

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: METALUX

Report Number: P232437

Luminaire Tested: **2SRS-20-W-UNV-L835-CD1-U**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P232437  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1706-124-1)  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 2SRS-20-W-UNV-L835-CD1-U  
Description: WAVESTREAM LED RECESSED 2 FT FIXTURE  
Light Source: -  
Ballast/Driver: -

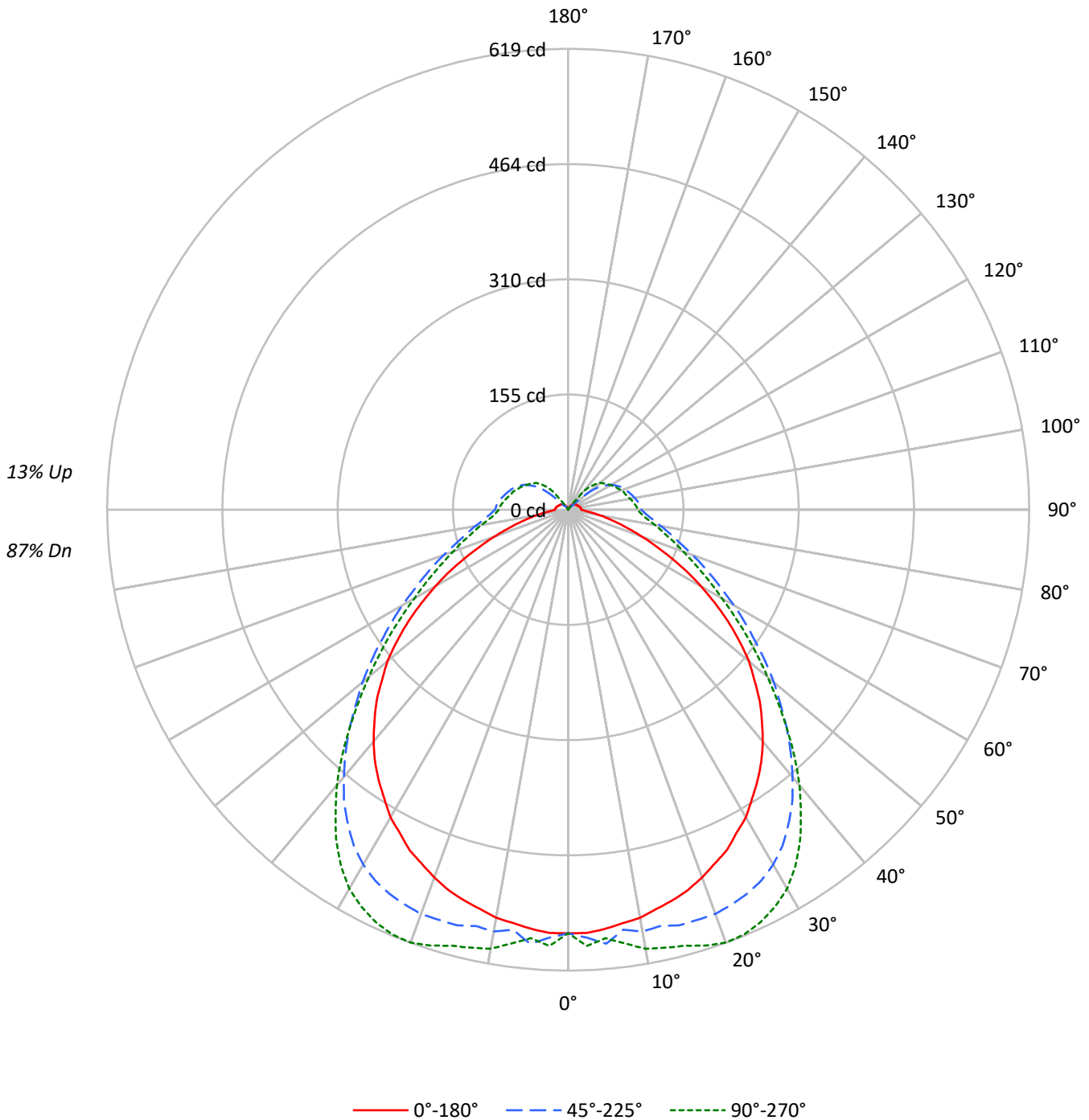
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2071.0 lumens  
Efficiency: N/A  
Efficacy: 131.9 lumens/watt  
Spacing Criteria (0/90/45): 1.24 / 1.44 / 1.43  
Luminous Opening: Rectangular w/ Sides (W: 0.02' x L: 1.88' x H: 0.3')  
CIE Type: Semi-Direct

