

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: 01277

Luminaire Tested: **TTMC-40**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: 01277  
Test Lab:  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: TTMC-40  
Description: FAIL-SAFE FORMED STEEL HOUSING  
WHITE ENAMEL REFLECTOR  
CLEAR PLASTIC ENCLOSURE  
Light Source: ONE 40/W30/RS TWIN TUBE RATED 3150 LUMENS  
Ballast/Driver: -

**Summary**

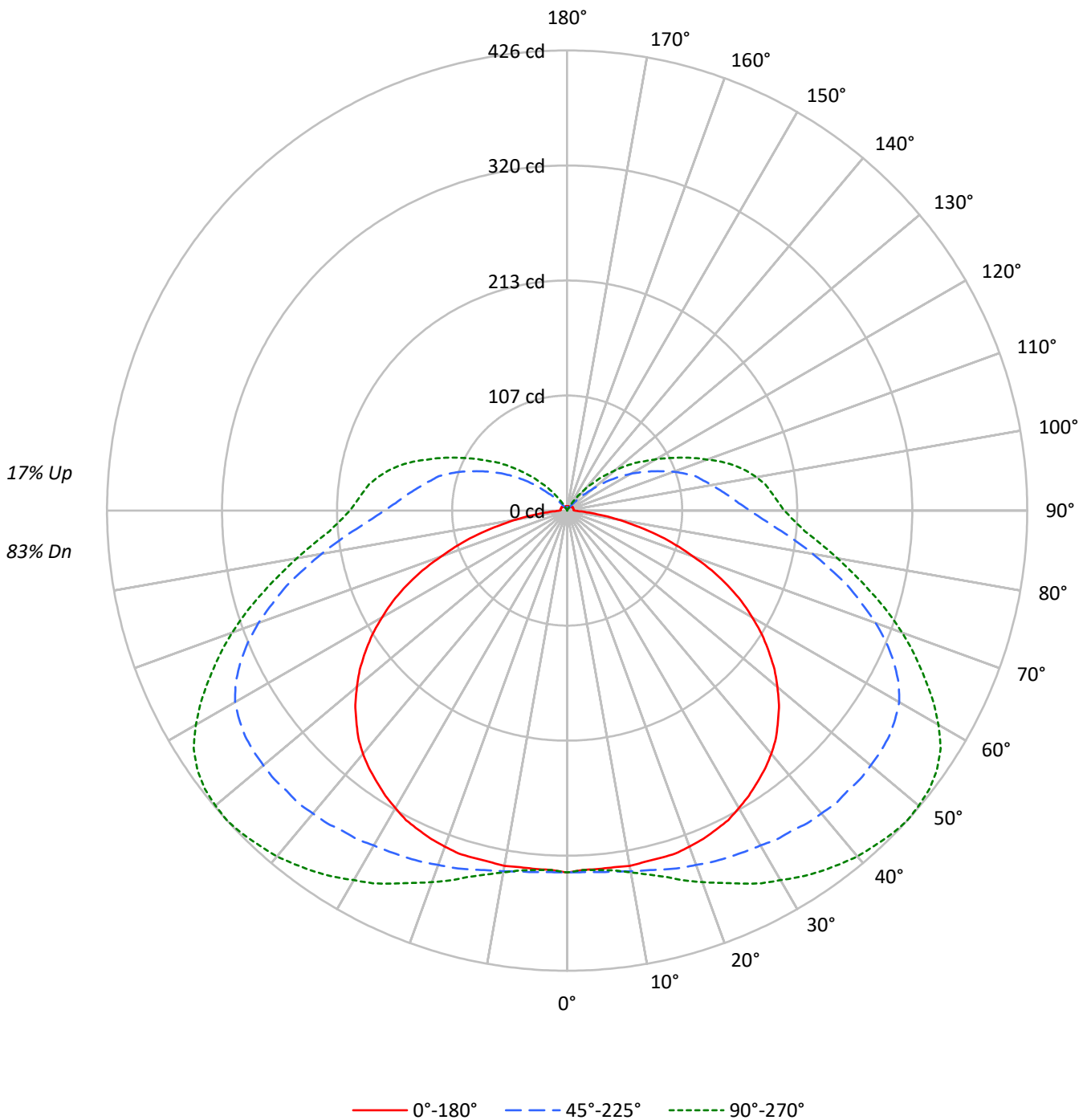
Lumens per Lamp: 3150 (1 lamp)  
Luminaire Lumens: 2213.7 lumens  
Efficiency: 70.3%  
Efficacy: 44.3 lumens/watt  
Spacing Criteria (0/90/45): 1.41 / 1.84 / 1.84  
Luminous Opening: Rectangular w/ Sides (W: 0.44' x L: 2.19' x H: 0.43')  
CIE Type: Semi-Direct

