

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P489168

Luminaire Tested: **CLM-24-2-INS-A19156-LD4-4STD-27-120-EDD-90**

Issue Date: 3/11/2021

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.



**Test Information**

Test Method: LM-79-08  
Report Number: P489168  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2101-115-8)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/11/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: CLM-24-2-INS-A19156-LD4-4STD-27-120-EDD-90  
Description: 2X2 CLM LED LUMINAIRE WITH A19156 LENS  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.    Condition    Description

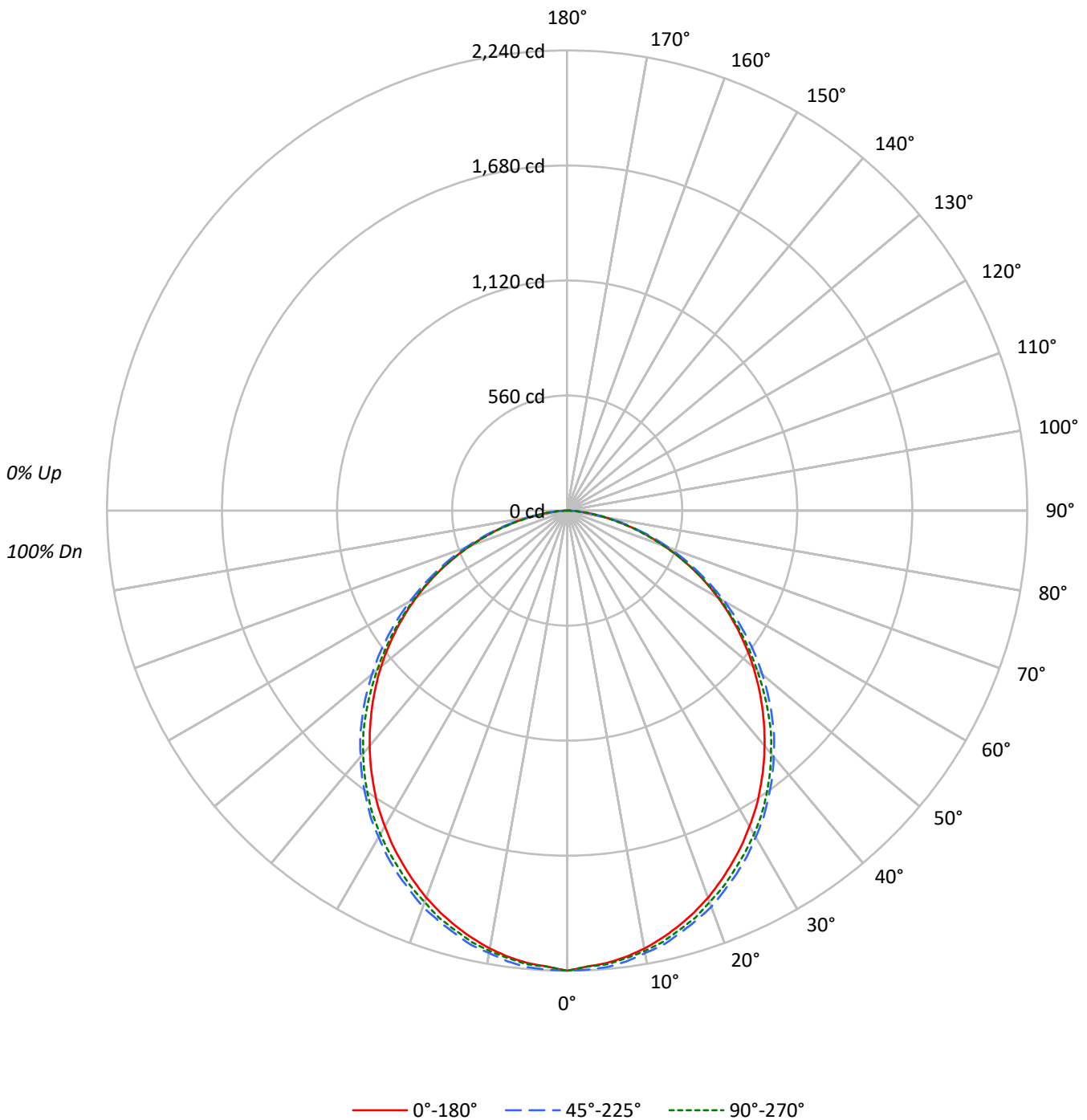
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5887.9 lumens  
Efficiency: N/A  
Efficacy: 88.4 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.21 / 1.34  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 66.6  
Input Voltage (V): NR  
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: 25 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   | 109 | 105 | 100 | 97  | 106 | 102 | 98  | 95  | 98  | 95  | 92  |  | 94  | 92  | 89  |  | 91  | 88  | 87  | 85  |
| 2   | 99  | 91  | 85  | 79  | 97  | 90  | 83  | 78  | 86  | 81  | 76  |  | 83  | 78  | 75  |  | 80  | 76  | 73  | 71  |
| 3   | 91  | 80  | 72  | 66  | 88  | 79  | 71  | 65  | 76  | 70  | 64  |  | 73  | 68  | 63  |  | 71  | 66  | 62  | 60  |
| 4   | 83  | 71  | 63  | 56  | 81  | 70  | 62  | 56  | 68  | 61  | 55  |  | 65  | 59  | 54  |  | 63  | 58  | 54  | 51  |
| 5   | 77  | 64  | 55  | 48  | 75  | 63  | 54  | 48  | 61  | 53  | 48  |  | 59  | 52  | 47  |  | 57  | 51  | 47  | 45  |
| 6   | 71  | 58  | 49  | 42  | 69  | 57  | 48  | 42  | 55  | 47  | 42  |  | 53  | 47  | 41  |  | 52  | 46  | 41  | 39  |
| 7   | 66  | 52  | 44  | 38  | 64  | 51  | 43  | 37  | 50  | 43  | 37  |  | 49  | 42  | 37  |  | 47  | 41  | 37  | 35  |
| 8   | 61  | 48  | 39  | 34  | 60  | 47  | 39  | 33  | 46  | 38  | 33  |  | 45  | 38  | 33  |  | 43  | 37  | 33  | 31  |
