

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: P130240

Luminaire Tested: **HL612ICAT - HLM6935 - HL6WFL - 455SC**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130240
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33486)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6935 - HL6WFL - 455SC
Description: HALO ALLSLOPE 6" 21W, Specular Clear Reflector, White Metal Trim Ring using 55 Degree Optic at a 6-12 Pitch
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1609.5 lumens
Efficiency: N/A
Efficacy: 84.3 lumens/watt
Spacing Criteria (0/90/45): 1.47 / 0.84 / 1.17
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

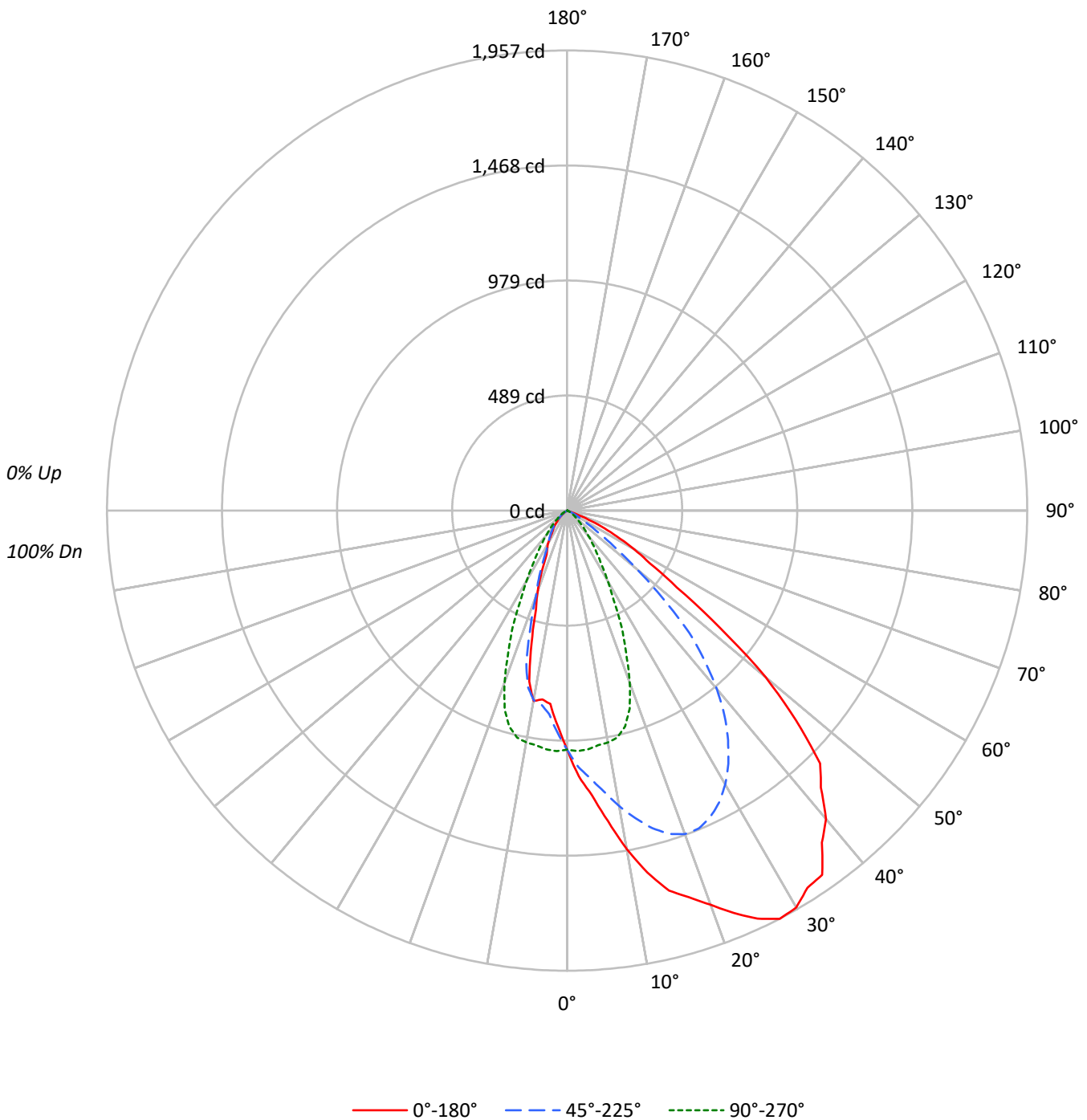
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | 112 | 109 | 106 | 104 | 110 | 107 | 104 | 102 | 103 | 101 | 99 | 99 | 97 | 96 | 96 | 94 | 93 | 91 |
| 2 | 105 | 99 | 95 | 90 | 103 | 98 | 93 | 89 | 94 | 91 | 87 | 91 | 88 | 86 | 88 | 86 | 84 | 82 |
| 3 | 98 | 91 | 85 | 80 | 96 | 89 | 84 | 79 | 86 | 82 | 78 | 84 | 80 | 77 | 82 | 78 | 75 | 74 |
| 4 | 92 | 83 | 76 | 71 | 90 | 82 | 75 | 70 | 79 | 74 | 70 | 77 | 73 | 69 | 75 | 71 | 68 | 66 |
| 5 | 86 | 76 | 69 | 64 | 84 | 75 | 68 | 63 | 73 | 67 | 63 | 71 | 66 | 62 | 69 | 65 | 61 | 60 |
| 6 | 80 | 70 | 62 | 57 | 79 | 69 | 62 | 57 | 67 | 61 | 57 | 66 | 60 | 56 | 64 | 60 | 56 | 54 |
| 7 | 75 | 64 | 57 | 52 | 74 | 64 | 57 | 52 | 62 | 56 | 52 | 61 | 55 | 51 | 60 | 55 | 51 | 49 |
| 8 | 71 | 59 | 52 | 47 | 69 | 59 | 52 | 47 | 58 | 51 | 47 | 57 | 51 | 47 | 55 | 50 | 47 | 45 |
| 9 | 67 | 55 | 48 | 44 | 65 | 55 | 48 | 43 | 54 | 48 | 43 | 53 | 47 | 43 | 52 | 47 | 43 | 41 |
| 10 | 63 | 51 | 45 | 40 | 62 | 51 | 44 | 40 | 50 | 44 | 40 | 49 | 44 | 40 | 48 | 43 | 40 | 38 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 90° | 180° |
|-----|--------|-------|-------|
| 0° | 60682 | 60682 | 60682 |
| 5° | 71159 | 59670 | 48333 |
| 10° | 84642 | 57957 | 47599 |
| 15° | 96502 | 54828 | 33708 |
| 20° | 103323 | 45108 | 21204 |
| 25° | 112202 | 32131 | 12019 |
| 30° | 116467 | 20509 | 9866 |
| 35° | 116179 | 13406 | 6580 |
| 40° | 109130 | 8958 | 5104 |
| 45° | 101428 | 5996 | 3381 |
