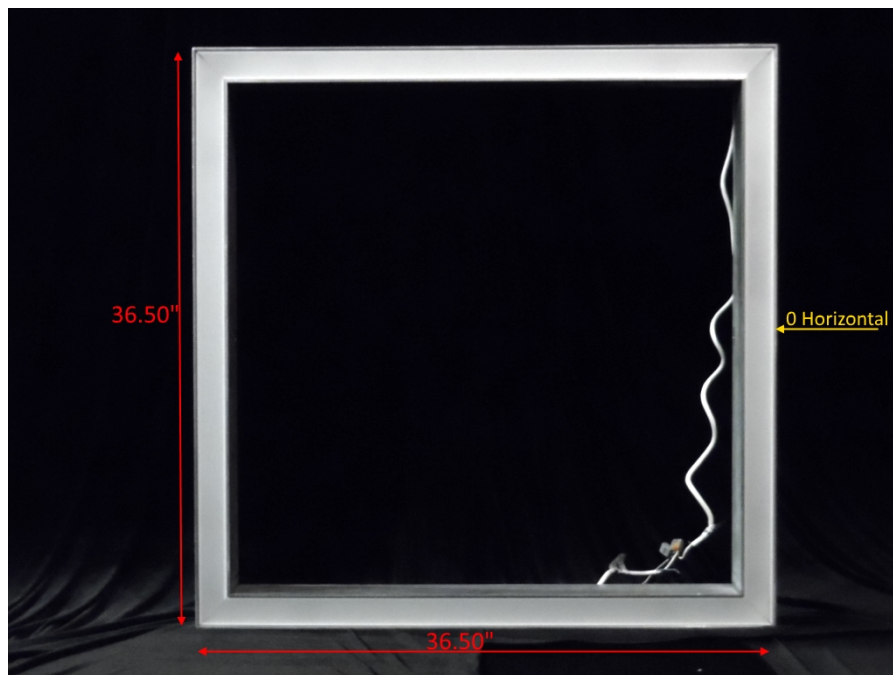


Report of Test

LLIA000833-006A

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-FL-XXXX-UNV

Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors, translucent white plastic enclosures.
272 white LEDs, 4 PAL-Lighting LED boards with 68 LEDs each.
One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver
120.0Vac, 60.00Hz, 0.6910A, 82.66W, 0.997PF, 7.8%THD(i)



Performance Summary

| | |
|--------------------|------------|
| Total Light Output | 8672 lm |
| Luminaire Power | 82.7 W |
| Luminous Efficacy | 104.9 lm/W |

PREPARED FOR : Precision Architectural Lighting, 4830 Timber Creek Drive, Houston, TX 77017

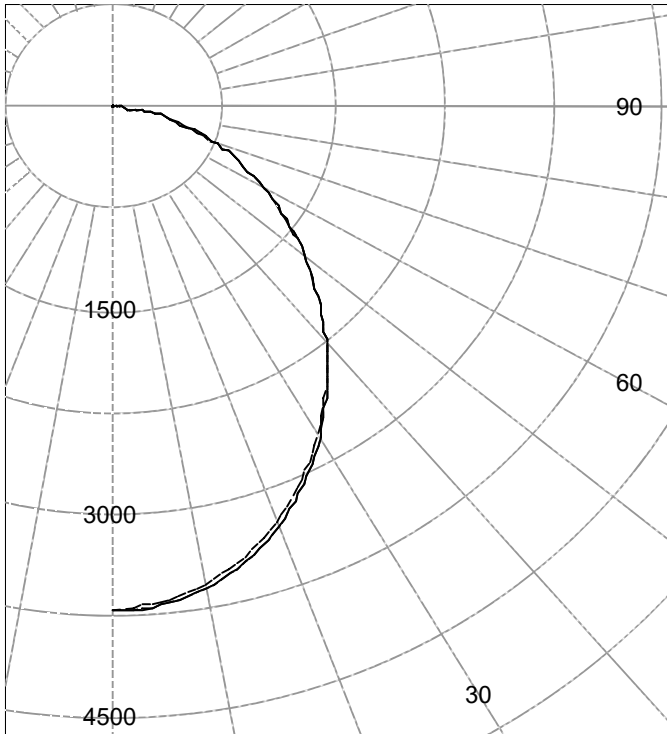


Test Report No. LLIA000833-006A

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-FL-XXXX-UNV

Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors, translucent white plastic enclosures.
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120.0Vac, 60.00Hz, 0.6910A, 82.66W, 0.997PF, 7.8%THD(i)

