

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO

Report Number: P30088

Luminaire Tested: **ML706827-494P06**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P30088
Test Lab: METALUX RESEARCH LABS
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ML706827-494P06
Description: HALO RECESSED LED RETROFIT MODULE WITH TRIM THAT INCLUDES
WHITE PAINTED REFLECTOR
Light Source: HIGH OUPUT LED PACKAGE
LED 14 WATTS
Ballast/Driver: 120V ELECTRONIC DRIVER

Summary

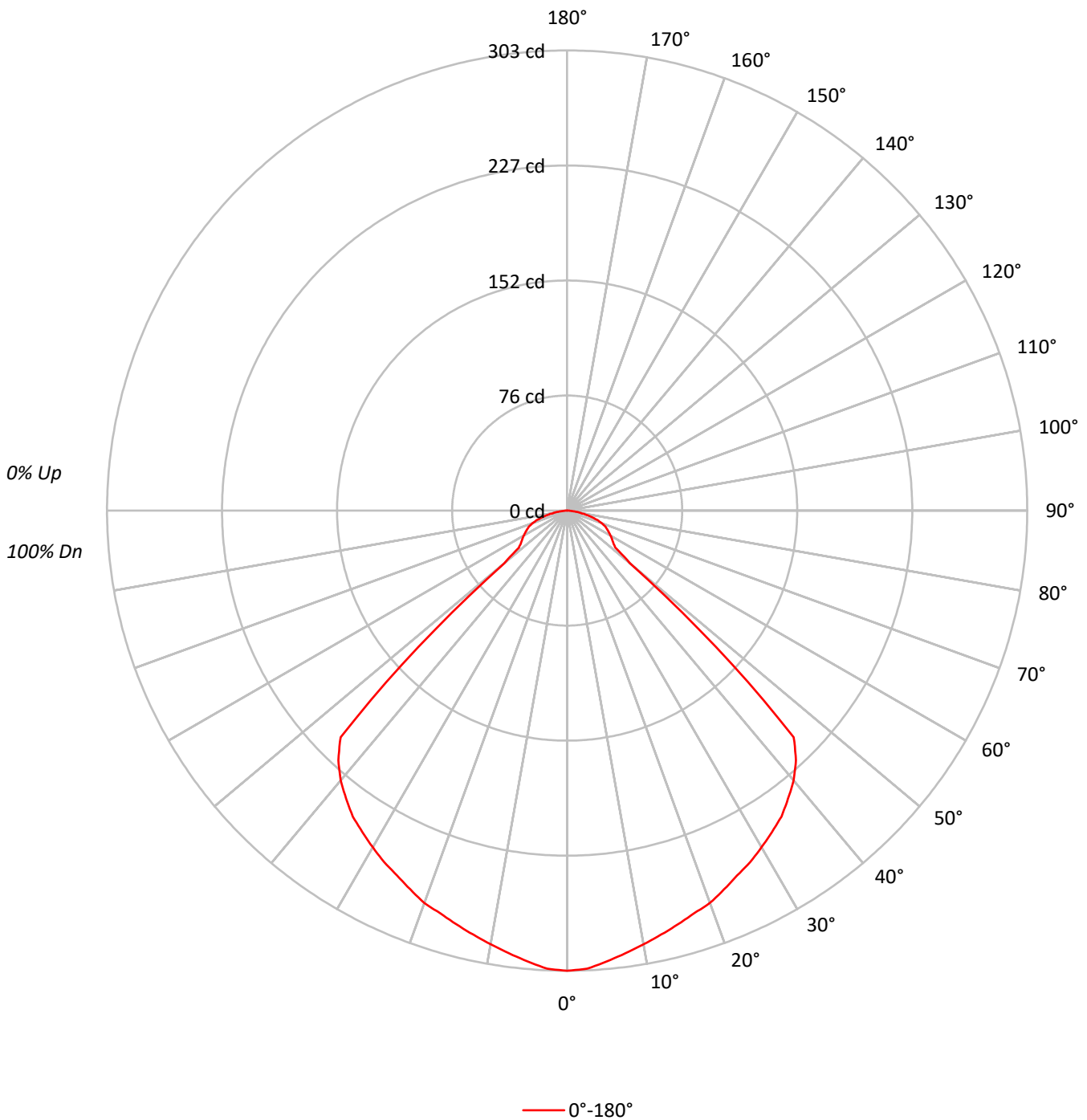
Lumens per Lamp: 604 (1 lamp)
Luminaire Lumens: 604.8 lumens
Efficiency: 100.1%
Efficacy: 43.8 lumens/watt
Spacing Criteria (0/90/45): 1.27 / 1.27 / 1.4
Luminous Opening: Circular (Dia: 0.42' x H: 0')
CIE Type: Direct