Input Watts (W): 50  
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



TEST NUMBER: 01277  
CATALOG NUMBER: TTMC-40

### Luminous Intensity Polar Plot





TEST NUMBER: 01277

CATALOG NUMBER: TTMC-40

**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   | 81 | 81 | 81 | 81 | 78 | 78 | 78 | 78 | 71 | 71 | 71 | 66 | 66 | 66 | 61 | 61 | 61 | 58 |
| 1   | 71 | 66 | 62 | 59 | 68 | 64 | 60 | 57 | 58 | 55 | 53 | 53 | 51 | 49 | 49 | 47 | 45 | 43 |
| 2   | 63 | 56 | 50 | 45 | 60 | 54 | 48 | 44 | 49 | 45 | 41 | 45 | 41 | 38 | 41 | 38 | 36 | 33 |
| 3   | 57 | 48 | 41 | 36 | 54 | 46 | 40 | 35 | 42 | 37 | 33 | 39 | 34 | 31 | 35 | 32 | 29 | 26 |
| 4   | 51 | 42 | 35 | 30 | 49 | 40 | 34 | 29 | 37 | 31 | 27 | 34 | 29 | 25 | 31 | 27 | 24 | 22 |
| 5   | 47 | 37 | 30 | 25 | 45 | 35 | 29 | 24 | 32 | 27 | 23 | 30 | 25 | 21 | 27 | 23 | 20 | 18 |
| 6   | 43 | 33 | 26 | 21 | 41 | 32 | 25 | 20 | 29 | 23 | 19 | 27 | 22 | 18 | 24 | 20 | 17 | 15 |
| 7   | 40 | 29 | 23 | 18 | 38 | 28 | 22 | 18 | 26 | 21 | 17 | 24 | 19 | 16 | 22 | 18 | 15 | 13 |
| 8   | 37 | 27 | 20 | 16 | 35 | 26 | 20 | 15 | 24 | 18 | 15 | 22 | 17 | 14 | 20 | 16 | 13 | 11 |
| 9   | 34 | 24 | 18 | 14 | 33 | 23 | 18 | 14 | 22 | 17 | 13 | 20 | 16 | 12 | 18 | 15 | 12 | 10 |
| 10  | 32 | 22 | 16 | 13 | 30 | 21 | 16 | 12 | 20 | 15 | 12 | 18 | 14 | 11 | 17 | 13 | 10 | 9  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3742 | 3742 | 3742 |
| 5°  | 3671 | 3513 | 3450 |
| 10° | 3662 | 3354 | 3290 |
| 15° | 3659 | 3255 | 3217 |
| 20° | 3672 | 3186 | 3209 |
| 25° | 3681 | 3146 | 3226 |
| 30° | 3684 | 3122 | 3257 |
| 35° | 3680 | 3122 | 3303 |
| 40° | 3681 | 3146 | 3349 |
| 45° | 3645 | 3168 | 3388 |
| 50° | 3577 | 3207 | 3412 |
| 55° | 3468 | 3244 | 3398 |
| 60° | 3301 | 3254 | 3294 |
| 65° | 3050 | 3176 | 3116 |
| 70° | 2631 | 3027 | 2925 |
| 75° | 2142 | 2834 | 2703 |
| 80° | 1461 | 2604 | 2497 |
| 85° | 711  | 2396 | 2327 |