Legend: C0-Solid, C45-Dashed, C90-Grey (cd)



(Two plane symmetry) C0-C90

AVERAGE LUMINANCE (cd / m²)

| Gamma | C0 | C45 | C90 |
|-------|-------|-------|-------|
| 45.0 | 17727 | 17794 | 17724 |
| 55.0 | 15920 | 15942 | 15913 |
| 65.0 | 14130 | 14121 | 14118 |
| 75.0 | 11819 | 11886 | 11808 |
| 85.0 | 8627 | 8589 | 8628 |

INTENSITY SUMMARY (cd)

| Gamma | C-Plane | | | | | Flux (lm) |
|-------|---------|-------|------|-------|------|-----------|
| | C0 | C22.5 | C45 | C67.5 | C90 | |
| 0.0 | 3703 | 3703 | 3703 | 3703 | 3703 | |
| 5.0 | 3687 | 3671 | 3665 | 3671 | 3685 | 348 |
| 10.0 | 3603 | 3583 | 3577 | 3584 | 3601 | |
| 15.0 | 3467 | 3443 | 3436 | 3444 | 3465 | 970 |
| 20.0 | 3288 | 3258 | 3250 | 3258 | 3286 | |
| 25.0 | 3066 | 3037 | 3028 | 3037 | 3064 | 1399 |
| 30.0 | 2808 | 2790 | 2780 | 2790 | 2806 | |
| 35.0 | 2533 | 2525 | 2517 | 2525 | 2532 | 1578 |
| 40.0 | 2249 | 2249 | 2246 | 2249 | 2248 | |
| 45.0 | 1966 | 1971 | 1973 | 1971 | 1965 | 1520 |
| 50.0 | 1692 | 1697 | 1700 | 1698 | 1692 | |
| 55.0 | 1432 | 1432 | 1434 | 1432 | 1431 | 1282 |
| 60.0 | 1179 | 1180 | 1181 | 1180 | 1179 | |
| 65.0 | 936 | 936 | 936 | 935 | 936 | 927 |
| 70.0 | 699 | 701 | 701 | 701 | 698 | |
| 75.0 | 480 | 483 | 482 | 484 | 479 | 512 |
| 80.0 | 284 | 287 | 288 | 288 | 284 | |
| 85.0 | 118 | 118 | 117 | 118 | 118 | 135 |
| 90.0 | 1 | 0 | 1 | 0 | 1 | |

ZONAL FLUX AND PERCENTAGES

| Zone | Flux (lm) | % Lamp | % Luminaire |
|--------|-----------|--------|-------------|
| 0-30 | 2717 | N / A | 31.3 |
| 0-40 | 4295 | N / A | 49.5 |
| 0-60 | 7097 | N / A | 81.8 |
| 0-90 | 8672 | N / A | 100.0 |
| 40-90 | 4377 | N / A | 50.5 |
| 60-90 | 1574 | N / A | 18.2 |
| 90-180 | 0 | N / A | 0.0 |
| 0-180 | 8672 | N / A | 100.0 |

Total Light Output = 8,672 lm

Spacing Criterion: 0-180 1.2
Spacing Criterion: 90-270 1.1

Signed:

Authorized Signatory

Date of test 15-Sep-2017
Date of report 17-Sep-2017



Test Report No. LLIA000833-006A

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-FL-XXXX-UNV

Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors, translucent white plastic enclosures. 272 white LEDs, 4 PAL-Lighting LED boards with 68 LEDs each. One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver 120.0Vac, 60.00Hz, 0.6910A, 82.66W, 0.997PF, 7.8%THD(i)