| 50° | 77694 | 3801 | 1841 |
| 55° | 42910 | 2467 | 370 |
| 60° | 26856 | 1472 | 0 |
| 65° | 14485 | 585 | 0 |
| 70° | 1977 | 161 | 0 |
| 75° | 185 | 93 | 0 |
| 80° | 0 | 219 | 0 |
| 85° | 0 | 271 | 0 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 97.9 | 6.1 |
| 10°-20° | 285.5 | 17.7 |
| 20°-30° | 374.7 | 23.3 |
| 30°-40° | 390.9 | 24.3 |
| 40°-50° | 306.5 | 19.0 |
| 50°-60° | 123.6 | 7.7 |
| 60°-70° | 28.3 | 1.8 |
| 70°-80° | 1.5 | 0.1 |
| 80°-90° | 0.6 | 0.0 |
| 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° | 758.1 | 47.1 |
| 0°-40° | 1149.0 | 71.4 |
| 0°-60° | 1579.1 | 98.1 |
| 0°-90° | 1609.5 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1609.5 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 45° | 90° | 135° | 180° | Flux |
|-----|------|------|------|------|------|------|
| 0° | 1017 | 1017 | 1017 | 1017 | 1017 | |
| 5° | 1215 | 1144 | 1019 | 870 | 825 | 124 |
| 15° | 1673 | 1398 | 950 | 671 | 584 | 472 |
| 25° | 1915 | 1439 | 548 | 250 | 205 | 881 |
| 35° | 1891 | 1193 | 218 | 123 | 107 | 1160 |
| 45° | 1521 | 736 | 90 | 58 | 51 | 1126 |
| 55° | 569 | 153 | 33 | 17 | 5 | 558 |
| 65° | 161 | 24 | 6 | 1 | 0 | 161 |
| 75° | 2 | 2 | 1 | 1 | 0 | 4 |
| 85° | 0 | 1 | 2 | 1 | 0 | 0 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P130240

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1016.6 | 1016.6 | 1016.6 | 1016.6 | 1016.6 | 1016.6 | 1016.6 | 1016.6 | 1016.6 |
| 2.5° | 1131.0 | 1094.2 | 1091.8 | 1046.8 | 1023.9 | 983.9 | 945.5 | 925.9 | 916.1 |
| 5° | 1215.2 | 1166.1 | 1144.1 | 1079.5 | 1019.0 | 937.3 | 869.5 | 837.6 | 825.4 |
| 7.5° | 1332.0 | 1265.8 | 1205.3 | 1099.1 | 1006.8 | 897.3 | 832.7 | 811.5 | 809.8 |
| 10° | 1461.9 | 1373.7 | 1276.4 | 1122.0 | 1001.0 | 872.8 | 818.8 | 818.8 | 822.1 |
| 12.5° | 1577.2 | 1477.5 | 1340.2 | 1148.1 | 988.0 | 838.4 | 769.0 | 757.5 | 744.5 |
| 15° | 1672.8 | 1566.5 | 1398.2 | 1156.3 | 950.4 | 773.9 | 670.9 | 607.2 | 584.3 |
| 17.5° | 1724.3 | 1636.8 | 1441.5 | 1145.7 | 883.4 | 667.6 | 518.1 | 451.9 | 442.1 |
| 20° | 1783.9 | 1676.0 | 1464.4 | 1106.5 | 778.8 | 523.8 | 387.3 | 371.8 | 366.1 |
