

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: P590499

Luminaire Tested: FSR-24-2-LD4-3HI-50-UNV-81-96-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590499
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-LD4-3HI-50-UNV-81-96-EDD
Description: 2X2 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .250 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6945.0 lumens
Efficiency: N/A
Efficacy: 107.2 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

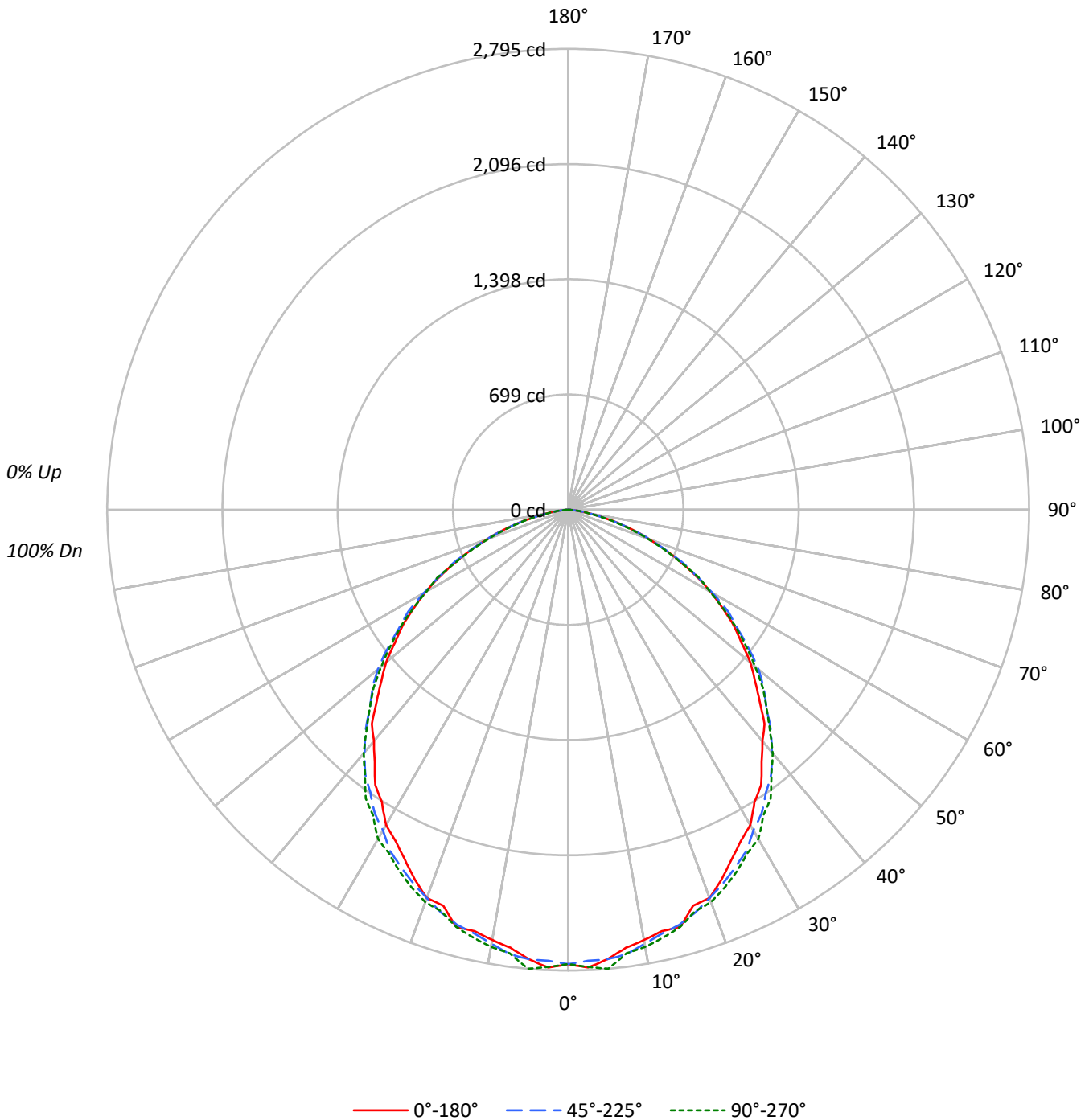
Input Watts (W): 64.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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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 | 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° | 7415 | 7415 | 7415 |
| 5° | 7391 | 7394 | 7549 |
| 10° | 7241 | 7304 | 7356 |
| 15° | 7298 | 7259 | 7299 |
| 20° | 7175 | 7175 | 7251 |
| 25° | 6954 | 7106 | 7184 |
| 30° | 6859 | 6979 | 7165 |
| 35° | 6697 | 6873 | 7027 |
| 40° | 6437 | 6747 | 6777 |
| 45° | 6242 | 6464 | 6473 |
| 50° | 6037 | 6309 | 6189 |
| 55° | 5752 | 5864 | 5822 |
| 60° | 5379 | 5433 | 5335 |
| 65° | 4796 | 4918 | 4762 |
| 70° | 4115 | 4129 | 4014 |
| 75° | 3260 | 3251 | 3125 |
| 80° | 2183 | 2123 | 2039 |
| 85° | 1186 | 1176 | 1099 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 6631 cd/sqm