Intensity data (cd)

| Gamma | C-Plane | | | | |
|-------|---------|-------|------|-------|------|
| | C0 | C22.5 | C45 | C67.5 | C90 |
| 0.0 | 3703 | 3703 | 3703 | 3703 | 3703 |
| 2.5 | 3709 | 3694 | 3687 | 3694 | 3707 |
| 5.0 | 3687 | 3671 | 3665 | 3671 | 3685 |
| 7.5 | 3652 | 3634 | 3628 | 3634 | 3650 |
| 10.0 | 3603 | 3583 | 3577 | 3584 | 3601 |
| 12.5 | 3541 | 3520 | 3513 | 3520 | 3539 |
| 15.0 | 3467 | 3443 | 3436 | 3444 | 3465 |
| 17.5 | 3383 | 3356 | 3348 | 3356 | 3381 |
| 20.0 | 3288 | 3258 | 3250 | 3258 | 3286 |
| 22.5 | 3182 | 3152 | 3143 | 3152 | 3180 |
| 25.0 | 3066 | 3037 | 3028 | 3037 | 3064 |
| 27.5 | 2940 | 2917 | 2907 | 2917 | 2938 |
| 30.0 | 2808 | 2790 | 2780 | 2790 | 2806 |
| 32.5 | 2671 | 2659 | 2650 | 2659 | 2670 |
| 35.0 | 2533 | 2525 | 2517 | 2525 | 2532 |
| 37.5 | 2391 | 2388 | 2382 | 2388 | 2391 |
| 40.0 | 2249 | 2249 | 2246 | 2249 | 2248 |
| 42.5 | 2107 | 2110 | 2110 | 2111 | 2106 |
| 45.0 | 1966 | 1971 | 1973 | 1971 | 1965 |
| 47.5 | 1828 | 1833 | 1836 | 1833 | 1827 |
| 50.0 | 1692 | 1697 | 1700 | 1698 | 1692 |
| 52.5 | 1561 | 1564 | 1566 | 1564 | 1560 |
| 55.0 | 1432 | 1432 | 1434 | 1432 | 1431 |
| 57.5 | 1306 | 1305 | 1306 | 1305 | 1305 |
| 60.0 | 1179 | 1180 | 1181 | 1180 | 1179 |
| 62.5 | 1056 | 1057 | 1057 | 1056 | 1055 |
| 65.0 | 936 | 936 | 936 | 935 | 936 |
| 67.5 | 816 | 816 | 817 | 816 | 816 |
| 70.0 | 699 | 701 | 701 | 701 | 698 |
| 72.5 | 586 | 590 | 589 | 590 | 586 |
| 75.0 | 480 | 483 | 482 | 484 | 479 |
| 77.5 | 378 | 382 | 382 | 382 | 378 |
| 80.0 | 284 | 287 | 288 | 288 | 284 |
| 82.5 | 197 | 199 | 200 | 199 | 197 |
| 85.0 | 118 | 118 | 117 | 118 | 118 |
| 87.5 | 47 | 44 | 42 | 45 | 47 |
| 90.0 | 1 | 0 | 1 | 0 | 1 |



Test Number: LLIA000833-006A

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-FL-XXXX-UNV
Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors, translucent white plastic enclosures.
272 white LEDs, 4 PAL-Lighting LED boards with 68 LEDs each.
One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver
120.0Vac, 60.00Hz, 0.6910A, 82.66W, 0.997PF, 7.8%THD(i)