Input Watts (W): 15.7  
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   | 116 | 116 | 116 | 116 | 112 | 112 | 112 | 112 | 104 | 104 | 104 | 97 | 97 | 97 | 90 | 90 | 90 | 87 |
| 1   | 105 | 99  | 95  | 90  | 100 | 96  | 92  | 88  | 89  | 86  | 83  | 83 | 80 | 78 | 77 | 75 | 73 | 70 |
| 2   | 95  | 86  | 79  | 73  | 91  | 83  | 77  | 71  | 78  | 72  | 68  | 72 | 68 | 64 | 67 | 64 | 61 | 58 |
| 3   | 87  | 76  | 68  | 61  | 83  | 73  | 66  | 60  | 68  | 62  | 57  | 64 | 59 | 54 | 60 | 55 | 52 | 49 |
| 4   | 79  | 67  | 58  | 52  | 76  | 65  | 57  | 51  | 61  | 54  | 48  | 57 | 51 | 46 | 53 | 48 | 44 | 42 |
| 5   | 73  | 60  | 51  | 44  | 70  | 58  | 50  | 44  | 54  | 47  | 42  | 51 | 45 | 40 | 48 | 43 | 39 | 36 |
| 6   | 67  | 54  | 45  | 39  | 64  | 52  | 44  | 38  | 49  | 42  | 37  | 46 | 40 | 35 | 44 | 38 | 34 | 32 |
| 7   | 62  | 49  | 40  | 34  | 60  | 47  | 39  | 34  | 45  | 38  | 32  | 42 | 36 | 31 | 40 | 34 | 30 | 28 |
| 8   | 58  | 45  | 36  | 30  | 56  | 43  | 35  | 30  | 41  | 34  | 29  | 39 | 32 | 28 | 37 | 31 | 27 | 25 |
| 9   | 54  | 41  | 33  | 27  | 52  | 40  | 32  | 27  | 38  | 31  | 26  | 36 | 30 | 25 | 34 | 28 | 24 | 22 |
| 10  | 51  | 38  | 30  | 25  | 49  | 37  | 29  | 24  | 35  | 28  | 24  | 33 | 27 | 23 | 31 | 26 | 22 | 20 |

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

|     | 0°     | 45°    | 90°    |
|-----|--------|--------|--------|
| 0°  | 208507 | 208507 | 208507 |
| 5°  | 205116 | 98376  | 79693  |
| 10° | 201514 | 63049  | 51118  |
| 15° | 197622 | 47244  | 37682  |
| 20° | 193816 | 37907  | 30413  |
| 25° | 189991 | 31374  | 25010  |
| 30° | 185053 | 26343  | 20727  |
| 35° | 178695 | 21947  | 16939  |
| 40° | 171673 | 18076  | 13613  |
| 45° | 162972 | 14750  | 10727  |
| 50° | 152066 | 11953  | 8397   |
| 55° | 136705 | 9573   | 6585   |
| 60° | 118736 | 7687   | 5142   |
| 65° | 98265  | 6151   | 4092   |
| 70° | 78076  | 4969   | 3294   |
| 75° | 60907  | 4049   | 2708   |
| 80° | 48491  | 3427   | 2284   |
| 85° | 39193  | 2942   | 1959   |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 55.0   | 2.7       |
| 10°-20°   | 163.1  | 7.9       |
| 20°-30°   | 259.2  | 12.5      |
| 30°-40°   | 314.2  | 15.2      |
| 40°-50°   | 309.2  | 14.9      |
| 50°-60°   | 260.3  | 12.6      |
| 60°-70°   | 195.2  | 9.4       |
| 70°-80°   | 139.0  | 6.7       |
| 80°-90°   | 101.0  | 4.9       |
| 90°-100°  | 85.3   | 4.1       |
| 100°-110° | 73.3   | 3.5       |
| 110°-120° | 55.8   | 2.7       |
| 120°-130° | 37.9   | 1.8       |
| 130°-140° | 18.1   | 0.9       |
| 140°-150° | 3.4    | 0.2       |
| 150°-160° | 0.8    | 0.0       |
| 160°-170° | 0.1    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 477.3  | 23.0      |
| 0°-40°    | 791.5  | 38.2      |
| 0°-60°    | 1361.0 | 65.7      |
| 0°-90°    | 1796.2 | 86.7      |
| 90°-120°  | 214.4  | 10.4      |
| 90°-150°  | 273.9  | 13.2      |
| 90°-180°  | 275.0  | 13.3      |
| 0°-180°   | 2071.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-----|-------|-----|-------|-----|------|
| 0°   | 569 | 569   | 569 | 569   | 569 |      |
| 5°   | 565 | 572   | 585 | 580   | 578 | 54   |
| 15°  | 543 | 549   | 578 | 603   | 606 | 153  |
| 25°  | 504 | 523   | 569 | 604   | 611 | 232  |
| 35°  | 444 | 467   | 516 | 540   | 543 | 277  |
| 45°  | 364 | 380   | 415 | 420   | 415 | 280  |
| 55°  | 262 | 282   | 306 | 297   | 291 | 234  |
| 65°  | 152 | 193   | 214 | 202   | 198 | 151  |
| 75°  | 68  | 128   | 148 | 142   | 138 | 75   |
| 85°  | 26  | 90    | 109 | 103   | 102 | 25   |
| 90°  | 17  | 78    | 98  | 93    | 93  | 10   |
| 95°  | 17  | 76    | 96  | 90    | 90  | 14   |
| 105° | 16  | 63    | 86  | 81    | 80  | 17   |
| 115° | 14  | 35    | 74  | 72    | 71  | 14   |
| 125° | 12  | 16    | 55  | 62    | 61  | 11   |
| 135° | 10  | 11    | 9   | 42    | 46  | 7    |
| 145° | 8   | 8     | 5   | 1     | 0   | 4    |
| 155° | 4   | 4     | 1   | 0     | 0   | 2    |
| 165° | 1   | 1     | 0   | 0     | 0   | 0    |
| 175° | 0   | 0     | 0   | 0     | 0   | 0    |
| 180° | 0   | 0     | 0   | 0     | 0   | 0    |



