

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: P561346

Luminaire Tested: FSR-12-4-LD4-2HI-35-UNV-81-85-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561346
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-5)
Test Lab: INNOVATION CENTER
Issue Date: 7/20/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: FSR-12-4-LD4-2HI-35-UNV-81-85-EDD-90
Description: 1X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 90 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6348.0 lumens
Efficiency: N/A
Efficacy: 73.5 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')
CIE Type: Direct

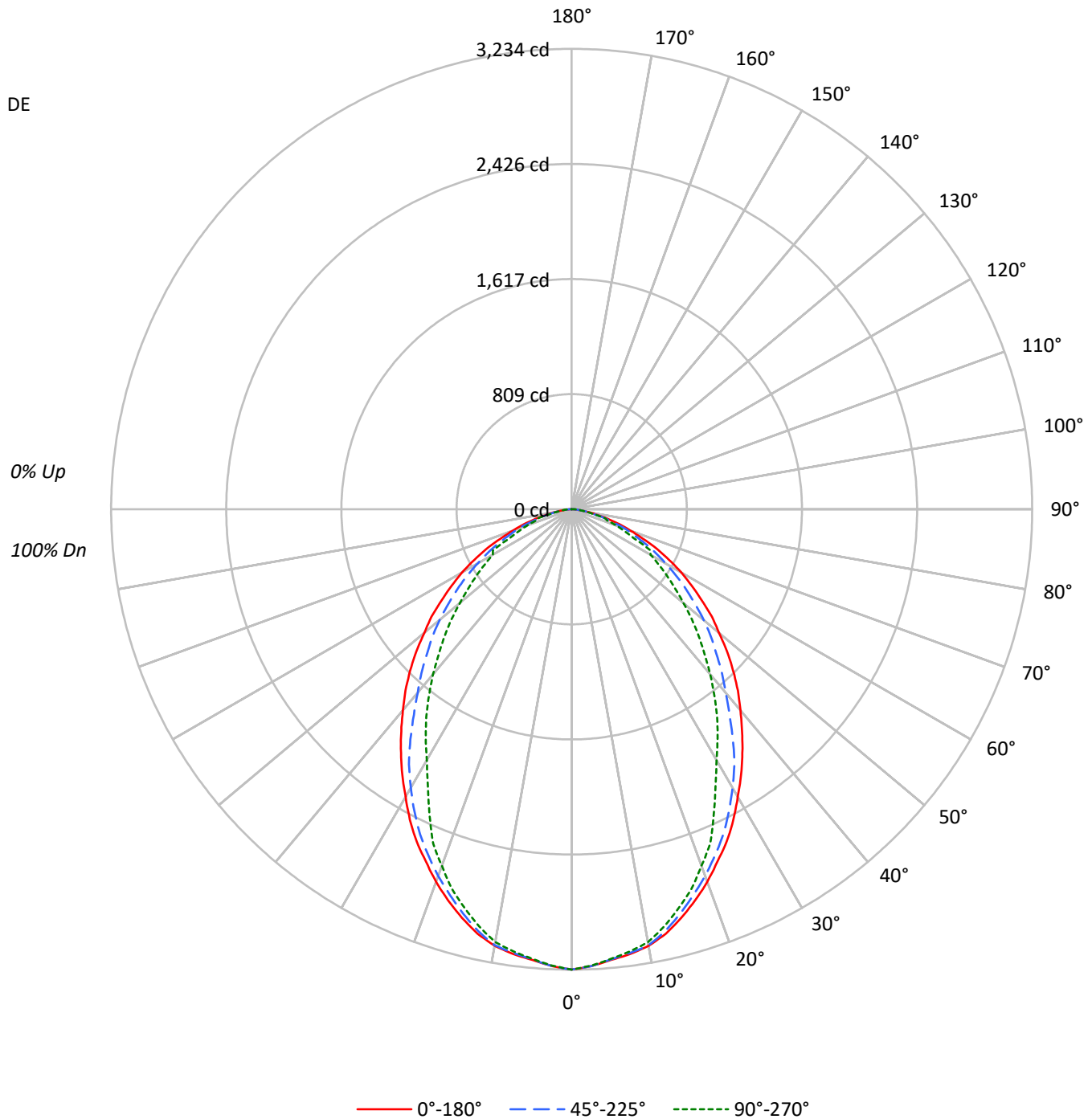
Input Watts (W): 86.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561346