Coefficients Of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 0.20

| RC | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|
| | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | |
| 0 | 118 | 118 | 118 | 118 | 115 | 115 | 115 | 115 | 109 | 109 | 109 | 103 | 103 | 103 | 98 | 98 | 98 | 95 |
| 1 | 108 | 104 | 100 | 96 | 105 | 101 | 97 | 94 | 96 | 93 | 90 | 91 | 89 | 87 | 87 | 85 | 83 | 81 |
| 2 | 99 | 91 | 85 | 79 | 96 | 89 | 83 | 78 | 85 | 80 | 75 | 81 | 77 | 73 | 77 | 74 | 71 | 68 |
| 3 | 91 | 80 | 73 | 66 | 88 | 79 | 71 | 66 | 75 | 69 | 64 | 72 | 67 | 62 | 69 | 64 | 61 | 58 |
| 4 | 83 | 72 | 63 | 57 | 81 | 70 | 62 | 56 | 67 | 60 | 55 | 64 | 58 | 54 | 62 | 57 | 53 | 50 |
| 5 | 77 | 64 | 56 | 49 | 74 | 63 | 55 | 49 | 60 | 53 | 48 | 58 | 52 | 47 | 56 | 50 | 46 | 44 |
| 6 | 71 | 58 | 50 | 43 | 69 | 57 | 49 | 43 | 55 | 48 | 42 | 53 | 46 | 42 | 51 | 45 | 41 | 39 |
| 7 | 66 | 53 | 44 | 39 | 64 | 52 | 44 | 38 | 50 | 43 | 38 | 48 | 42 | 37 | 46 | 41 | 37 | 35 |
| 8 | 62 | 48 | 40 | 35 | 60 | 48 | 40 | 34 | 46 | 39 | 34 | 44 | 38 | 33 | 43 | 37 | 33 | 31 |
| 9 | 58 | 45 | 37 | 31 | 56 | 44 | 36 | 31 | 42 | 35 | 31 | 41 | 35 | 30 | 40 | 34 | 30 | 28 |
| 10 | 54 | 41 | 34 | 28 | 53 | 41 | 33 | 28 | 39 | 33 | 28 | 38 | 32 | 28 | 37 | 31 | 27 | 26 |

For absolute test reports, CUs are expressed as a percentage of total lumen output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are lambertian reflectors. 2) Incident flux on each surface is uniformly distributed. 3) The room is spectrally neutral. When luminaires are not evenly distributed throughout the room, or do not exhibit lateral symmetry, CU values may differ from actual performance.

Circle of Light Plot

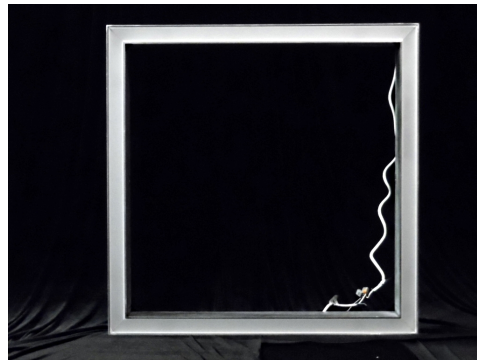
| Height(ft) | Illuminance at Nadir (fc) | Beam Width (across 50% Nadir Illum) | |
|------------|---------------------------|----------------------------------------|--------|
| | | 0-180 | 90-270 |
| 6.0 | 102.9 | 6.84 | 6.84 |
| 8.0 | 57.9 | 9.12 | 9.12 |
| 10.0 | 37.0 | 11.40 | 11.40 |
| 12.0 | 25.7 | 13.68 | 13.68 |
| 14.0 | 18.9 | 15.97 | 15.96 |
| 16.0 | 14.5 | 18.25 | 18.24 |



Test Report No. LLIA000833-006A

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-FL-XXXX-UNV

Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors, translucent white plastic enclosures.
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One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver
120.0Vac, 60.00Hz, 0.6910A, 82.66W, 0.997PF, 7.8%THD(i)





Test Report No. LLIA000833-006A

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Test Distance 9.5 m
Test Temperature 25.8°C

Notes The laboratory has not participated in the selection of samples to be tested. All testing is performed on the understanding that the significance of the report is limited to the extent that the test sample is representative of production units.

Tested in accordance with the applicable sections of publications: IES LM-79-08 (Sec. 12), IES LM-16-93, IES LM-58-13, CIE 13.3:1995, CIE 15:2004, ANSI C78.377:2015, ANSI C82.77-10:2014.

The luminous intensity values, and other derived quantities, contained in this report are based on the absolute data, as measured.

Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

This report is free of erasures and corrections.

Photometric intensity values are reported using the CIE Gamma coordinate system as defined in CIE publication number 121.

