

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: P560661

Luminaire Tested: FSR-12-2-LD4-2STD-40-UNV-82-86-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P560661
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-LD4-2STD-40-UNV-82-86-EDD
Description: 1X2 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2777.0 lumens
Efficiency: N/A
Efficacy: 83.4 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

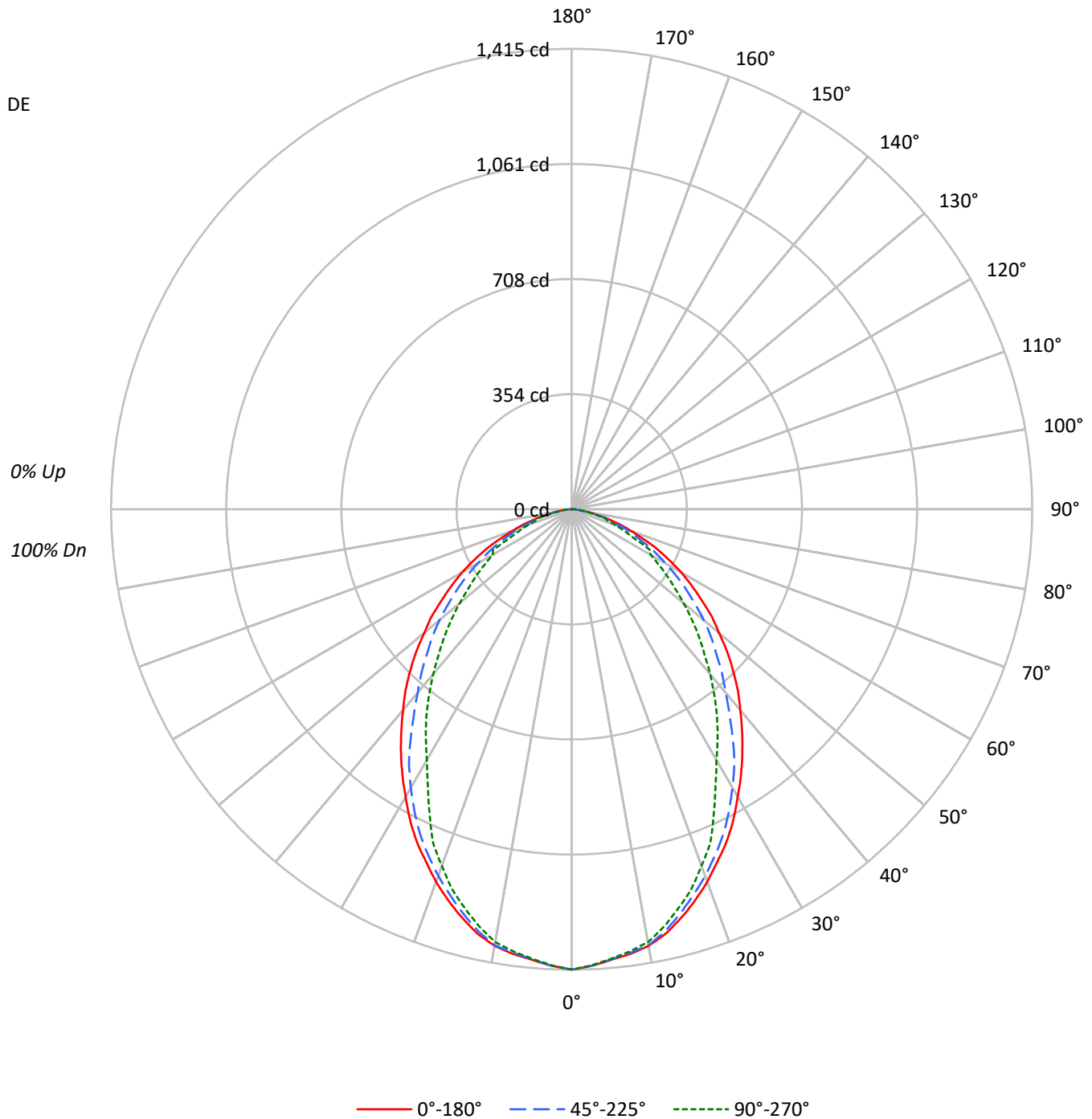
Input Watts (W): 33.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 7613 | 7613 | 7613 |
| 5° | 7509 | 7501 | 7492 |
| 10° | 7444 | 7436 | 7382 |
| 15° | 7244 | 7171 | 7071 |
| 20° | 6978 | 6865 | 6678 |
| 25° | 6691 | 6545 | 6137 |
| 30° | 6342 | 6138 | 5528 |
| 35° | 6006 | 5673 | 5114 |
| 40° | 5664 | 5170 | 4653 |
| 45° | 5340 | 4780 | 4207 |
| 50° | 4943 | 4436 | 3752 |
| 55° | 4572 | 4021 | 3360 |
| 60° | 4189 | 3591 | 3010 |
| 65° | 3687 | 3144 | 2665 |
| 70° | 3037 | 2754 | 2264 |
| 75° | 2414 | 2109 | 2210 |
| 80° | 1621 | 1522 | 1420 |
| 85° | 1013 | 1210 | 1414 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5340 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 131.7 | 4.7 |
| 10°-20° | 361.4 | 13.0 |
| 20°-30° | 500.3 | 18.0 |
| 30°-40° | 533.5 | 19.2 |
| 40°-50° | 486.7 | 17.5 |
| 50°-60° | 381.3 | 13.7 |
| 60°-70° | 248.5 | 8.9 |
| 70°-80° | 110.1 | 4.0 |
| 80°-90° | 23.6 | 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° | 993.4 | 35.8 |
| 0°-40° | 1526.8 | 55.0 |
| 0°-60° | 2394.8 | 86.2 |
| 0°-90° | 2777.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2777.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1415 | 1415 | 1415 | 1415 | 1415 | |
| 5° | 1390 | 1388 | 1388 | 1387 | 1387 | 132 |
| 15° | 1300 | 1300 | 1287 | 1274 | 1269 | 365 |
| 25° | 1127 | 1120 | 1102 | 1063 | 1034 | 517 |
| 35° | 914 | 908 | 864 | 798 | 778 | 572 |
| 45° | 702 | 687 | 628 | 576 | 553 | 540 |
| 55° | 487 | 473 | 428 | 378 | 358 | 437 |
| 65° | 290 | 273 | 247 | 252 | 209 | 285 |
| 75° | 116 | 108 | 101 | 96 | 106 | 124 |
| 85° | 16 | 18 | 20 | 21 | 23 | 23 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P560661

