

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: P560274

Luminaire Tested: FSR-12-2-LD4-2HI-40-UNV-82-85-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P560274
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-12-2-LD4-2HI-40-UNV-82-85-EDD-90
Description: 1X2 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 90 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2895.0 lumens
Efficiency: N/A
Efficacy: 67.0 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')
CIE Type: Direct

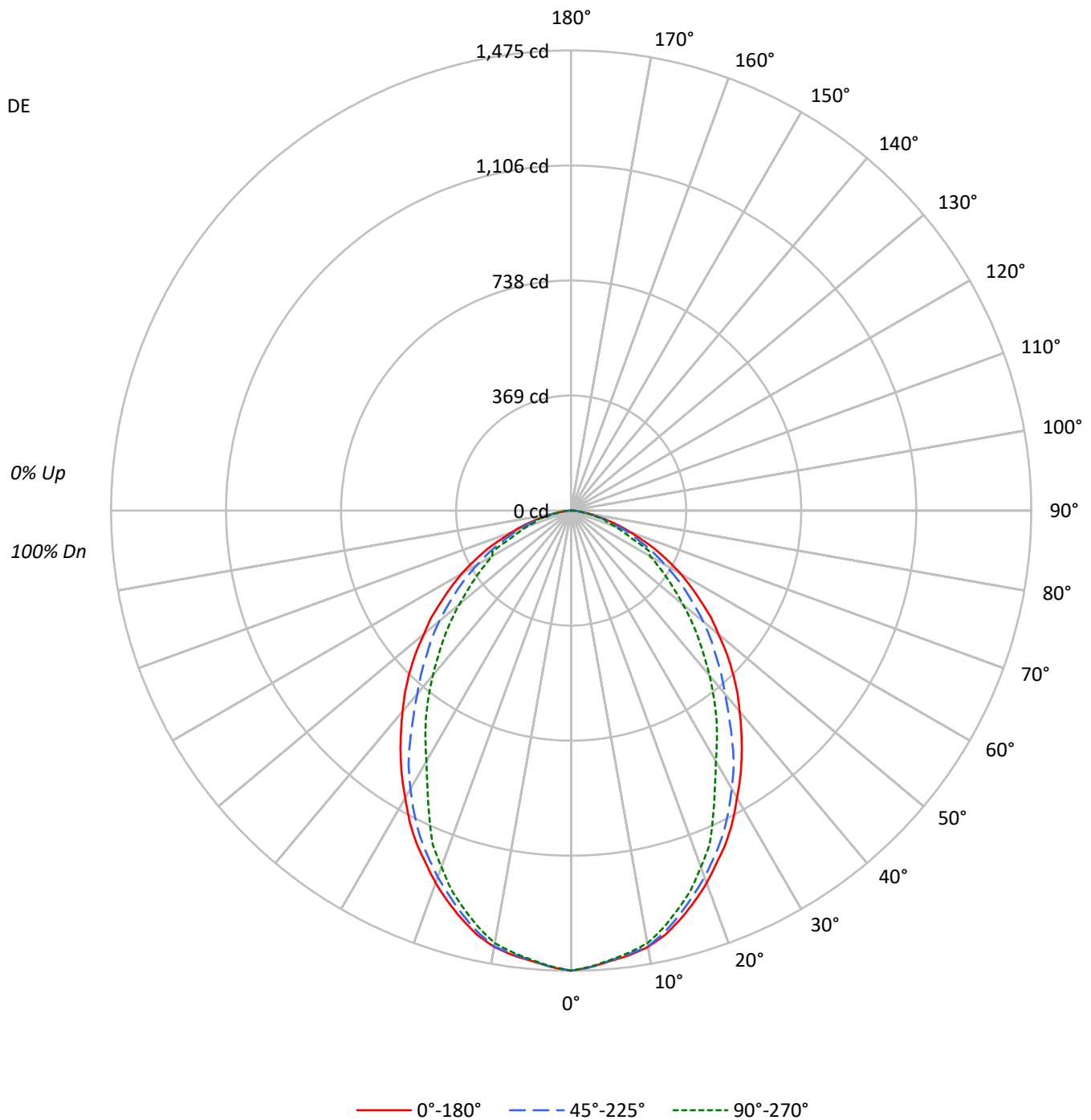
Input Watts (W): 43.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P560274