This report may contain data that are not covered by the NVLAP accreditation. Quantities marked with * are not covered.

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the Federal Government.



Report of Test

LLIA000833-006B

Integrating Sphere Report

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-FL-XXXX-UNV

Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors,
translucent white plastic enclosures.

272 white LEDs, 4 PAL-Lighting LED boards with 68 LEDs each.

One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver



Performance Summary

| | |
|--------------|-----------|
| Voltage | 120.0 Vac |
| Current | 0.6912 A |
| Power | 82.62 W |
| Frequency | 60.00 Hz |
| Power Factor | 0.997 |
| Current THD | 7.8 % |

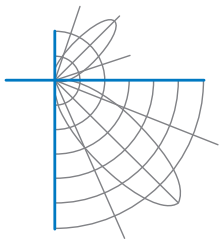
| | |
|---------------------|------------------|
| Total Luminous Flux | 9253.1 lm |
| Efficacy | 112.0 lm/W |
| Chromaticity (x,y) | (0.4056, 0.3893) |
| (u',v') | (0.2365, 0.5107) |
| Duv | -0.0007 |
| CCT | 3483 K |
| CRI (Ra) | 84 |
| R9 | 14 |

Prepared For:

Precision Architectural Lighting
4830 Timber Creek Drive
Houston, TX 77017, USA

Test date: 09/14/2017

Report date: 09/15/2017



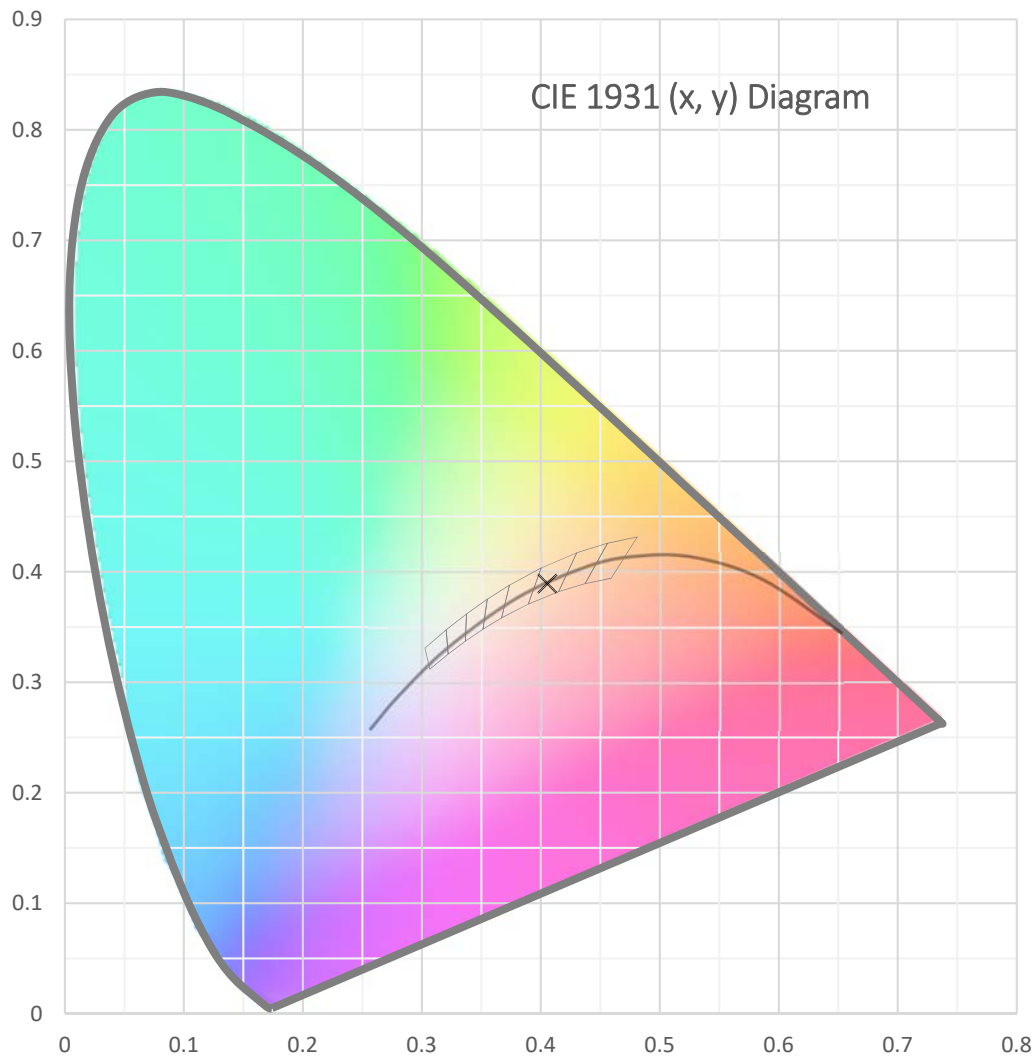
Test Report Number: LLIA000833-006B

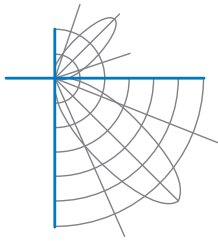
Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-FL-XXXX-UNV

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One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver





