

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: 121P110

Luminaire Tested: **APW-SW232**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: 121P110
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: APW-SW232
Description: SPECIFICATION WRAPAROUND, 2 LAMP, 32W
Light Source: Two-F32T8/35K - 2850 Lumens ea. - 32 Watts ea.
Ballast/Driver: 2 LAMP ALL PRO BALLAST

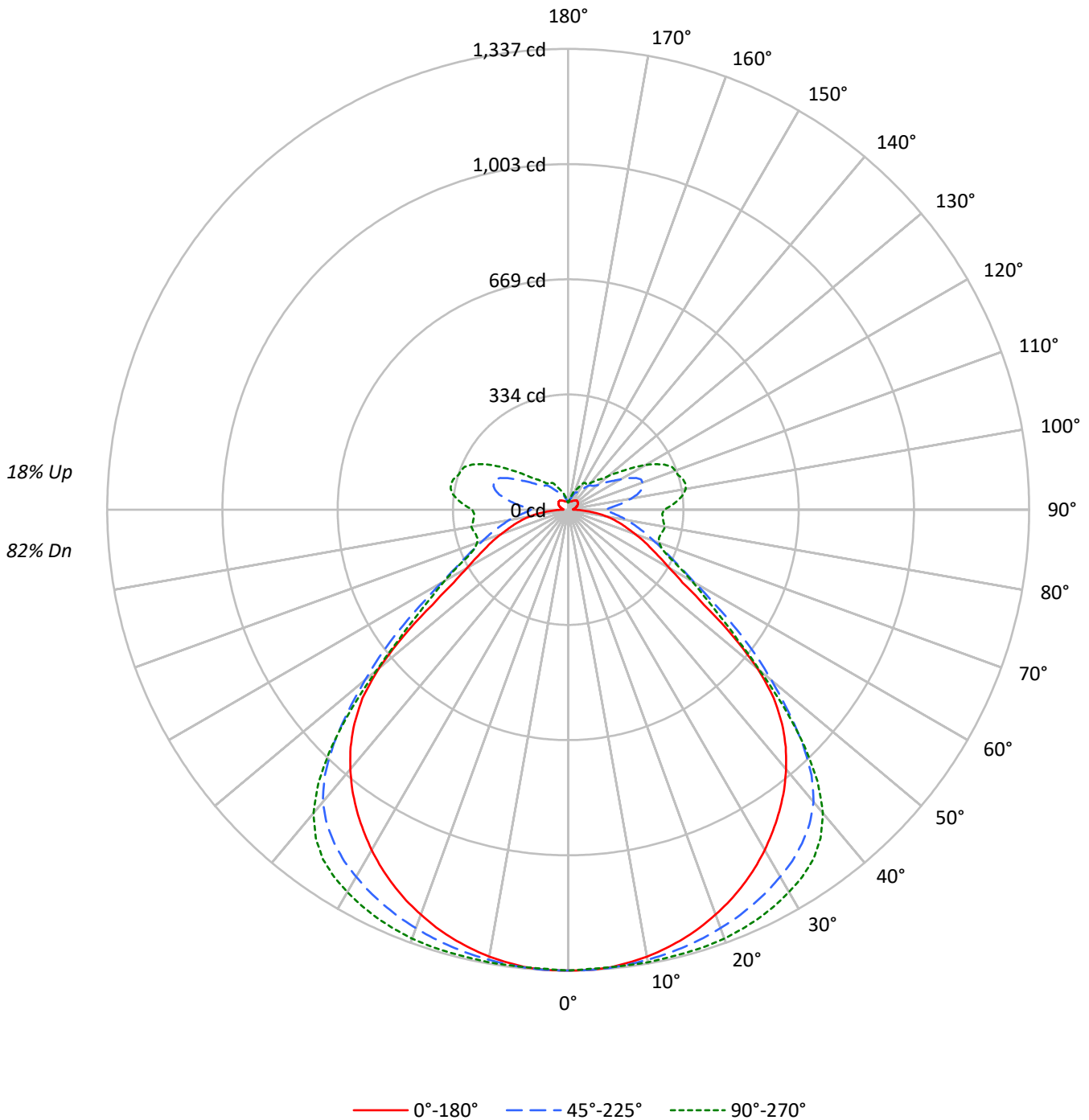
Summary

Lumens per Lamp: 2850 (2 lamps)
Luminaire Lumens: 4588.6 lumens
Efficiency: 80.5%
Efficacy: 76.0 lumens/watt
Spacing Criteria (0/90/45): 1.27 / 1.42 / 1.42
Luminous Opening: Rectangular w/ Sides (W: 0.83' x L: 4' x H: 0.17')
CIE Type: Semi-Direct

