

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: P559149

Luminaire Tested: FSR-12-1-LD4-2HI-40-UNV-93-96-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P559149
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-12-1-LD4-2HI-40-UNV-93-96-EDD
Description: 1X1 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR TEMPER
GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1936.0 lumens
Efficiency: N/A
Efficacy: 89.6 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
CIE Type: Direct

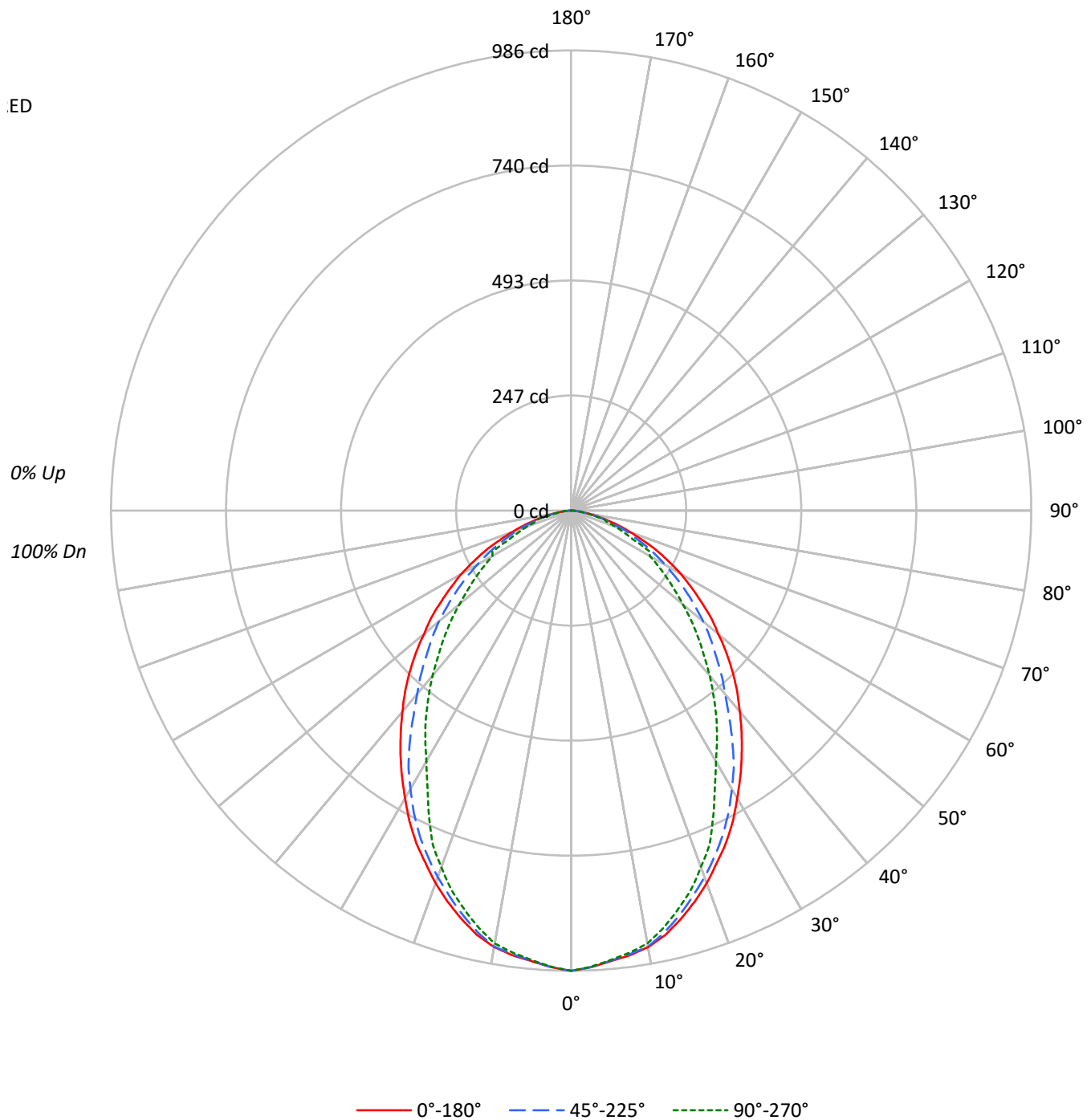
Input Watts (W): 21.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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 | 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° | 10615 | 10615 | 10615 |
| 5° | 10471 | 10458 | 10446 |
| 10° | 10380 | 10367 | 10293 |
| 15° | 10101 | 9998 | 9859 |
| 20° | 9730 | 9573 | 9312 |
| 25° | 9329 | 9126 | 8557 |
| 30° | 8842 | 8559 | 7709 |
| 35° | 8374 | 7910 | 7131 |
| 40° | 7898 | 7208 | 6487 |
| 45° | 7445 | 6664 | 5865 |
| 50° | 6893 | 6186 | 5231 |
| 55° | 6375 | 5605 | 4686 |
| 60° | 5841 | 5007 | 4198 |
| 65° | 5140 | 4386 | 3716 |
| 70° | 4233 | 3840 | 3157 |
| 75° | 3365 | 2940 | 3082 |
| 80° | 2263 | 2120 | 1977 |
| 85° | 1408 | 1692 | 1976 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 7445 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 91.8 | 4.7 |
| 10°-20° | 251.9 | 13.0 |
| 20°-30° | 348.8 | 18.0 |
| 30°-40° | 371.9 | 19.2 |
| 40°-50° | 339.3 | 17.5 |
| 50°-60° | 265.8 | 13.7 |
| 60°-70° | 173.2 | 8.9 |
| 70°-80° | 76.7 | 4.0 |
| 80°-90° | 16.5 | 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° | 692.5 | 35.8 |
| 0°-40° | 1064.4 | 55.0 |
| 0°-60° | 1669.5 | 86.2 |
| 0°-90° | 1936.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1936.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 986 | 986 | 986 | 986 | 986 | |
| 5° | 969 | 968 | 968 | 967 | 967 | 92 |
| 15° | 906 | 906 | 897 | 888 | 885 | 255 |
| 25° | 786 | 781 | 768 | 741 | 720 | 361 |
| 35° | 637 | 633 | 602 | 556 | 543 | 398 |
| 45° | 489 | 479 | 438 | 401 | 385 | 377 |
| 55° | 340 | 330 | 299 | 263 | 250 | 305 |
| 65° | 202 | 190 | 172 | 176 | 146 | 199 |
| 75° | 81 | 75 | 71 | 67 | 74 | 87 |
| 85° | 11 | 12 | 14 | 15 | 16 | 16 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P559149