Input Watts (W): 13.8
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 | | 107 | 107 | 107 | | 102 | 102 | 102 | 100 |
| 1 | 111 | 107 | 104 | 101 | 109 | 105 | 102 | 99 | 101 | 99 | 96 | | 97 | 95 | 93 | | 94 | 92 | 91 | 89 |
| 2 | 103 | 97 | 91 | 86 | 101 | 95 | 90 | 85 | 91 | 87 | 84 | | 88 | 85 | 82 | | 85 | 82 | 80 | 78 |
| 3 | 96 | 87 | 80 | 75 | 94 | 86 | 79 | 74 | 83 | 77 | 73 | | 80 | 76 | 72 | | 78 | 74 | 71 | 69 |
| 4 | 89 | 79 | 71 | 66 | 87 | 78 | 71 | 65 | 75 | 69 | 65 | | 73 | 68 | 64 | | 71 | 67 | 63 | 61 |
| 5 | 83 | 72 | 64 | 58 | 81 | 71 | 63 | 58 | 69 | 62 | 57 | | 67 | 61 | 57 | | 65 | 60 | 56 | 54 |
| 6 | 77 | 65 | 58 | 52 | 75 | 65 | 57 | 52 | 63 | 56 | 51 | | 61 | 55 | 51 | | 60 | 55 | 51 | 49 |
| 7 | 72 | 60 | 52 | 47 | 70 | 59 | 52 | 47 | 58 | 51 | 46 | | 56 | 50 | 46 | | 55 | 50 | 46 | 44 |
| 8 | 67 | 55 | 48 | 42 | 66 | 54 | 47 | 42 | 53 | 47 | 42 | | 52 | 46 | 42 | | 51 | 46 | 41 | 40 |
| 9 | 63 | 51 | 43 | 38 | 62 | 50 | 43 | 38 | 49 | 43 | 38 | | 48 | 42 | 38 | | 47 | 42 | 38 | 36 |
| 10 | 59 | 47 | 40 | 35 | 58 | 47 | 40 | 35 | 46 | 39 | 35 | | 45 | 39 | 35 | | 44 | 39 | 35 | 33 |

AVERAGE LUMINANCE (cd/sqm):

| | |
|-----|-------|
| | 0° |
| 0° | 23919 |
| 5° | 23614 |
| 10° | 23246 |
| 15° | 23047 |
| 20° | 23102 |
| 25° | 23082 |
| 30° | 23335 |
| 35° | 23707 |
| 40° | 23908 |
| 45° | 23556 |
| 50° | 6632 |
| 55° | 5092 |
| 60° | 5210 |
| 65° | 5417 |
| 70° | 5539 |
| 75° | 5185 |
| 80° | 4091 |
| 85° | 2717 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture | % Lamp |
|-----------|--------|-----------|--------|
| 0°-10° | 28.2 | 4.7 | 4.7 |
| 10°-20° | 79.8 | 13.2 | 13.2 |
| 20°-30° | 122.6 | 20.3 | 20.3 |
| 30°-40° | 153.6 | 25.4 | 25.4 |
| 40°-50° | 135.6 | 22.4 | 22.4 |
| 50°-60° | 34.7 | 5.7 | 5.8 |
| 60°-70° | 28.6 | 4.7 | 4.7 |
| 70°-80° | 17.8 | 2.9 | 2.9 |
| 80°-90° | 3.9 | 0.7 | 0.7 |
| 90°-100° | 0.0 | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 | 0.0 |
| 0°-30° | 230.5 | 38.1 | 38.2 |
| 0°-40° | 384.1 | 63.5 | 63.6 |
| 0°-60° | 554.5 | 91.7 | 91.8 |
| 0°-90° | 604.8 | 100.0 | 100.1 |
| 90°-120° | 0.0 | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 | 0.0 |
| 0°-180° | 604.8 | 100.0 | 100.1 |