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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 | 106 | 102 | 99 | 108 | 104 | 100 | 97 | 100 | 97 | 94 | 96 | 94 | 91 | 92 | 90 | 89 | 87 | | | | | 87 | | | |
| 2 | 101 | 94 | 88 | 83 | 99 | 92 | 87 | 82 | 89 | 84 | 80 | 86 | 82 | 78 | 83 | 79 | 77 | 75 | | | | | 75 | | | |
| 3 | 93 | 84 | 77 | 71 | 91 | 82 | 76 | 70 | 79 | 74 | 69 | 77 | 72 | 68 | 74 | 70 | 67 | 65 | | | | | 65 | | | |
| 4 | 86 | 75 | 67 | 61 | 84 | 74 | 66 | 61 | 72 | 65 | 60 | 69 | 64 | 59 | 67 | 62 | 58 | 56 | | | | | 56 | | | |
| 5 | 80 | 68 | 60 | 54 | 78 | 67 | 59 | 53 | 65 | 58 | 53 | 63 | 57 | 52 | 61 | 56 | 52 | 50 | | | | | 50 | | | |
| 6 | 74 | 62 | 53 | 48 | 72 | 61 | 53 | 47 | 59 | 52 | 47 | 57 | 51 | 47 | 56 | 50 | 46 | 44 | | | | | 44 | | | |
| 7 | 69 | 56 | 48 | 43 | 67 | 56 | 48 | 42 | 54 | 47 | 42 | 53 | 46 | 42 | 51 | 46 | 42 | 40 | | | | | 40 | | | |
| 8 | 65 | 52 | 44 | 38 | 63 | 51 | 44 | 38 | 50 | 43 | 38 | 49 | 42 | 38 | 48 | 42 | 38 | 36 | | | | | 36 | | | |
| 9 | 61 | 48 | 40 | 35 | 59 | 47 | 40 | 35 | 46 | 39 | 35 | 45 | 39 | 34 | 44 | 38 | 34 | 33 | | | | | 33 | | | |
| 10 | 57 | 44 | 37 | 32 | 56 | 44 | 37 | 32 | 43 | 36 | 32 | 42 | 36 | 32 | 41 | 36 | 32 | 30 | | | | | 30 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 8702 | 8702 | 8702 |
| 5° | 8583 | 8573 | 8563 |
| 10° | 8509 | 8499 | 8437 |
| 15° | 8279 | 8196 | 8082 |
| 20° | 7975 | 7847 | 7633 |
| 25° | 7648 | 7481 | 7015 |
| 30° | 7248 | 7016 | 6319 |
| 35° | 6865 | 6484 | 5845 |
| 40° | 6474 | 5909 | 5318 |
| 45° | 6103 | 5463 | 4808 |
| 50° | 5650 | 5071 | 4288 |
| 55° | 5226 | 4595 | 3841 |
| 60° | 4788 | 4104 | 3440 |
| 65° | 4213 | 3594 | 3047 |
| 70° | 3471 | 3147 | 2589 |
| 75° | 2759 | 2410 | 2527 |
| 80° | 1853 | 1737 | 1623 |
| 85° | 1155 | 1386 | 1615 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 6103 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 301.0 | 4.7 |
| 10°-20° | 826.1 | 13.0 |
| 20°-30° | 1143.7 | 18.0 |
| 30°-40° | 1219.5 | 19.2 |
| 40°-50° | 1112.5 | 17.5 |
| 50°-60° | 871.6 | 13.7 |
| 60°-70° | 568.0 | 8.9 |
| 70°-80° | 251.7 | 4.0 |
| 80°-90° | 54.0 | 0.9 |
| 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° | 2270.7 | 35.8 |
| 0°-40° | 3490.2 | 55.0 |
| 0°-60° | 5474.3 | 86.2 |
| 0°-90° | 6348.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 6348.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3234 | 3234 | 3234 | 3234 | 3234 | |
| 5° | 3178 | 3174 | 3174 | 3170 | 3170 | 302 |
| 15° | 2972 | 2972 | 2942 | 2912 | 2901 | 835 |
| 25° | 2576 | 2561 | 2520 | 2430 | 2363 | 1182 |
| 35° | 2090 | 2075 | 1974 | 1824 | 1779 | 1306 |
| 45° | 1604 | 1570 | 1436 | 1316 | 1264 | 1235 |
| 55° | 1114 | 1080 | 979 | 864 | 819 | 999 |
| 65° | 662 | 624 | 564 | 576 | 478 | 652 |
| 75° | 265 | 247 | 232 | 221 | 243 | 284 |
| 85° | 37 | 41 | 45 | 49 | 52 | 52 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561346