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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 | 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° | 7937 | 7937 | 7937 |
| 5° | 7829 | 7820 | 7810 |
| 10° | 7761 | 7752 | 7696 |
| 15° | 7551 | 7476 | 7371 |
| 20° | 7274 | 7157 | 6962 |
| 25° | 6975 | 6824 | 6398 |
| 30° | 6611 | 6399 | 5763 |
| 35° | 6261 | 5914 | 5332 |
| 40° | 5905 | 5390 | 4851 |
| 45° | 5567 | 4983 | 4386 |
| 50° | 5153 | 4625 | 3911 |
| 55° | 4767 | 4191 | 3504 |
| 60° | 4367 | 3744 | 3138 |
| 65° | 3843 | 3278 | 2779 |
| 70° | 3166 | 2870 | 2360 |
| 75° | 2516 | 2198 | 2304 |
| 80° | 1692 | 1584 | 1478 |
| 85° | 1050 | 1266 | 1476 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5567 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 137.3 | 4.7 |
| 10°-20° | 376.7 | 13.0 |
| 20°-30° | 521.6 | 18.0 |
| 30°-40° | 556.1 | 19.2 |
| 40°-50° | 507.4 | 17.5 |
| 50°-60° | 397.5 | 13.7 |
| 60°-70° | 259.0 | 8.9 |
| 70°-80° | 114.8 | 4.0 |
| 80°-90° | 24.6 | 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° | 1035.6 | 35.8 |
| 0°-40° | 1591.7 | 55.0 |
| 0°-60° | 2496.5 | 86.2 |
| 0°-90° | 2895.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2895.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1475 | 1475 | 1475 | 1475 | 1475 | |
| 5° | 1449 | 1447 | 1447 | 1446 | 1446 | 138 |
| 15° | 1355 | 1355 | 1342 | 1328 | 1323 | 381 |
| 25° | 1175 | 1168 | 1149 | 1108 | 1077 | 539 |
| 35° | 953 | 946 | 900 | 832 | 812 | 596 |
| 45° | 731 | 716 | 655 | 600 | 576 | 563 |
| 55° | 508 | 493 | 447 | 394 | 373 | 456 |
| 65° | 302 | 285 | 257 | 262 | 218 | 297 |
| 75° | 121 | 112 | 106 | 101 | 111 | 130 |
| 85° | 17 | 19 | 20 | 22 | 24 | 24 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P560274

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1474.7 | 1474.7 | 1474.7 | 1474.7 | 1474.7 |
| 2.5° | 1464.4 | 1464.4 | 1464.4 | 1462.7 | 1462.7 |
| 5° | 1449.1 | 1447.4 | 1447.4 | 1445.7 | 1445.7 |
| 7.5° | 1437.2 | 1435.5 | 1433.8 | 1432.1 | 1428.6 |
| 10° | 1420.1 | 1420.1 | 1418.4 | 1409.9 | 1408.2 |
| 12.5° | 1392.8 | 1391.1 | 1384.3 | 1372.4 | 1369.0 |
| 15° | 1355.3 | 1355.3 | 1341.7 | 1328.1 | 1322.9 |
| 17.5° | 1314.4 | 1312.7 | 1295.7 | 1282.0 | 1275.2 |
| 20° | 1270.1 | 1266.7 | 1249.6 | 1227.5 | 1215.5 |
| 22.5° | 1220.7 | 1220.7 | 1200.2 | 1171.2 | 1159.3 |
| 25° | 1174.6 | 1167.8 | 1149.1 | 1108.1 | 1077.4 |
| 27.5° | 1121.8 | 1111.5 | 1091.1 | 1033.1 | 997.3 |
| 30° | 1063.8 | 1058.7 | 1029.7 | 954.7 | 927.4 |
| 32.5° | 1009.3 | 1000.7 | 970.0 | 891.6 | 869.5 |
| 35° | 953.0 | 946.2 | 900.1 | 832.0 | 811.5 |
| 37.5° | 896.7 | 888.2 | 830.3 | 775.7 | 750.1 |
| 40° | 840.5 | 830.3 | 767.2 | 717.7 | 690.5 |
| 42.5° | 787.6 | 774.0 | 712.6 | 659.8 | 629.1 |
| 45° | 731.4 | 716.0 | 654.7 | 600.1 | 576.2 |
| 47.5° | 675.1 | 661.5 | 605.2 | 549.0 | 521.7 |
| 50° | 615.4 | 603.5 | 552.4 | 496.1 | 467.1 |
| 52.5° | 566.0 | 547.2 | 497.8 | 441.5 | 417.7 |
| 55° | 508.0 | 492.7 | 446.7 | 393.8 | 373.4 |
| 57.5° | 455.2 | 439.8 | 397.2 | 347.8 | 330.7 |
| 60° | 405.7 | 383.6 | 347.8 | 305.2 | 291.5 |
| 62.5° | 351.2 | 334.1 | 303.5 | 267.7 | 284.7 |
| 65° | 301.8 | 284.7 | 257.4 | 262.5 | 218.2 |
| 67.5° | 247.2 | 238.7 | 214.8 | 190.9 | 184.1 |
| 70° | 201.2 | 190.9 | 182.4 | 156.8 | 150.0 |
| 72.5° | 160.3 | 150.0 | 138.1 | 124.5 | 119.3 |
| 75° | 121.0 | 112.5 | 105.7 | 100.6 | 110.8 |
| 77.5° | 83.5 | 80.1 | 75.0 | 69.9 | 68.2 |
| 80° | 54.6 | 52.8 | 51.1 | 49.4 | 47.7 |
| 82.5° | 32.4 | 32.4 | 32.4 | 32.4 | 32.4 |
| 85° | 17.0 | 18.8 | 20.5 | 22.2 | 23.9 |
| 87.5° | 10.2 | 10.2 | 11.9 | 13.6 | 15.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)