

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: P589949

Luminaire Tested: FSR-24-2-LD4-1LO-35-UNV-81-84-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P589949
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-LD4-1LO-35-UNV-81-84-EDD
Description: 2X2 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1384.0 lumens
Efficiency: N/A
Efficacy: 118.3 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

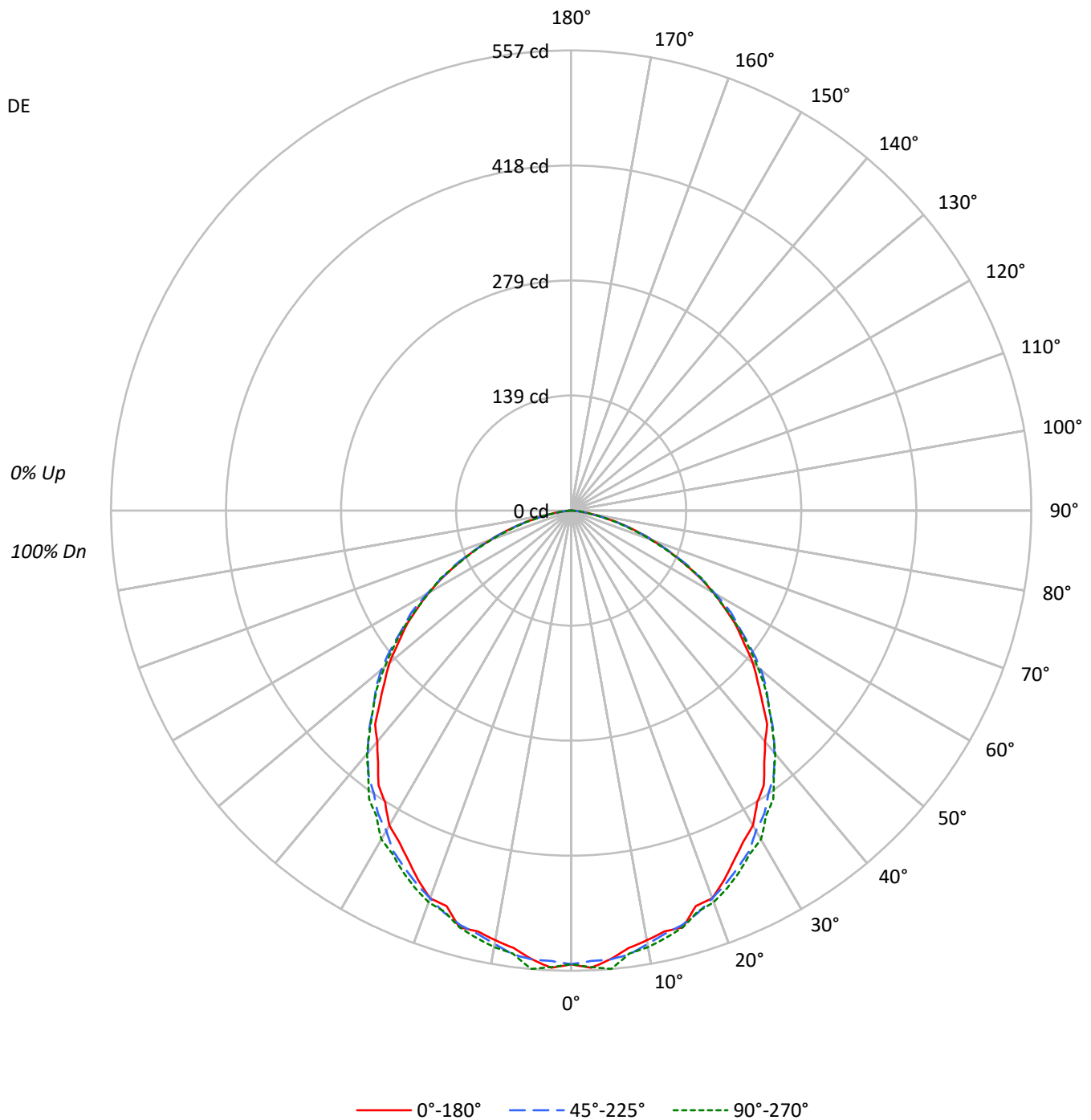
Input Watts (W): 11.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P589949