| 9   | 57  | 44  | 36  | 30  | 56  | 43  | 35  | 30  | 42  | 35  | 30  |  | 41  | 35  | 30  |  | 40  | 34  | 30  | 28  |
| 10  | 54  | 41  | 33  | 27  | 52  | 40  | 32  | 27  | 39  | 32  | 27  |  | 38  | 32  | 27  |  | 37  | 31  | 27  | 25  |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 6026 | 6026 | 6026 |
| 5°  | 5971 | 6027 | 5990 |
| 10° | 5916 | 5976 | 5947 |
| 15° | 5834 | 5928 | 5887 |
| 20° | 5743 | 5879 | 5808 |
| 25° | 5630 | 5794 | 5728 |
| 30° | 5517 | 5704 | 5652 |
| 35° | 5392 | 5606 | 5554 |
| 40° | 5252 | 5494 | 5425 |
| 45° | 5105 | 5362 | 5261 |
| 50° | 4952 | 5191 | 5055 |
| 55° | 4772 | 4995 | 4842 |
| 60° | 4569 | 4758 | 4611 |
| 65° | 4306 | 4471 | 4309 |
| 70° | 3961 | 4121 | 3917 |
| 75° | 3488 | 3646 | 3435 |
| 80° | 2834 | 2958 | 2802 |
| 85° | 1973 | 2103 | 2053 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 210.9  | 3.6       |
| 10°-20°   | 597.7  | 10.2      |
| 20°-30°   | 891.4  | 15.1      |
| 30°-40°   | 1056.4 | 17.9      |
| 40°-50°   | 1068.9 | 18.2      |
| 50°-60°   | 933.5  | 15.9      |
| 60°-70°   | 682.2  | 11.6      |
| 70°-80°   | 363.0  | 6.2       |
| 80°-90°   | 83.9   | 1.4       |
| 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°    | 1700.1 | 28.9      |
| 0°-40°    | 2756.4 | 46.8      |
| 0°-60°    | 4758.8 | 80.8      |
| 0°-90°    | 5887.9 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 5887.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2240 | 2240  | 2240 | 2240  | 2240 |      |
| 5°  | 2210 | 2215  | 2231 | 2236  | 2217 | 210  |
| 15° | 2094 | 2108  | 2128 | 2141  | 2113 | 590  |
| 25° | 1896 | 1920  | 1951 | 1959  | 1929 | 874  |
| 35° | 1642 | 1667  | 1707 | 1718  | 1691 | 1027 |
| 45° | 1341 | 1365  | 1409 | 1410  | 1382 | 1035 |
| 55° | 1017 | 1038  | 1065 | 1049  | 1032 | 909  |
| 65° | 676  | 690   | 702  | 688   | 677  | 669  |
| 75° | 336  | 343   | 351  | 338   | 330  | 357  |
| 85° | 64   | 65    | 68   | 69    | 66   | 81   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2239.5 | 2239.5 | 2239.5 | 2239.5 | 2239.5 |