CATALOG NUMBER: FSR-12-2-LD4-2STD-40-UNV-82-86-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1414.6 | 1414.6 | 1414.6 | 1414.6 | 1414.6 |
| 2.5° | 1404.8 | 1404.8 | 1404.8 | 1403.1 | 1403.1 |
| 5° | 1390.0 | 1388.4 | 1388.4 | 1386.8 | 1386.8 |
| 7.5° | 1378.6 | 1377.0 | 1375.3 | 1373.7 | 1370.4 |
| 10° | 1362.2 | 1362.2 | 1360.6 | 1352.4 | 1350.8 |
| 12.5° | 1336.1 | 1334.4 | 1327.9 | 1316.4 | 1313.2 |
| 15° | 1300.1 | 1300.1 | 1287.0 | 1273.9 | 1269.0 |
| 17.5° | 1260.8 | 1259.2 | 1242.9 | 1229.8 | 1223.2 |
| 20° | 1218.3 | 1215.1 | 1198.7 | 1177.4 | 1166.0 |
| 22.5° | 1170.9 | 1170.9 | 1151.3 | 1123.5 | 1112.0 |
| 25° | 1126.7 | 1120.2 | 1102.2 | 1063.0 | 1033.5 |
| 27.5° | 1076.1 | 1066.2 | 1046.6 | 991.0 | 956.7 |
| 30° | 1020.5 | 1015.5 | 987.7 | 915.8 | 889.6 |
| 32.5° | 968.1 | 959.9 | 930.5 | 855.3 | 834.0 |
| 35° | 914.2 | 907.6 | 863.5 | 798.0 | 778.4 |
| 37.5° | 860.2 | 852.0 | 796.4 | 744.1 | 719.5 |
| 40° | 806.2 | 796.4 | 735.9 | 688.5 | 662.3 |
| 42.5° | 755.5 | 742.4 | 683.6 | 632.9 | 603.4 |
| 45° | 701.6 | 686.8 | 628.0 | 575.6 | 552.7 |
| 47.5° | 647.6 | 634.5 | 580.5 | 526.6 | 500.4 |
| 50° | 590.4 | 578.9 | 529.8 | 475.9 | 448.1 |
| 52.5° | 542.9 | 524.9 | 477.5 | 423.6 | 400.7 |
| 55° | 487.3 | 472.6 | 428.5 | 377.8 | 358.1 |
| 57.5° | 436.6 | 421.9 | 381.0 | 333.6 | 317.3 |
| 60° | 389.2 | 368.0 | 333.6 | 292.7 | 279.6 |
| 62.5° | 336.9 | 320.5 | 291.1 | 256.7 | 273.1 |
| 65° | 289.5 | 273.1 | 246.9 | 251.8 | 209.3 |
| 67.5° | 237.1 | 228.9 | 206.1 | 183.2 | 176.6 |
| 70° | 193.0 | 183.2 | 175.0 | 150.5 | 143.9 |
| 72.5° | 153.7 | 143.9 | 132.5 | 119.4 | 114.5 |
| 75° | 116.1 | 107.9 | 101.4 | 96.5 | 106.3 |
| 77.5° | 80.1 | 76.9 | 72.0 | 67.0 | 65.4 |
| 80° | 52.3 | 50.7 | 49.1 | 47.4 | 45.8 |
| 82.5° | 31.1 | 31.1 | 31.1 | 31.1 | 31.1 |
| 85° | 16.4 | 18.0 | 19.6 | 21.3 | 22.9 |
| 87.5° | 9.8 | 9.8 | 11.4 | 13.1 | 14.7 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)