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 259.2 | 3.7 |
| 10°-20° | 734.6 | 10.6 |
| 20°-30° | 1100.6 | 15.8 |
| 30°-40° | 1304.5 | 18.8 |
| 40°-50° | 1306.9 | 18.8 |
| 50°-60° | 1109.3 | 16.0 |
| 60°-70° | 747.9 | 10.8 |
| 70°-80° | 328.6 | 4.7 |
| 80°-90° | 53.4 | 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° | 2094.4 | 30.2 |
| 0°-40° | 3398.9 | 48.9 |
| 0°-60° | 5815.1 | 83.7 |
| 0°-90° | 6945.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 6945.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2756 | 2756 | 2756 | 2756 | 2756 | |
| 5° | 2736 | 2730 | 2737 | 2729 | 2795 | 258 |
| 15° | 2620 | 2589 | 2606 | 2619 | 2620 | 730 |
| 25° | 2342 | 2355 | 2393 | 2425 | 2420 | 1083 |
| 35° | 2039 | 2045 | 2092 | 2140 | 2139 | 1266 |
| 45° | 1640 | 1671 | 1698 | 1742 | 1701 | 1269 |
| 55° | 1226 | 1218 | 1250 | 1241 | 1241 | 1091 |
| 65° | 753 | 743 | 772 | 743 | 748 | 749 |
| 75° | 314 | 307 | 313 | 291 | 301 | 336 |
| 85° | 38 | 37 | 38 | 37 | 36 | 56 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590499

CATALOG NUMBER: FSR-24-2-LD4-3HI-50-UNV-81-96-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2755.6 | 2755.6 | 2755.6 | 2755.6 | 2755.6 |
| 2.5° | 2779.4 | 2758.4 | 2738.9 | 2761.6 | 2775.5 |
| 5° | 2736.0 | 2729.6 | 2737.1 | 2728.9 | 2794.7 |
| 7.5° | 2679.8 | 2704.4 | 2718.6 | 2709.7 | 2713.6 |
| 10° | 2649.9 | 2641.4 | 2673.1 | 2695.1 | 2691.9 |
| 12.5° | 2617.9 | 2630.7 | 2632.5 | 2656.3 | 2658.5 |
| 15° | 2619.7 | 2589.4 | 2605.5 | 2619.0 | 2620.0 |
| 17.5° | 2517.9 | 2550.7 | 2561.7 | 2592.6 | 2554.2 |
| 20° | 2505.5 | 2481.6 | 2505.5 | 2537.1 | 2532.2 |
| 22.5° | 2429.0 | 2402.3 | 2453.5 | 2481.6 | 2479.9 |
| 25° | 2342.2 | 2355.0 | 2393.4 | 2424.7 | 2419.7 |
| 27.5° | 2266.0 | 2281.0 | 2335.8 | 2378.8 | 2351.1 |
| 30° | 2207.3 | 2199.9 | 2246.1 | 2284.5 | 2305.9 |
| 32.5° | 2102.4 | 2129.4 | 2183.5 | 2221.6 | 2201.3 |
| 35° | 2038.7 | 2044.7 | 2092.1 | 2140.4 | 2139.0 |
| 37.5° | 1927.3 | 1955.4 | 2022.0 | 2035.5 | 2023.0 |
| 40° | 1832.3 | 1860.4 | 1920.6 | 1935.1 | 1929.1 |
| 42.5° | 1762.2 | 1767.2 | 1818.8 | 1835.5 | 1808.8 |
| 45° | 1640.2 | 1670.8 | 1698.5 | 1742.3 | 1701.0 |
| 47.5° | 1536.3 | 1550.5 | 1610.3 | 1622.1 | 1600.3 |
| 50° | 1442.0 | 1447.0 | 1507.1 | 1492.5 | 1478.3 |
| 52.5° | 1323.5 | 1344.5 | 1378.3 | 1375.5 | 1358.8 |
| 55° | 1226.1 | 1217.9 | 1249.9 | 1241.4 | 1241.0 |
| 57.5° | 1109.0 | 1123.2 | 1149.6 | 1136.0 | 1114.3 |
| 60° | 999.4 | 999.8 | 1009.4 | 994.1 | 991.2 |
| 62.5° | 877.4 | 881.6 | 883.8 | 864.9 | 895.5 |
| 65° | 753.2 | 743.2 | 772.4 | 742.9 | 747.9 |
| 67.5° | 639.0 | 644.0 | 641.1 | 622.6 | 629.7 |
| 70° | 523.0 | 529.4 | 524.8 | 503.8 | 510.2 |
| 72.5° | 417.0 | 409.2 | 414.1 | 387.8 | 399.9 |
| 75° | 313.5 | 307.0 | 312.7 | 290.7 | 300.6 |
| 77.5° | 213.5 | 218.5 | 214.9 | 203.2 | 209.9 |
| 80° | 140.9 | 137.0 | 137.0 | 130.2 | 131.6 |
| 82.5° | 82.2 | 78.3 | 77.2 | 75.1 | 78.3 |
| 85° | 38.4 | 37.4 | 38.1 | 37.0 | 35.6 |
| 87.5° | 13.9 | 14.2 | 14.2 | 13.5 | 12.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)