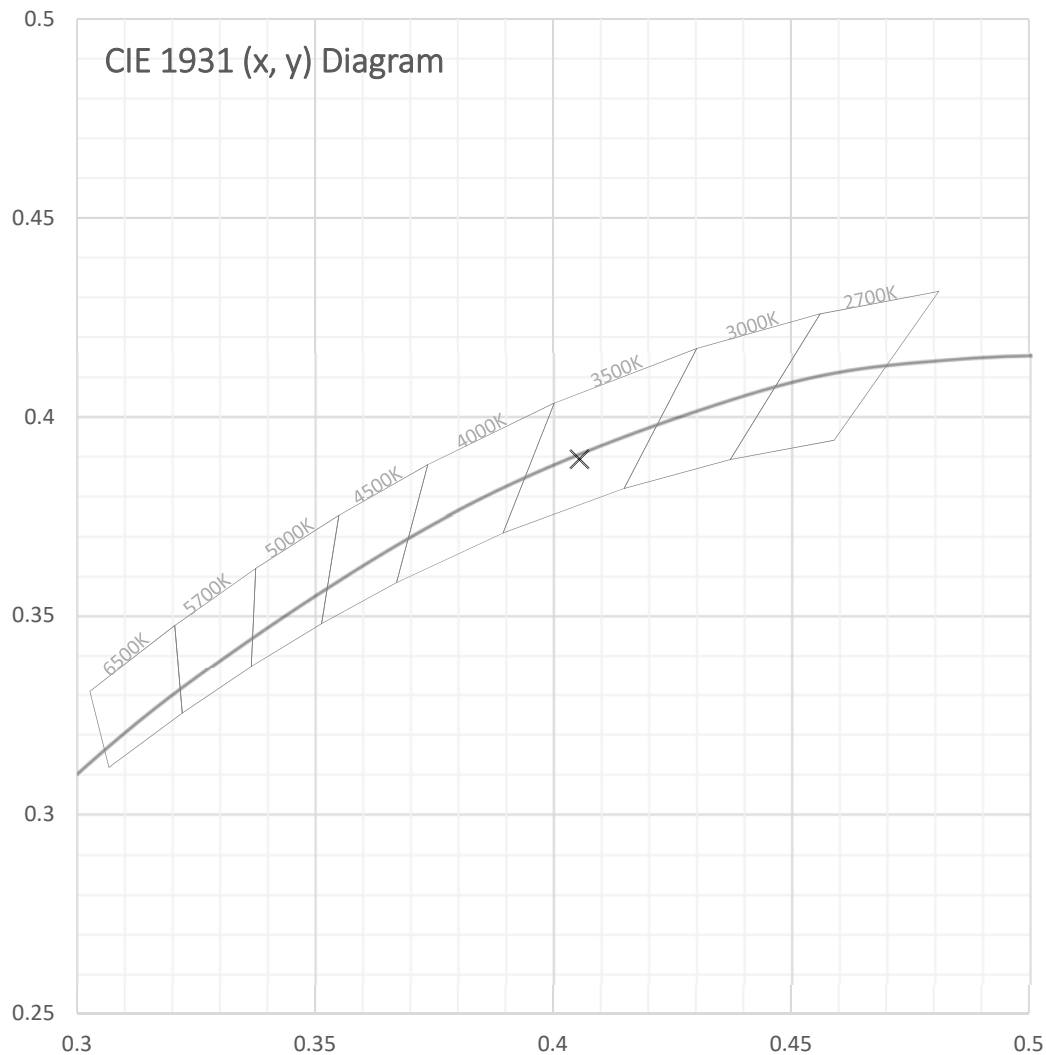
Test Report Number: LLIA000833-006B

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Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors,
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One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver

Spectral Data

| | |
|-------------------------------------|------------------|
| Total Radiant Flux | 28.57 W |
| Total Luminous Flux | 9253.1 Lm |
| Chromaticity CIE 1931 (x, y) | (0.4056, 0.3893) |
| Chromaticity CIE 1976 (u', v') | (0.2365, 0.5107) |
| Correlated Color Temperature (CCT) | 3483 K |
| Color Rendering Index (Ra) | 84 |
| R1 | 82 |
| R2 | 91 |
| R3 | 96 |