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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° | 1478 | 1478 | 1478 |
| 5° | 1473 | 1473 | 1504 |
| 10° | 1443 | 1456 | 1466 |
| 15° | 1455 | 1446 | 1455 |
| 20° | 1430 | 1430 | 1445 |
| 25° | 1386 | 1416 | 1432 |
| 30° | 1367 | 1391 | 1428 |
| 35° | 1335 | 1370 | 1400 |
| 40° | 1283 | 1344 | 1350 |
| 45° | 1244 | 1288 | 1290 |
| 50° | 1203 | 1257 | 1233 |
| 55° | 1146 | 1169 | 1160 |
| 60° | 1072 | 1082 | 1063 |
| 65° | 956 | 980 | 949 |
| 70° | 820 | 823 | 800 |
| 75° | 650 | 648 | 623 |
| 80° | 435 | 423 | 406 |
| 85° | 238 | 235 | 219 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 1321 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 51.7 | 3.7 |
| 10°-20° | 146.4 | 10.6 |
| 20°-30° | 219.3 | 15.8 |
| 30°-40° | 259.9 | 18.8 |
| 40°-50° | 260.4 | 18.8 |
| 50°-60° | 221.1 | 16.0 |
| 60°-70° | 149.0 | 10.8 |
| 70°-80° | 65.5 | 4.7 |
| 80°-90° | 10.6 | 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° | 417.4 | 30.2 |
| 0°-40° | 677.3 | 48.9 |
| 0°-60° | 1158.8 | 83.7 |
| 0°-90° | 1384.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1384.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 549 | 549 | 549 | 549 | 549 | |
| 5° | 545 | 544 | 545 | 544 | 557 | 51 |
| 15° | 522 | 516 | 519 | 522 | 522 | 145 |
| 25° | 467 | 469 | 477 | 483 | 482 | 216 |
| 35° | 406 | 408 | 417 | 426 | 426 | 252 |
| 45° | 327 | 333 | 338 | 347 | 339 | 253 |
| 55° | 244 | 243 | 249 | 247 | 247 | 217 |
| 65° | 150 | 148 | 154 | 148 | 149 | 149 |
| 75° | 62 | 61 | 62 | 58 | 60 | 67 |
| 85° | 8 | 7 | 8 | 7 | 7 | 11 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589949

CATALOG NUMBER: FSR-24-2-LD4-1LO-35-UNV-81-84-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 549.1 | 549.1 | 549.1 | 549.1 | 549.1 |
| 2.5° | 553.9 | 549.7 | 545.8 | 550.3 | 553.1 |
| 5° | 545.2 | 544.0 | 545.4 | 543.8 | 556.9 |
| 7.5° | 534.0 | 538.9 | 541.8 | 540.0 | 540.8 |
| 10° | 528.1 | 526.4 | 532.7 | 537.1 | 536.4 |
| 12.5° | 521.7 | 524.2 | 524.6 | 529.4 | 529.8 |
| 15° | 522.1 | 516.0 | 519.2 | 521.9 | 522.1 |
| 17.5° | 501.8 | 508.3 | 510.5 | 516.7 | 509.0 |
| 20° | 499.3 | 494.5 | 499.3 | 505.6 | 504.6 |
| 22.5° | 484.0 | 478.7 | 488.9 | 494.5 | 494.2 |
| 25° | 466.7 | 469.3 | 477.0 | 483.2 | 482.2 |
| 27.5° | 451.6 | 454.6 | 465.5 | 474.1 | 468.5 |
| 30° | 439.9 | 438.4 | 447.6 | 455.3 | 459.5 |
| 32.5° | 419.0 | 424.3 | 435.1 | 442.7 | 438.7 |
| 35° | 406.3 | 407.5 | 416.9 | 426.5 | 426.3 |
| 37.5° | 384.1 | 389.7 | 402.9 | 405.6 | 403.1 |
| 40° | 365.1 | 370.7 | 382.7 | 385.6 | 384.4 |
| 42.5° | 351.2 | 352.2 | 362.5 | 365.8 | 360.5 |
| 45° | 326.9 | 333.0 | 338.5 | 347.2 | 339.0 |
| 47.5° | 306.2 | 309.0 | 320.9 | 323.2 | 318.9 |
| 50° | 287.4 | 288.4 | 300.3 | 297.4 | 294.6 |
| 52.5° | 263.8 | 267.9 | 274.7 | 274.1 | 270.8 |
| 55° | 244.3 | 242.7 | 249.1 | 247.4 | 247.3 |
| 57.5° | 221.0 | 223.8 | 229.1 | 226.4 | 222.1 |
| 60° | 199.2 | 199.2 | 201.1 | 198.1 | 197.5 |
| 62.5° | 174.8 | 175.7 | 176.1 | 172.4 | 178.5 |
| 65° | 150.1 | 148.1 | 153.9 | 148.0 | 149.0 |
| 67.5° | 127.3 | 128.3 | 127.8 | 124.1 | 125.5 |
| 70° | 104.2 | 105.5 | 104.6 | 100.4 | 101.7 |
| 72.5° | 83.1 | 81.5 | 82.5 | 77.3 | 79.7 |
| 75° | 62.5 | 61.2 | 62.3 | 57.9 | 59.9 |
| 77.5° | 42.5 | 43.5 | 42.8 | 40.5 | 41.8 |
| 80° | 28.1 | 27.3 | 27.3 | 26.0 | 26.2 |
| 82.5° | 16.4 | 15.6 | 15.4 | 15.0 | 15.6 |
| 85° | 7.7 | 7.4 | 7.6 | 7.4 | 7.1 |
| 87.5° | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)