Input Watts (W): 60.4
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 | 92 | 92 | 92 | 92 | 88 | 88 | 88 | 88 | 81 | 81 | 81 | 75 | 75 | 75 | 69 | 69 | 69 | 66 |
| 1 | 84 | 80 | 77 | 74 | 80 | 77 | 74 | 71 | 71 | 68 | 66 | 65 | 63 | 61 | 60 | 58 | 57 | 54 |
| 2 | 77 | 70 | 65 | 60 | 73 | 67 | 63 | 59 | 62 | 58 | 55 | 57 | 54 | 52 | 53 | 51 | 48 | 46 |
| 3 | 70 | 62 | 56 | 51 | 67 | 60 | 54 | 49 | 55 | 50 | 47 | 51 | 47 | 44 | 47 | 44 | 41 | 39 |
| 4 | 64 | 55 | 48 | 43 | 61 | 53 | 47 | 42 | 49 | 44 | 40 | 46 | 41 | 38 | 42 | 39 | 36 | 34 |
| 5 | 59 | 49 | 42 | 37 | 57 | 48 | 41 | 37 | 44 | 39 | 35 | 41 | 37 | 33 | 38 | 35 | 31 | 29 |
| 6 | 55 | 45 | 38 | 33 | 52 | 43 | 37 | 32 | 40 | 35 | 31 | 37 | 33 | 29 | 35 | 31 | 28 | 26 |
| 7 | 51 | 40 | 34 | 29 | 49 | 39 | 33 | 28 | 36 | 31 | 27 | 34 | 29 | 26 | 32 | 28 | 25 | 23 |
| 8 | 47 | 37 | 30 | 26 | 45 | 36 | 29 | 25 | 33 | 28 | 24 | 31 | 27 | 23 | 29 | 25 | 22 | 21 |
| 9 | 44 | 34 | 27 | 23 | 42 | 33 | 27 | 23 | 31 | 25 | 22 | 29 | 24 | 21 | 27 | 23 | 20 | 19 |
| 10 | 41 | 31 | 25 | 21 | 40 | 30 | 24 | 20 | 28 | 23 | 20 | 27 | 22 | 19 | 25 | 21 | 18 | 17 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 4318 | 4318 | 4318 |
| 5° | 4309 | 4264 | 4247 |
| 10° | 4287 | 4221 | 4222 |
| 15° | 4262 | 4194 | 4220 |
| 20° | 4232 | 4180 | 4241 |
| 25° | 4198 | 4175 | 4263 |
| 30° | 4151 | 4175 | 4282 |
| 35° | 4091 | 4162 | 4284 |
| 40° | 4004 | 4081 | 4147 |
| 45° | 3845 | 3752 | 3688 |
| 50° | 3432 | 3210 | 2941 |
| 55° | 2556 | 2643 | 2343 |
| 60° | 2042 | 2108 | 1986 |
| 65° | 1859 | 1840 | 1711 |
| 70° | 1754 | 1696 | 1712 |
| 75° | 1717 | 1638 | 1979 |
| 80° | 1700 | 1643 | 2483 |
| 85° | 1556 | 1668 | 3100 |



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ZONAL LUMENS:

CANDELA DISTRIBUTION:

| Zone | Lumens | % Fixture | % Lamp | | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----------|--------|-----------|--------|------|------|-------|------|-------|------|------|
| 0°-10° | 127.1 | 2.8 | 2.2 | 0° | 1337 | 1337 | 1337 | 1337 | 1337 | |
| 10°-20° | 370.7 | 8.1 | 6.5 | 5° | 1334 | 1334 | 1335 | 1336 | 1333 | 127 |
| 20°-30° | 581.4 | 12.7 | 10.2 | 15° | 1289 | 1296 | 1312 | 1326 | 1330 | 364 |
| 30°-40° | 728.5 | 15.9 | 12.8 | 25° | 1201 | 1221 | 1265 | 1299 | 1308 | 553 |
| 40°-50° | 716.9 | 15.6 | 12.6 | 35° | 1068 | 1107 | 1182 | 1227 | 1239 | 668 |
| 50°-60° | 502.6 | 11.0 | 8.8 | 45° | 877 | 922 | 962 | 962 | 969 | 669 |
| 60°-70° | 321.4 | 7.0 | 5.6 | 55° | 481 | 584 | 584 | 542 | 535 | 446 |
| 70°-80° | 228.6 | 5.0 | 4.0 | 65° | 265 | 306 | 329 | 343 | 320 | 265 |
| 80°-90° | 170.5 | 3.7 | 3.0 | 75° | 159 | 173 | 215 | 252 | 277 | 168 |
| 90°-100° | 172.2 | 3.8 | 3.0 | 85° | 62 | 98 | 133 | 225 | 275 | 61 |
| 100°-110° | 207.6 | 4.5 | 3.6 | 90° | 14 | 49 | 108 | 228 | 278 | 11 |
| 110°-120° | 190.3 | 4.1 | 3.3 | 95° | 14 | 50 | 142 | 273 | 320 | 13 |
| 120°-130° | 118.2 | 2.6 | 2.1 | 105° | 22 | 76 | 219 | 315 | 344 | 23 |
| 130°-140° | 69.6 | 1.5 | 1.2 | 115° | 30 | 109 | 218 | 287 | 309 | 29 |
| 140°-150° | 44.4 | 1.0 | 0.8 | 125° | 34 | 81 | 140 | 180 | 199 | 31 |
| 150°-160° | 25.0 | 0.5 | 0.4 | 135° | 36 | 62 | 98 | 116 | 123 | 28 |
| 160°-170° | 10.9 | 0.2 | 0.2 | 145° | 33 | 54 | 72 | 92 | 91 | 21 |
| 170°-180° | 2.5 | 0.1 | 0.0 | 155° | 28 | 42 | 56 | 66 | 71 | 13 |
| 0°-30° | 1079.2 | 23.5 | 18.9 | 165° | 25 | 32 | 38 | 44 | 47 | 7 |
| 0°-40° | 1807.7 | 39.4 | 31.7 | 175° | 23 | 25 | 25 | 24 | 24 | 2 |
| 0°-60° | 3027.2 | 66.0 | 53.1 | 180° | 22 | 22 | 22 | 22 | 22 | |
| 0°-90° | 3747.8 | 81.7 | 65.8 | | | | | | | |
| 90°-120° | 570.1 | 12.4 | 10.0 | | | | | | | |
| 90°-150° | 802.4 | 17.5 | 14.1 | | | | | | | |
| 90°-180° | 841.0 | 18.3 | 14.8 | | | | | | | |
| 0°-180° | 4588.6 | 100.0 | 80.5 | | | | | | | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|------|-------|------|-------|------|
| 0° | 1337 | 1337 | 1337 | 1337 | 1337 |
| 2.5° | 1337 | 1337 | 1337 | 1336 | 1334 |
| 5° | 1334 | 1334 | 1335 | 1336 | 1333 |
| 7.5° | 1326 | 1328 | 1331 | 1334 | 1333 |
| 10° | 1317 | 1319 | 1326 | 1332 | 1333 |
| 12.5° | 1304 | 1309 | 1320 | 1329 | 1331 |
| 15° | 1289 | 1296 | 1312 | 1326 | 1330 |
| 17.5° | 1271 | 1281 | 1303 | 1322 | 1328 |
| 20° | 1250 | 1263 | 1292 | 1317 | 1324 |
| 22.5° | 1227 | 1243 | 1280 | 1309 | 1317 |