| R4 | 82 |
| R5 | 82 |
| R6 | 88 |
| R7 | 85 |
| R8 | 64 |
| R9 | 14 |
| R10 | 79 |
| R11 | 80 |
| R12 | 66 |
| R13 | 85 |
| R14 | 98 |
| Distance from Planckian Locus (Duv) | -0.0007 |
| Scotopic/Photopic Ratio * | 1.537 |

Electrical Data

| | |
|--------------|-----------|
| Voltage | 120.0 Vac |
| Current | 0.6912 A |
| Power | 82.62 W |
| Frequency | 60.00 Hz |
| Power Factor | 0.997 |
| Current THD | 7.8 % |



Test Report Number: LLIA000833-006B

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-FL-XXXX-UNV

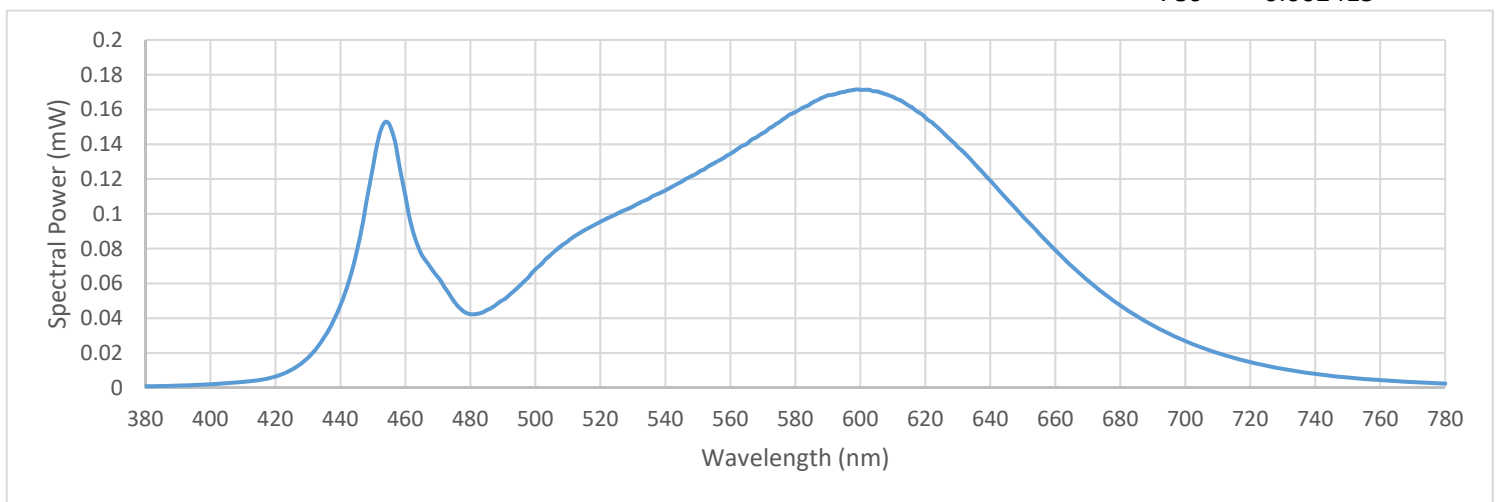
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272 white LEDs, 4 PAL-Lighting LED boards with 68 LEDs each.