| 2.5°  | 2222.0 | 2229.3 | 2236.7 | 2240.0 | 2221.8 |
| 5°    | 2210.4 | 2214.6 | 2231.1 | 2236.3 | 2217.4 |
| 7.5°  | 2191.2 | 2197.5 | 2213.6 | 2216.0 | 2197.8 |
| 10°   | 2165.1 | 2176.3 | 2187.0 | 2198.7 | 2176.5 |
| 12.5° | 2131.7 | 2146.9 | 2165.1 | 2167.2 | 2150.4 |
| 15°   | 2094.2 | 2108.2 | 2128.0 | 2140.8 | 2113.1 |
| 17.5° | 2052.2 | 2065.7 | 2091.4 | 2093.7 | 2076.9 |
| 20°   | 2005.3 | 2022.1 | 2052.9 | 2058.2 | 2028.1 |
| 22.5° | 1952.1 | 1974.7 | 2000.4 | 2005.5 | 1983.3 |
| 25°   | 1896.3 | 1919.6 | 1951.4 | 1958.6 | 1929.0 |
| 27.5° | 1838.0 | 1860.4 | 1896.1 | 1901.2 | 1876.2 |
| 30°   | 1775.4 | 1796.4 | 1835.6 | 1844.3 | 1818.8 |
| 32.5° | 1712.0 | 1733.0 | 1776.4 | 1783.6 | 1758.9 |
| 35°   | 1641.5 | 1667.2 | 1706.6 | 1718.5 | 1690.7 |
| 37.5° | 1569.6 | 1594.6 | 1639.4 | 1650.1 | 1620.3 |
| 40°   | 1495.2 | 1519.9 | 1564.0 | 1572.9 | 1544.2 |
| 42.5° | 1419.1 | 1443.9 | 1491.0 | 1492.4 | 1468.6 |
| 45°   | 1341.4 | 1365.2 | 1409.1 | 1410.3 | 1382.5 |
| 47.5° | 1262.6 | 1286.6 | 1325.8 | 1321.4 | 1295.2 |
| 50°   | 1182.8 | 1205.6 | 1239.9 | 1231.1 | 1207.5 |
| 52.5° | 1100.2 | 1122.3 | 1154.8 | 1140.3 | 1118.1 |
| 55°   | 1017.1 | 1037.6 | 1064.7 | 1049.3 | 1032.0 |
| 57.5° | 933.3  | 954.1  | 974.9  | 959.2  | 944.3  |
| 60°   | 848.9  | 867.1  | 884.1  | 868.2  | 856.8  |
| 62.5° | 763.0  | 778.6  | 793.3  | 778.2  | 767.4  |
| 65°   | 676.2  | 690.0  | 702.1  | 688.1  | 676.7  |
| 67.5° | 589.9  | 601.5  | 612.7  | 598.3  | 586.4  |
| 70°   | 503.5  | 513.6  | 523.8  | 508.9  | 497.9  |
| 72.5° | 418.4  | 427.2  | 436.3  | 421.9  | 412.3  |
| 75°   | 335.5  | 343.2  | 350.7  | 337.9  | 330.4  |
| 77.5° | 256.4  | 263.0  | 268.1  | 259.9  | 252.7  |
| 80°   | 182.9  | 187.8  | 190.9  | 187.6  | 180.8  |
| 82.5° | 117.6  | 121.1  | 122.7  | 122.5  | 118.1  |
| 85°   | 63.9   | 65.1   | 68.1   | 68.8   | 66.5   |
| 87.5° | 24.7   | 26.4   | 27.1   | 29.2   | 26.8   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)