| 25° | 1201 | 1221 | 1265 | 1299 | 1308 |
| 27.5° | 1172 | 1197 | 1249 | 1286 | 1296 |
| 30° | 1140 | 1170 | 1230 | 1270 | 1281 |
| 32.5° | 1105 | 1140 | 1209 | 1251 | 1263 |
| 35° | 1068 | 1107 | 1182 | 1227 | 1239 |
| 37.5° | 1028 | 1071 | 1150 | 1193 | 1202 |
| 40° | 983 | 1030 | 1107 | 1143 | 1149 |
| 42.5° | 934 | 982 | 1045 | 1069 | 1071 |
| 45° | 877 | 922 | 962 | 962 | 969 |
| 47.5° | 809 | 845 | 865 | 832 | 849 |
| 50° | 717 | 756 | 769 | 706 | 725 |
| 52.5° | 602 | 666 | 677 | 608 | 619 |
| 55° | 481 | 584 | 584 | 542 | 535 |
| 57.5° | 393 | 507 | 496 | 490 | 468 |
| 60° | 339 | 432 | 423 | 437 | 414 |
| 62.5° | 299 | 365 | 370 | 386 | 364 |
| 65° | 265 | 306 | 329 | 343 | 320 |
| 67.5° | 236 | 259 | 294 | 312 | 294 |
| 70° | 207 | 224 | 264 | 288 | 281 |
| 72.5° | 180 | 196 | 239 | 268 | 276 |
| 75° | 159 | 173 | 215 | 252 | 277 |
| 77.5° | 137 | 151 | 193 | 240 | 282 |
| 80° | 113 | 134 | 174 | 232 | 285 |
| 82.5° | 87 | 118 | 152 | 225 | 279 |
| 85° | 62 | 98 | 133 | 225 | 275 |
| 87.5° | 36 | 71 | 117 | 222 | 273 |
| 90° | 14 | 49 | 108 | 228 | 278 |
| 92.5° | 14 | 49 | 121 | 252 | 301 |
| 95° | 14 | 50 | 142 | 273 | 320 |
| 97.5° | 16 | 52 | 163 | 292 | 337 |
| 100° | 18 | 57 | 185 | 308 | 346 |
| 102.5° | 20 | 64 | 205 | 315 | 348 |
| 105° | 22 | 76 | 219 | 315 | 344 |
| 107.5° | 24 | 90 | 227 | 309 | 334 |
| 110° | 26 | 103 | 229 | 307 | 331 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|----|-------|-----|-------|-----|
| 112.5° | 28 | 109 | 229 | 303 | 325 |
| 115° | 30 | 109 | 218 | 287 | 309 |
| 117.5° | 31 | 104 | 198 | 265 | 286 |
| 120° | 32 | 97 | 176 | 238 | 260 |
| 122.5° | 34 | 90 | 156 | 208 | 230 |
| 125° | 34 | 81 | 140 | 180 | 199 |
| 127.5° | 35 | 73 | 125 | 158 | 174 |
| 130° | 36 | 69 | 110 | 140 | 151 |
| 132.5° | 36 | 65 | 103 | 127 | 133 |
| 135° | 36 | 62 | 98 | 116 | 123 |
| 137.5° | 36 | 60 | 96 | 104 | 112 |
| 140° | 35 | 59 | 91 | 98 | 101 |
| 142.5° | 34 | 57 | 82 | 93 | 95 |
| 145° | 33 | 54 | 72 | 92 | 91 |
| 147.5° | 31 | 51 | 65 | 90 | 92 |
| 150° | 30 | 48 | 60 | 81 | 90 |
| 152.5° | 29 | 45 | 57 | 72 | 80 |
| 155° | 28 | 42 | 56 | 66 | 71 |
| 157.5° | 27 | 39 | 53 | 61 | 64 |
| 160° | 26 | 36 | 48 | 57 | 59 |
| 162.5° | 25 | 34 | 43 | 52 | 55 |
| 165° | 25 | 32 | 38 | 44 | 47 |
| 167.5° | 24 | 30 | 34 | 37 | 40 |
| 170° | 24 | 28 | 30 | 32 | 33 |
| 172.5° | 24 | 26 | 27 | 28 | 28 |
| 175° | 23 | 25 | 25 | 24 | 24 |
| 177.5° | 23 | 24 | 23 | 21 | 21 |
| 180° | 22 | 22 | 22 | 22 | 22 |

(END OF REPORT)