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**CANDELA DISTRIBUTION (FULL):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|--------|-------|-------|-------|-------|-------|
| 0°     | 569.0 | 569.0 | 569.0 | 569.0 | 569.0 |
| 2.5°   | 569.0 | 566.5 | 575.2 | 585.2 | 586.4 |
| 5°     | 565.3 | 571.5 | 585.2 | 580.2 | 577.7 |
| 7.5°   | 560.3 | 575.2 | 569.0 | 587.7 | 587.7 |
| 10°    | 556.6 | 566.5 | 575.2 | 588.9 | 598.8 |
| 12.5°  | 549.1 | 552.9 | 572.8 | 593.9 | 602.6 |
| 15°    | 542.9 | 549.1 | 577.7 | 602.6 | 606.3 |
| 17.5°  | 535.5 | 545.4 | 577.7 | 606.3 | 613.8 |
| 20°    | 525.5 | 539.2 | 577.7 | 606.3 | 618.7 |
| 22.5°  | 514.4 | 530.5 | 574.0 | 607.5 | 617.5 |
| 25°    | 504.4 | 523.1 | 569.0 | 603.8 | 611.3 |
| 27.5°  | 489.5 | 513.1 | 561.6 | 593.9 | 601.3 |
| 30°    | 477.1 | 499.4 | 550.4 | 579.0 | 587.7 |
| 32.5°  | 459.7 | 483.3 | 535.5 | 562.8 | 567.8 |
| 35°    | 443.5 | 467.1 | 515.6 | 540.4 | 542.9 |
| 37.5°  | 426.1 | 448.5 | 494.5 | 513.1 | 513.1 |
| 40°    | 406.3 | 426.1 | 468.4 | 483.3 | 483.3 |
| 42.5°  | 385.1 | 403.8 | 442.3 | 452.2 | 449.8 |
| 45°    | 364.0 | 380.2 | 415.0 | 419.9 | 415.0 |
| 47.5°  | 339.2 | 355.3 | 386.4 | 388.9 | 381.4 |
| 50°    | 316.8 | 330.5 | 360.3 | 356.6 | 349.1 |
| 52.5°  | 289.5 | 305.6 | 333.0 | 325.5 | 319.3 |
| 55°    | 262.1 | 282.0 | 305.6 | 296.9 | 290.7 |
| 57.5°  | 233.6 | 258.4 | 280.8 | 270.8 | 263.4 |
| 60°    | 206.2 | 234.8 | 257.2 | 246.0 | 238.5 |
| 62.5°  | 178.9 | 212.5 | 233.6 | 222.4 | 217.4 |
| 65°    | 151.6 | 192.6 | 213.7 | 202.5 | 197.5 |
| 67.5°  | 126.7 | 172.7 | 195.1 | 185.1 | 180.1 |
| 70°    | 104.4 | 156.5 | 177.7 | 167.7 | 164.0 |
| 72.5°  | 85.7  | 141.6 | 161.5 | 154.1 | 151.6 |
| 75°    | 68.3  | 128.0 | 147.8 | 141.6 | 137.9 |
| 77.5°  | 54.7  | 115.5 | 136.7 | 130.5 | 128.0 |
| 80°    | 43.5  | 105.6 | 126.7 | 119.3 | 118.0 |
| 82.5°  | 33.5  | 96.9  | 116.8 | 110.6 | 109.3 |
| 85°    | 26.1  | 89.5  | 109.3 | 103.1 | 101.9 |