CANDELA DISTRIBUTION:

| | 0° | Flux |
|------|-----|------|
| 0° | 303 | |
| 5° | 298 | 28 |
| 15° | 282 | 80 |
| 25° | 265 | 123 |
| 35° | 246 | 154 |
| 45° | 211 | 136 |
| 55° | 37 | 35 |
| 65° | 29 | 29 |
| 75° | 17 | 18 |
| 85° | 3 | 4 |
| 90° | 0 | 0 |
| 95° | 0 | 0 |
| 105° | 0 | 0 |
| 115° | 0 | 0 |
| 125° | 0 | 0 |
| 135° | 0 | 0 |
| 145° | 0 | 0 |
| 155° | 0 | 0 |
| 165° | 0 | 0 |
| 175° | 0 | 0 |
| 180° | 0 | 0 |



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CANDELA DISTRIBUTION (FULL):

| | 0° |
|--------|-----|
| 0° | 303 |
| 2.5° | 302 |
| 5° | 298 |
| 7.5° | 294 |
| 10° | 290 |
| 12.5° | 286 |
| 15° | 282 |
| 17.5° | 278 |
| 20° | 275 |
| 22.5° | 270 |
| 25° | 265 |
| 27.5° | 261 |
| 30° | 256 |
| 32.5° | 251 |
| 35° | 246 |
| 37.5° | 239 |
| 40° | 232 |
| 42.5° | 223 |
| 45° | 211 |
| 47.5° | 133 |
| 50° | 54 |
| 52.5° | 40 |
| 55° | 37 |
| 57.5° | 35 |
| 60° | 33 |
| 62.5° | 31 |
| 65° | 29 |
| 67.5° | 27 |
| 70° | 24 |
| 72.5° | 21 |
| 75° | 17 |
| 77.5° | 13 |
| 80° | 9 |
| 82.5° | 6 |
| 85° | 3 |
| 87.5° | 1 |
| 90° | 0 |
| 92.5° | 0 |
| 95° | 0 |
| 97.5° | 0 |
| 100° | 0 |
| 102.5° | 0 |
| 105° | 0 |
| 107.5° | 0 |
| 110° | 0 |



TEST NUMBER: P30088

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CANDELA DISTRIBUTION (continued):

| | 0° |
|--------|----|
| 112.5° | 0 |
| 115° | 0 |
| 117.5° | 0 |
| 120° | 0 |
| 122.5° | 0 |
| 125° | 0 |
| 127.5° | 0 |
| 130° | 0 |
| 132.5° | 0 |
| 135° | 0 |
| 137.5° | 0 |
| 140° | 0 |
| 142.5° | 0 |
| 145° | 0 |
| 147.5° | 0 |
| 150° | 0 |
| 152.5° | 0 |
| 155° | 0 |
| 157.5° | 0 |
| 160° | 0 |
| 162.5° | 0 |
| 165° | 0 |
| 167.5° | 0 |
| 170° | 0 |
| 172.5° | 0 |
| 175° | 0 |
| 177.5° | 0 |
| 180° | 0 |

(END OF REPORT)