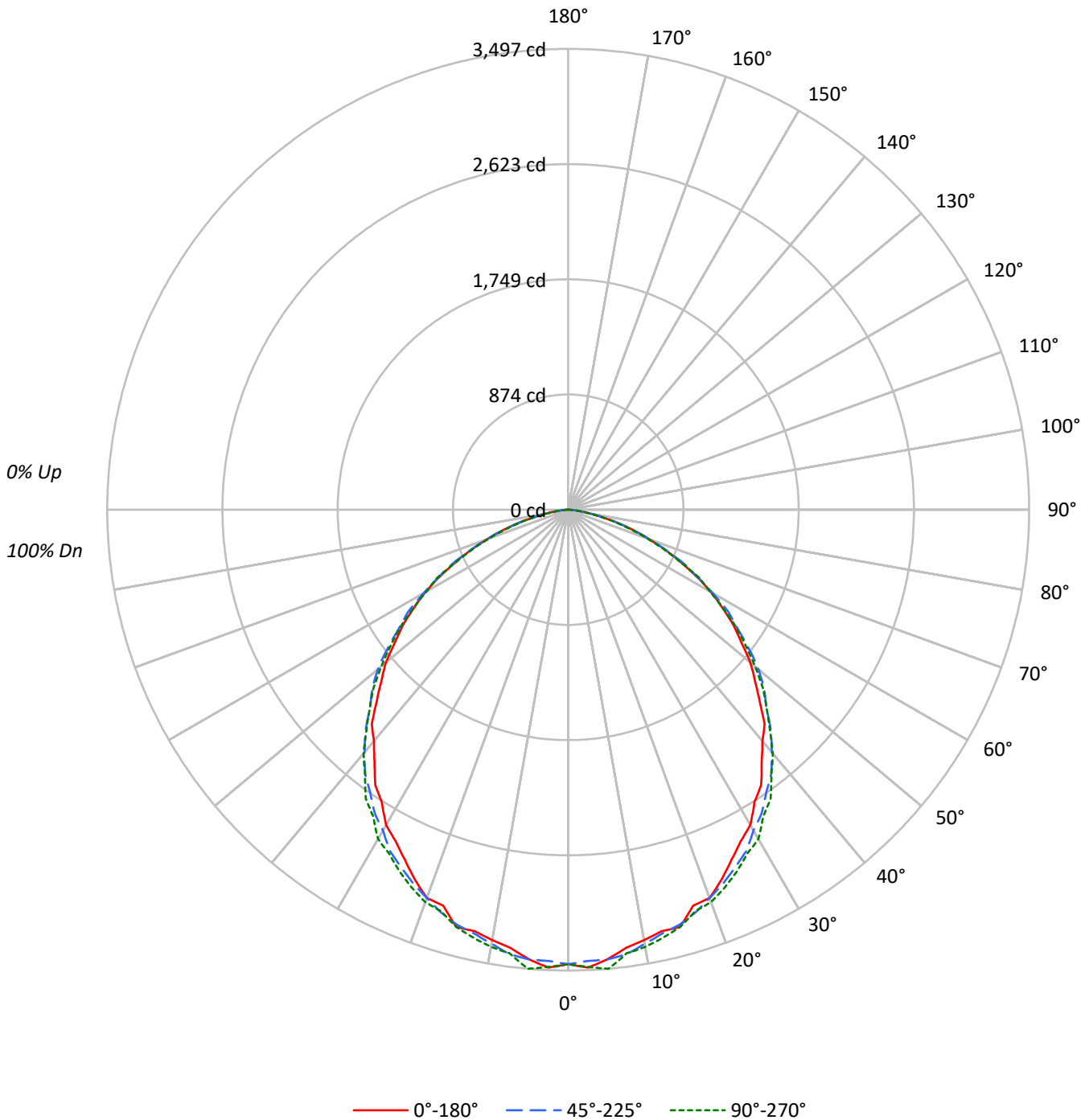
Input Watts (W): 86.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P590724

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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 | 110 | 105 | 101 | 98 | 107 | 103 | 100 | 96 | 99 | 96 | 93 | 95 | 93 | 90 | 91 | 90 | 88 | | | | | 86 | | | | |
| 2 | 100 | 93 | 86 | 81 | 98 | 91 | 85 | 80 | 87 | 82 | 78 | 84 | 80 | 76 | 81 | 78 | 75 | | | | | 73 | | | | |
| 3 | 92 | 82 | 74 | 68 | 89 | 80 | 73 | 67 | 77 | 71 | 66 | 75 | 69 | 65 | 72 | 68 | 64 | | | | | 62 | | | | |
| 4 | 84 | 73 | 64 | 58 | 82 | 71 | 64 | 58 | 69 | 62 | 57 | 67 | 61 | 56 | 65 | 59 | 55 | | | | | 53 | | | | |
| 5 | 78 | 65 | 57 | 50 | 76 | 64 | 56 | 50 | 62 | 55 | 49 | 60 | 54 | 49 | 58 | 53 | 48 | | | | | 46 | | | | |
| 6 | 72 | 59 | 50 | 44 | 70 | 58 | 50 | 44 | 56 | 49 | 43 | 54 | 48 | 43 | 53 | 47 | 43 | | | | | 41 | | | | |
| 7 | 67 | 53 | 45 | 39 | 65 | 53 | 45 | 39 | 51 | 44 | 39 | 50 | 43 | 38 | 48 | 42 | 38 | | | | | 36 | | | | |
| 8 | 62 | 49 | 41 | 35 | 61 | 48 | 40 | 35 | 47 | 40 | 34 | 46 | 39 | 34 | 44 | 39 | 34 | | | | | 32 | | | | |
| 9 | 58 | 45 | 37 | 31 | 57 | 44 | 37 | 31 | 43 | 36 | 31 | 42 | 36 | 31 | 41 | 35 | 31 | | | | | 29 | | | | |
| 10 | 54 | 41 | 34 | 29 | 53 | 41 | 33 | 28 | 40 | 33 | 28 | 39 | 33 | 28 | 38 | 32 | 28 | | | | | 26 | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 9280 | 9280 | 9280 |
| 5° | 9249 | 9252 | 9447 |
| 10° | 9061 | 9140 | 9205 |
| 15° | 9133 | 9083 | 9134 |
| 20° | 8979 | 8979 | 9074 |
| 25° | 8703 | 8893 | 8991 |
| 30° | 8583 | 8734 | 8966 |
| 35° | 8381 | 8600 | 8793 |
| 40° | 8055 | 8443 | 8480 |
| 45° | 7811 | 8089 | 8101 |