| 87.5°  | 19.9  | 83.2  | 103.1 | 96.9  | 96.9  |
| 90°    | 17.4  | 78.3  | 98.2  | 93.2  | 93.2  |
| 92.5°  | 17.4  | 77.0  | 96.9  | 91.9  | 91.9  |
| 95°    | 17.4  | 75.8  | 95.7  | 89.5  | 89.5  |
| 97.5°  | 17.4  | 73.3  | 93.2  | 87.0  | 87.0  |
| 100°   | 16.2  | 69.6  | 90.7  | 84.5  | 84.5  |
| 102.5° | 16.2  | 67.1  | 88.2  | 83.2  | 82.0  |
| 105°   | 16.2  | 63.4  | 85.7  | 80.8  | 79.5  |
| 107.5° | 14.9  | 58.4  | 83.2  | 78.3  | 78.3  |
| 110°   | 14.9  | 53.4  | 80.8  | 77.0  | 75.8  |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°   | 22.5° | 45°  | 67.5° | 90°  |
|--------|------|-------|------|-------|------|
| 112.5° | 13.7 | 46.0  | 78.3 | 74.5  | 73.3 |
| 115°   | 13.7 | 34.8  | 74.5 | 72.1  | 70.8 |
| 117.5° | 13.7 | 26.1  | 70.8 | 69.6  | 68.3 |
| 120°   | 12.4 | 19.9  | 67.1 | 67.1  | 65.8 |
| 122.5° | 12.4 | 18.6  | 60.9 | 64.6  | 63.4 |
| 125°   | 12.4 | 16.2  | 54.7 | 62.1  | 60.9 |
| 127.5° | 11.2 | 14.9  | 47.2 | 59.6  | 58.4 |
| 130°   | 11.2 | 13.7  | 37.3 | 54.7  | 55.9 |
| 132.5° | 9.9  | 12.4  | 19.9 | 48.5  | 50.9 |
| 135°   | 9.9  | 11.2  | 8.7  | 42.2  | 46.0 |
| 137.5° | 8.7  | 9.9   | 7.5  | 32.3  | 39.8 |
| 140°   | 8.7  | 8.7   | 6.2  | 16.2  | 31.1 |
| 142.5° | 7.5  | 7.5   | 5.0  | 1.2   | 11.2 |
| 145°   | 7.5  | 7.5   | 5.0  | 1.2   | 0.0  |
| 147.5° | 6.2  | 6.2   | 3.7  | 0.0   | 0.0  |
| 150°   | 5.0  | 5.0   | 2.5  | 0.0   | 0.0  |
| 152.5° | 5.0  | 3.7   | 2.5  | 0.0   | 0.0  |
| 155°   | 3.7  | 3.7   | 1.2  | 0.0   | 0.0  |
| 157.5° | 3.7  | 2.5   | 1.2  | 0.0   | 0.0  |
| 160°   | 2.5  | 2.5   | 1.2  | 0.0   | 0.0  |
| 162.5° | 1.2  | 1.2   | 0.0  | 0.0   | 0.0  |
| 165°   | 1.2  | 1.2   | 0.0  | 0.0   | 0.0  |
| 167.5° | 0.0  | 0.0   | 0.0  | 0.0   | 0.0  |
| 170°   | 0.0  | 0.0   | 0.0  | 0.0   | 0.0  |
| 172.5° | 0.0  | 0.0   | 0.0  | 0.0   | 0.0  |
| 175°   | 0.0  | 0.0   | 0.0  | 0.0   | 0.0  |
| 177.5° | 0.0  | 0.0   | 0.0  | 0.0   | 0.0  |
| 180°   | 0.0  | 0.0   | 0.0  | 0.0   | 0.0  |

(END OF REPORT)