TEST NUMBER: 01277  
 CATALOG NUMBER: TTMC-40

**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

| Zone      | Lumens | % Fixture | % Lamp |      | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----------|--------|-----------|--------|------|-----|-------|-----|-------|-----|------|
| 0°-10°    | 32.1   | 1.4       | 1.0    | 0°   | 335 | 335   | 335 | 335   | 335 |      |
| 10°-20°   | 97.5   | 4.4       | 3.1    | 5°   | 333 | 335   | 336 | 335   | 334 | 32   |
| 20°-30°   | 164.0  | 7.4       | 5.2    | 15°  | 333 | 338   | 344 | 349   | 351 | 94   |
| 30°-40°   | 226.5  | 10.2      | 7.2    | 25°  | 326 | 337   | 354 | 372   | 381 | 151  |
| 40°-50°   | 277.9  | 12.6      | 8.8    | 35°  | 307 | 326   | 362 | 396   | 408 | 192  |
| 50°-60°   | 308.0  | 13.9      | 9.8    | 45°  | 276 | 308   | 367 | 411   | 424 | 213  |
| 60°-70°   | 299.5  | 13.5      | 9.5    | 55°  | 228 | 286   | 364 | 407   | 418 | 204  |
| 70°-80°   | 248.2  | 11.2      | 7.9    | 65°  | 164 | 254   | 334 | 361   | 365 | 161  |
| 80°-90°   | 181.1  | 8.2       | 5.7    | 75°  | 86  | 196   | 269 | 289   | 291 | 90   |
| 90°-100°  | 139.1  | 6.3       | 4.4    | 85°  | 18  | 122   | 196 | 218   | 221 | 21   |
| 100°-110° | 107.8  | 4.9       | 3.4    | 90°  | 7   | 95    | 169 | 195   | 201 | 4    |
| 110°-120° | 70.6   | 3.2       | 2.2    | 95°  | 6   | 77    | 151 | 182   | 190 | 5    |
| 120°-130° | 38.6   | 1.7       | 1.2    | 105° | 6   | 48    | 123 | 157   | 161 | 6    |
| 130°-140° | 16.2   | 0.7       | 0.5    | 115° | 6   | 24    | 86  | 112   | 116 | 6    |
| 140°-150° | 4.4    | 0.2       | 0.1    | 125° | 6   | 7     | 50  | 72    | 77  | 5    |
| 150°-160° | 1.3    | 0.1       | 0.0    | 135° | 5   | 5     | 18  | 35    | 41  | 4    |
| 160°-170° | 0.7    | 0.0       | 0.0    | 145° | 3   | 3     | 3   | 10    | 13  | 3    |
| 170°-180° | 0.2    | 0.0       | 0.0    | 155° | 4   | 3     | 3   | 2     | 1   | 2    |
| 0°-30°    | 293.6  | 13.3      | 9.3    | 165° | 4   | 3     | 3   | 2     | 1   | 1    |
| 0°-40°    | 520.2  | 23.5      | 16.5   | 175° | 4   | 3     | 3   | 1     | 0   | 0    |
| 0°-60°    | 1106.0 | 50.0      | 35.1   | 180° | 2   | 2     | 2   | 1     | 0   |      |
| 0°-90°    | 1834.8 | 82.9      | 58.2   |      |     |       |     |       |     |      |
| 90°-120°  | 317.6  | 14.3      | 10.1   |      |     |       |     |       |     |      |
| 90°-150°  | 376.7  | 17.0      | 12.0   |      |     |       |     |       |     |      |
| 90°-180°  | 379.0  | 17.1      | 12.0   |      |     |       |     |       |     |      |
| 0°-180°   | 2213.7 | 100.0     | 70.3   |      |     |       |     |       |     |      |