| 22.5° | 1852.6 | 1703.0 | 1463.6 | 1040.3 | 654.6 | 396.3 | 315.4 | 293.4 | 282.7 |
| 25° | 1914.7 | 1721.8 | 1439.1 | 958.6 | 548.3 | 304.8 | 250.1 | 210.0 | 205.1 |
| 27.5° | 1957.2 | 1730.8 | 1399.8 | 862.1 | 427.4 | 246.8 | 191.2 | 174.9 | 182.2 |
| 30° | 1949.0 | 1726.7 | 1344.3 | 764.9 | 343.2 | 199.4 | 156.1 | 161.0 | 165.1 |
| 32.5° | 1901.6 | 1716.1 | 1275.6 | 667.6 | 270.5 | 164.3 | 140.6 | 137.3 | 131.6 |
| 35° | 1891.0 | 1685.8 | 1193.1 | 569.6 | 218.2 | 137.3 | 122.6 | 110.3 | 107.1 |
| 37.5° | 1779.8 | 1617.2 | 1099.9 | 475.6 | 177.3 | 116.9 | 104.6 | 96.4 | 95.6 |
| 40° | 1712.8 | 1521.6 | 989.6 | 386.5 | 140.6 | 100.5 | 89.1 | 81.7 | 80.1 |
| 42.5° | 1597.6 | 1397.4 | 864.6 | 293.4 | 113.6 | 85.0 | 74.4 | 63.7 | 62.1 |
| 45° | 1520.8 | 1254.4 | 735.5 | 203.5 | 89.9 | 68.6 | 58.0 | 52.3 | 50.7 |
| 47.5° | 1319.8 | 1087.7 | 547.5 | 141.4 | 69.5 | 55.6 | 45.8 | 40.0 | 39.2 |
| 50° | 1101.6 | 876.8 | 385.7 | 94.0 | 53.9 | 43.3 | 36.0 | 29.4 | 26.1 |
| 52.5° | 819.6 | 633.3 | 250.9 | 62.1 | 42.5 | 33.5 | 26.1 | 18.0 | 15.5 |
| 55° | 568.8 | 430.7 | 152.8 | 46.6 | 32.7 | 25.3 | 17.2 | 9.0 | 4.9 |
| 57.5° | 416.8 | 301.5 | 94.0 | 35.1 | 24.5 | 18.0 | 9.8 | 1.6 | 0.0 |
| 60° | 328.5 | 219.8 | 58.8 | 26.1 | 18.0 | 11.4 | 3.3 | 0.0 | 0.0 |
| 62.5° | 237.0 | 148.7 | 37.6 | 18.0 | 11.4 | 6.5 | 0.8 | 0.0 | 0.0 |
| 65° | 161.0 | 83.4 | 23.7 | 12.3 | 6.5 | 2.5 | 0.8 | 0.0 | 0.0 |
| 67.5° | 84.2 | 39.2 | 12.3 | 6.5 | 3.3 | 1.6 | 0.8 | 0.0 | 0.0 |
| 70° | 19.6 | 12.3 | 5.7 | 3.3 | 1.6 | 0.8 | 0.8 | 0.0 | 0.0 |
| 72.5° | 4.9 | 4.1 | 2.5 | 1.6 | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 |
| 75° | 1.6 | 1.6 | 1.6 | 0.8 | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 |
| 77.5° | 0.0 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 |
| 80° | 0.0 | 0.0 | 0.8 | 0.8 | 1.6 | 0.8 | 0.8 | 0.0 | 0.0 |
| 82.5° | 0.0 | 0.0 | 0.8 | 0.8 | 1.6 | 0.8 | 0.8 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.8 | 0.8 | 1.6 | 0.8 | 0.8 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.8 | 0.8 | 1.6 | 0.8 | 0.8 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)