CATALOG NUMBER: FSR-12-4-LD4-2HI-35-UNV-81-85-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3233.6 | 3233.6 | 3233.6 | 3233.6 | 3233.6 |
| 2.5° | 3211.2 | 3211.2 | 3211.2 | 3207.4 | 3207.4 |
| 5° | 3177.5 | 3173.8 | 3173.8 | 3170.0 | 3170.0 |
| 7.5° | 3151.3 | 3147.6 | 3143.9 | 3140.1 | 3132.7 |
| 10° | 3114.0 | 3114.0 | 3110.2 | 3091.5 | 3087.8 |
| 12.5° | 3054.2 | 3050.4 | 3035.5 | 3009.3 | 3001.8 |
| 15° | 2971.9 | 2971.9 | 2942.0 | 2912.1 | 2900.9 |
| 17.5° | 2882.2 | 2878.5 | 2841.1 | 2811.2 | 2796.2 |
| 20° | 2785.0 | 2777.5 | 2740.1 | 2691.5 | 2665.4 |
| 22.5° | 2676.6 | 2676.6 | 2631.7 | 2568.2 | 2542.0 |
| 25° | 2575.7 | 2560.7 | 2519.6 | 2429.9 | 2362.6 |
| 27.5° | 2459.8 | 2437.3 | 2392.5 | 2265.4 | 2186.9 |
| 30° | 2332.7 | 2321.5 | 2257.9 | 2093.4 | 2033.6 |
| 32.5° | 2213.0 | 2194.4 | 2127.1 | 1955.1 | 1906.5 |
| 35° | 2089.7 | 2074.7 | 1973.8 | 1824.3 | 1779.4 |
| 37.5° | 1966.3 | 1947.6 | 1820.5 | 1700.9 | 1644.8 |
| 40° | 1843.0 | 1820.5 | 1682.2 | 1573.8 | 1514.0 |
| 42.5° | 1727.1 | 1697.2 | 1562.6 | 1446.7 | 1379.4 |
| 45° | 1603.7 | 1570.1 | 1435.5 | 1315.9 | 1263.5 |
| 47.5° | 1480.3 | 1450.4 | 1327.1 | 1203.7 | 1143.9 |
| 50° | 1349.5 | 1323.3 | 1211.2 | 1087.8 | 1024.3 |
| 52.5° | 1241.1 | 1200.0 | 1091.6 | 968.2 | 915.9 |
| 55° | 1114.0 | 1080.4 | 979.4 | 863.5 | 818.7 |
| 57.5° | 998.1 | 964.5 | 871.0 | 762.6 | 725.2 |
| 60° | 889.7 | 841.1 | 762.6 | 669.1 | 639.2 |
| 62.5° | 770.1 | 732.7 | 665.4 | 586.9 | 624.3 |
| 65° | 661.7 | 624.3 | 564.5 | 575.7 | 478.5 |
| 67.5° | 542.0 | 523.4 | 471.0 | 418.7 | 403.7 |
| 70° | 441.1 | 418.7 | 400.0 | 343.9 | 329.0 |
| 72.5° | 351.4 | 329.0 | 302.8 | 272.9 | 261.7 |
| 75° | 265.4 | 246.7 | 231.8 | 220.6 | 243.0 |
| 77.5° | 183.2 | 175.7 | 164.5 | 153.3 | 149.5 |
| 80° | 119.6 | 115.9 | 112.1 | 108.4 | 104.7 |
| 82.5° | 71.0 | 71.0 | 71.0 | 71.0 | 71.0 |
| 85° | 37.4 | 41.1 | 44.9 | 48.6 | 52.3 |
| 87.5° | 22.4 | 22.4 | 26.2 | 29.9 | 33.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)