TEST NUMBER: 01277

CATALOG NUMBER: TTMC-40

**CANDELA DISTRIBUTION (FULL):**

|        | 0°  | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|-----|-------|-----|
| 0°     | 335 | 335   | 335 | 335   | 335 |
| 2.5°   | 333 | 335   | 335 | 334   | 333 |
| 5°     | 333 | 335   | 336 | 335   | 334 |
| 7.5°   | 333 | 335   | 337 | 337   | 336 |
| 10°    | 334 | 336   | 339 | 340   | 340 |
| 12.5°  | 333 | 337   | 341 | 344   | 345 |
| 15°    | 333 | 338   | 344 | 349   | 351 |
| 17.5°  | 333 | 339   | 347 | 355   | 359 |
| 20°    | 331 | 339   | 349 | 360   | 366 |
| 22.5°  | 329 | 339   | 352 | 366   | 373 |
| 25°    | 326 | 337   | 354 | 372   | 381 |
| 27.5°  | 323 | 336   | 356 | 379   | 389 |
| 30°    | 318 | 333   | 358 | 385   | 395 |
| 32.5°  | 313 | 330   | 361 | 392   | 402 |
| 35°    | 307 | 326   | 362 | 396   | 408 |
| 37.5°  | 301 | 323   | 365 | 402   | 413 |
| 40°    | 294 | 319   | 366 | 406   | 418 |
| 42.5°  | 286 | 314   | 368 | 409   | 421 |
| 45°    | 276 | 308   | 367 | 411   | 424 |
| 47.5°  | 266 | 303   | 368 | 413   | 426 |
| 50°    | 254 | 297   | 367 | 413   | 425 |
| 52.5°  | 242 | 291   | 366 | 411   | 423 |
| 55°    | 228 | 286   | 364 | 407   | 418 |
| 57.5°  | 214 | 279   | 360 | 400   | 410 |
| 60°    | 198 | 272   | 355 | 389   | 397 |
| 62.5°  | 182 | 264   | 346 | 377   | 382 |
| 65°    | 164 | 254   | 334 | 361   | 365 |
| 67.5°  | 145 | 242   | 320 | 344   | 348 |
| 70°    | 124 | 228   | 304 | 325   | 330 |
| 72.5°  | 105 | 212   | 286 | 308   | 311 |
| 75°    | 86  | 196   | 269 | 289   | 291 |
| 77.5°  | 65  | 176   | 249 | 270   | 272 |
| 80°    | 48  | 158   | 231 | 252   | 254 |
| 82.5°  | 31  | 140   | 213 | 234   | 237 |
| 85°    | 18  | 122   | 196 | 218   | 221 |
| 87.5°  | 10  | 107   | 181 | 205   | 210 |
| 90°    | 7   | 95    | 169 | 195   | 201 |
| 92.5°  | 6   | 86    | 159 | 189   | 195 |
| 95°    | 6   | 77    | 151 | 182   | 190 |
| 97.5°  | 6   | 69    | 143 | 178   | 185 |
| 100°   | 6   | 61    | 136 | 171   | 178 |
| 102.5° | 6   | 54    | 129 | 164   | 170 |
| 105°   | 6   | 48    | 123 | 157   | 161 |
| 107.5° | 6   | 41    | 114 | 146   | 150 |
| 110°   | 6   | 35    | 105 | 135   | 138 |



TEST NUMBER: 01277  
 CATALOG NUMBER: TTMC-40

**CANDELA DISTRIBUTION (continued):**

|        | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|----|-------|-----|-------|-----|
| 112.5° | 6  | 30    | 95  | 123   | 127 |
| 115°   | 6  | 24    | 86  | 112   | 116 |
| 117.5° | 6  | 19    | 77  | 101   | 105 |
| 120°   | 6  | 14    | 68  | 91    | 95  |
| 122.5° | 6  | 10    | 59  | 82    | 85  |
| 125°   | 6  | 7     | 50  | 72    | 77  |
| 127.5° | 5  | 5     | 41  | 63    | 67  |
| 130°   | 5  | 5     | 32  | 53    | 58  |
| 132.5° | 5  | 5     | 24  | 44    | 49  |
| 135°   | 5  | 5     | 18  | 35    | 41  |
| 137.5° | 5  | 5     | 12  | 28    | 33  |
| 140°   | 5  | 5     | 8   | 22    | 26  |
| 142.5° | 5  | 4     | 5   | 15    | 20  |
| 145°   | 3  | 3     | 3   | 10    | 13  |
| 147.5° | 4  | 3     | 3   | 5     | 7   |
| 150°   | 4  | 3     | 3   | 3     | 3   |
| 152.5° | 4  | 3     | 3   | 2     | 2   |
| 155°   | 4  | 3     | 3   | 2     | 1   |
| 157.5° | 4  | 3     | 3   | 2     | 1   |
| 160°   | 4  | 3     | 3   | 2     | 1   |
| 162.5° | 3  | 3     | 3   | 2     | 1   |
| 165°   | 4  | 3     | 3   | 2     | 1   |
| 167.5° | 4  | 3     | 3   | 1     | 0   |
| 170°   | 4  | 3     | 3   | 1     | 0   |
| 172.5° | 4  | 3     | 3   | 1     | 0   |
| 175°   | 4  | 3     | 3   | 1     | 0   |
| 177.5° | 4  | 3     | 3   | 1     | 0   |
| 180°   | 2  | 2     | 2   | 1     | 0   |

(END OF REPORT)