| 50° | 7555 | 7896 | 7745 |
| 55° | 7198 | 7338 | 7286 |
| 60° | 6731 | 6798 | 6676 |
| 65° | 6002 | 6155 | 5959 |
| 70° | 5150 | 5167 | 5024 |
| 75° | 4079 | 4069 | 3911 |
| 80° | 2732 | 2656 | 2552 |
| 85° | 1485 | 1470 | 1374 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 8297 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 324.4 | 3.7 |
| 10°-20° | 919.3 | 10.6 |
| 20°-30° | 1377.3 | 15.8 |
| 30°-40° | 1632.4 | 18.8 |
| 40°-50° | 1635.4 | 18.8 |
| 50°-60° | 1388.2 | 16.0 |
| 60°-70° | 935.9 | 10.8 |
| 70°-80° | 411.2 | 4.7 |
| 80°-90° | 66.8 | 0.8 |
| 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° | 2621.0 | 30.2 |
| 0°-40° | 4253.4 | 48.9 |
| 0°-60° | 7277.0 | 83.7 |
| 0°-90° | 8691.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 8691.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3448 | 3448 | 3448 | 3448 | 3448 | |
| 5° | 3424 | 3416 | 3425 | 3415 | 3497 | 323 |
| 15° | 3278 | 3240 | 3260 | 3277 | 3279 | 913 |
| 25° | 2931 | 2947 | 2995 | 3034 | 3028 | 1355 |
| 35° | 2551 | 2559 | 2618 | 2679 | 2677 | 1584 |
| 45° | 2052 | 2091 | 2126 | 2180 | 2129 | 1588 |
| 55° | 1534 | 1524 | 1564 | 1553 | 1553 | 1365 |
| 65° | 943 | 930 | 967 | 930 | 936 | 937 |
| 75° | 392 | 384 | 391 | 364 | 376 | 420 |
| 85° | 48 | 47 | 48 | 46 | 44 | 70 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590724

CATALOG NUMBER: FSR-24-2-LD4-4HI-35-UNV-81-97-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3448.4 | 3448.4 | 3448.4 | 3448.4 | 3448.4 |
| 2.5° | 3478.2 | 3451.9 | 3427.4 | 3455.9 | 3473.3 |
| 5° | 3423.9 | 3415.9 | 3425.2 | 3415.0 | 3497.3 |
| 7.5° | 3353.5 | 3384.3 | 3402.1 | 3390.9 | 3395.8 |
| 10° | 3316.1 | 3305.4 | 3345.1 | 3372.7 | 3368.7 |