CATALOG NUMBER: FSR-12-1-LD4-2HI-40-UNV-93-96-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 986.2 | 986.2 | 986.2 | 986.2 | 986.2 |
| 2.5° | 979.3 | 979.3 | 979.3 | 978.2 | 978.2 |
| 5° | 969.1 | 967.9 | 967.9 | 966.8 | 966.8 |
| 7.5° | 961.1 | 960.0 | 958.8 | 957.7 | 955.4 |
| 10° | 949.7 | 949.7 | 948.5 | 942.8 | 941.7 |
| 12.5° | 931.4 | 930.3 | 925.7 | 917.8 | 915.5 |
| 15° | 906.4 | 906.4 | 897.2 | 888.1 | 884.7 |
| 17.5° | 879.0 | 877.9 | 866.5 | 857.3 | 852.8 |
| 20° | 849.4 | 847.1 | 835.7 | 820.9 | 812.9 |
| 22.5° | 816.3 | 816.3 | 802.6 | 783.2 | 775.3 |
| 25° | 785.5 | 781.0 | 768.4 | 741.1 | 720.5 |
| 27.5° | 750.2 | 743.3 | 729.7 | 690.9 | 666.9 |
| 30° | 711.4 | 708.0 | 688.6 | 638.4 | 620.2 |
| 32.5° | 674.9 | 669.2 | 648.7 | 596.3 | 581.4 |
| 35° | 637.3 | 632.7 | 602.0 | 556.4 | 542.7 |
| 37.5° | 599.7 | 594.0 | 555.2 | 518.7 | 501.6 |
| 40° | 562.1 | 555.2 | 513.0 | 480.0 | 461.7 |
| 42.5° | 526.7 | 517.6 | 476.6 | 441.2 | 420.7 |
| 45° | 489.1 | 478.8 | 437.8 | 401.3 | 385.3 |
| 47.5° | 451.5 | 442.4 | 404.7 | 367.1 | 348.9 |
| 50° | 411.6 | 403.6 | 369.4 | 331.8 | 312.4 |
| 52.5° | 378.5 | 366.0 | 332.9 | 295.3 | 279.3 |
| 55° | 339.7 | 329.5 | 298.7 | 263.4 | 249.7 |
| 57.5° | 304.4 | 294.1 | 265.6 | 232.6 | 221.2 |
| 60° | 271.3 | 256.5 | 232.6 | 204.1 | 195.0 |
| 62.5° | 234.9 | 223.5 | 202.9 | 179.0 | 190.4 |
| 65° | 201.8 | 190.4 | 172.2 | 175.6 | 145.9 |
| 67.5° | 165.3 | 159.6 | 143.7 | 127.7 | 123.1 |
| 70° | 134.5 | 127.7 | 122.0 | 104.9 | 100.3 |
| 72.5° | 107.2 | 100.3 | 92.3 | 83.2 | 79.8 |
| 75° | 80.9 | 75.2 | 70.7 | 67.3 | 74.1 |
| 77.5° | 55.9 | 53.6 | 50.2 | 46.7 | 45.6 |
| 80° | 36.5 | 35.3 | 34.2 | 33.1 | 31.9 |
| 82.5° | 21.7 | 21.7 | 21.7 | 21.7 | 21.7 |
| 85° | 11.4 | 12.5 | 13.7 | 14.8 | 16.0 |
| 87.5° | 6.8 | 6.8 | 8.0 | 9.1 | 10.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)