One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver

Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

| | | | | | | | |
|-----|----------|-----|----------|-----|----------|-----|----------|
| 380 | 0.000913 | 480 | 0.042372 | 580 | 0.158532 | 680 | 0.047338 |
| 385 | 0.000969 | 485 | 0.044623 | 585 | 0.163748 | 685 | 0.041314 |
| 390 | 0.001217 | 490 | 0.050414 | 590 | 0.168153 | 690 | 0.035905 |
| 395 | 0.001515 | 495 | 0.058265 | 595 | 0.170052 | 695 | 0.031058 |
| 400 | 0.002031 | 500 | 0.068131 | 600 | 0.171307 | 700 | 0.026884 |
| 405 | 0.002629 | 505 | 0.076913 | 605 | 0.170460 | 705 | 0.023174 |
| 410 | 0.003409 | 510 | 0.084283 | 610 | 0.167348 | 710 | 0.019912 |
| 415 | 0.004426 | 515 | 0.090538 | 615 | 0.162079 | 715 | 0.017156 |
| 420 | 0.006492 | 520 | 0.095560 | 620 | 0.155401 | 720 | 0.014726 |
| 425 | 0.010301 | 525 | 0.099880 | 625 | 0.147615 | 725 | 0.012610 |
| 430 | 0.017328 | 530 | 0.104156 | 630 | 0.138475 | 730 | 0.010873 |
| 435 | 0.029086 | 535 | 0.108750 | 635 | 0.129134 | 735 | 0.009275 |
| 440 | 0.047395 | 540 | 0.113435 | 640 | 0.119101 | 740 | 0.007946 |
| 445 | 0.078330 | 545 | 0.118480 | 645 | 0.108719 | 745 | 0.006843 |
| 450 | 0.126895 | 550 | 0.123747 | 650 | 0.098599 | 750 | 0.005873 |
| 455 | 0.151620 | 555 | 0.129070 | 655 | 0.088633 | 755 | 0.005062 |
| 460 | 0.110199 | 560 | 0.134476 | 660 | 0.079275 | 760 | 0.004393 |
| 465 | 0.076540 | 565 | 0.140106 | 665 | 0.070023 | 765 | 0.003774 |
| 470 | 0.063709 | 570 | 0.146422 | 670 | 0.061591 | 770 | 0.003241 |
| 475 | 0.049442 | 575 | 0.152597 | 675 | 0.054049 | 775 | 0.002802 |
| | | | | | | 780 | 0.002415 |





Test Report Number: LLIA000833-006B

Catalog Number: MQS2-D-HO-K35-80-3X3-XXX-FL-XXXX-UNV

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One Osram Optotronic Oti 50/120-277/1A4 DIM L LED driver

| | |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Equipment Configuration: | LightLab International Allentown 2m Integrating Sphere Measurements acquired using a Labsphere CDS 2600 spectroradiometer Testing was performed using 4 π geometry |
| Test Temperature: | 25.2 °C |
| Test Procedure: | Tested in accordance with the applicable sections of: LM-79-08, LM-78-07, LM-58-13, ANSI_ANSLG C78.377-2015, ANSI C82-77-10:2014 |
| Significance: | The laboratory has not participated in the selection of samples to be tested. All testing is performed on the understanding that the significance of the report is limited to the extent that the test sample is representative of production units. |
| Notes: | The measurements and other derived quantities contained in this report are based on the absolute data as measured. Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results. This report is free of erasures and corrections This report may contain data that are not covered by the NVLAP accreditation. Quantities marked with * are not covered. |