| 12.5° | 3276.1 | 3292.1 | 3294.3 | 3324.1 | 3326.8 |
| 15° | 3278.3 | 3240.4 | 3260.5 | 3277.4 | 3278.7 |
| 17.5° | 3151.0 | 3191.9 | 3205.7 | 3244.5 | 3196.4 |
| 20° | 3135.4 | 3105.5 | 3135.4 | 3175.0 | 3168.8 |
| 22.5° | 3039.6 | 3006.2 | 3070.4 | 3105.5 | 3103.3 |
| 25° | 2931.0 | 2947.0 | 2995.1 | 3034.3 | 3028.1 |
| 27.5° | 2835.7 | 2854.4 | 2923.0 | 2976.9 | 2942.1 |
| 30° | 2762.3 | 2752.9 | 2810.8 | 2858.9 | 2885.6 |
| 32.5° | 2630.9 | 2664.8 | 2732.4 | 2780.1 | 2754.7 |
| 35° | 2551.2 | 2558.8 | 2618.0 | 2678.6 | 2676.8 |
| 37.5° | 2411.9 | 2447.0 | 2530.3 | 2547.2 | 2531.6 |
| 40° | 2293.0 | 2328.2 | 2403.4 | 2421.7 | 2414.1 |
| 42.5° | 2205.3 | 2211.5 | 2276.1 | 2297.0 | 2263.6 |
| 45° | 2052.5 | 2090.8 | 2125.6 | 2180.3 | 2128.7 |
| 47.5° | 1922.5 | 1940.3 | 2015.1 | 2029.8 | 2002.7 |
| 50° | 1804.6 | 1810.8 | 1886.0 | 1867.8 | 1850.0 |
| 52.5° | 1656.3 | 1682.6 | 1724.9 | 1721.3 | 1700.4 |
| 55° | 1534.3 | 1524.1 | 1564.1 | 1553.4 | 1553.0 |
| 57.5° | 1387.8 | 1405.6 | 1438.6 | 1421.6 | 1394.5 |
| 60° | 1250.7 | 1251.1 | 1263.1 | 1244.0 | 1240.4 |
| 62.5° | 1098.0 | 1103.3 | 1106.0 | 1082.4 | 1120.7 |
| 65° | 942.6 | 930.1 | 966.6 | 929.7 | 935.9 |
| 67.5° | 799.6 | 805.9 | 802.3 | 779.2 | 788.1 |
| 70° | 654.5 | 662.5 | 656.7 | 630.5 | 638.5 |
| 72.5° | 521.8 | 512.0 | 518.3 | 485.3 | 500.4 |
| 75° | 392.3 | 384.2 | 391.4 | 363.8 | 376.2 |
| 77.5° | 267.1 | 273.4 | 268.9 | 254.2 | 262.7 |
| 80° | 176.3 | 171.4 | 171.4 | 163.0 | 164.7 |
| 82.5° | 102.9 | 98.0 | 96.6 | 93.9 | 98.0 |
| 85° | 48.1 | 46.8 | 47.6 | 46.3 | 44.5 |
| 87.5° | 17.4 | 17.8 | 17.8 | 16.9 | 16.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)