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THE LIGHT CENTER OF THE INDUSTRY SINCE 1955



INDEPENDENT TESTING LABORATORIES, INC.
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

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REPORT NUMBER: ITL84583
DATE: 05/14/15
REVISED: 04/04/16
PREPARED FOR: OXYGEN LIGHTING
CATALOG NUMBER: 3-682-XX

ADDRESS: 201 RAILHEAD ROAD
FORT WORTH, TX 76106

LUMINAIRE: FORMED METAL HOUSING WITH WHITE PAINTED INTERIOR FINISH, FORMED WHITE PAINTED METAL DRIVER COVER, 1 WHITE CIRCUIT BOARD WITH 30 LEDS, TRANSLUCENT WHITE FROSTED ACRYLIC DIFFUSER, 2 FABRICATED SEMI-DIFFUSE METAL DIFFUSER MOUNTING FRAMES WITH 4 VERTICAL SUPPORT RODS. DIFFUSER FROSTED SIDE OUT. DRIVER IS EXPOSED AND MOUNTED OBLIQUELY ON THE 180-DEGREE SIDE AND OFFSET TO ONE SIDE OF THE OPTICAL COMPARTMENT. THE 0-DEGREE PLANE IS TOWARD AND PERPENDICULAR TO THE CIRCUIT BOARD.

LAMP: THIRTY WHITE LIGHT EMITTING DIODES (LEDS), VERTICAL BASE-UP POSITION.

DRIVER: ESPEN VEL12030MVH-1

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120VAC, 60Hz) TO THE DRIVER. DIFFUSER MATERIAL INFORMATION PROVIDED BY CLIENT.

| | | |
|--------------|--|----------------------|
| INSTRUMENTS: | Associated Power Technologies APT5010 AC Power Source | Calibration Due: N/A |
| | Yokogawa WT210 Digital Power Meter #9 | 01/31/16 |
| | Ocean Optics QE65000 Spectroradiometer | 03/17/16 |
| | ITL 1.5m Diameter Integrating Sphere S15-2, 4PI Geometry | 03/17/16 |

OBJECT OF TEST: Measure the Absolute Flux in lumens*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Index (CRIa,1-14), Chromaticity Coordinates (x,y; u',v'), ANSI C78.377 Duv, Total Radiant Flux*, Scotopic / Photopic Lumen Ratio, and electrical data including ANSI C82.77-2002 Power Factor (PF) and Total Harmonic Distortion (THD) to the test sample.

PROCEDURE: The test sample was provided by the customer and had an unknown number of operating hours. The test sample was mounted inside the integrating sphere and allowed to stabilize. After stabilization occurred, measurements were taken. In order to measure mean performance, multiple data sets were recorded and averaged. Readings were taken with the test sample operating at 120VAC input in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. All data are traceable to the National Institute of Standards and Technology.

RESULTS: (continued subsequent pages)

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| | |
|----------|--|
| Checked | <i>N THOMAS</i> |
| Approved | <i>P O'CONNOR</i> Sphere Lab Supervisor |

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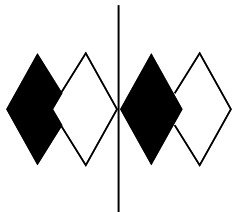
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RESULTS:

| PHOTOMETRIC | |
|---------------------------------|-------------------|
| Total Integrated Flux (lumens) | 747 * |
| SPECTORADIOMETRIC | |
| Observer | CIE 1931 2 degree |
| Chromaticity Ordinate x | 0.4362 |
| Chromaticity Ordinate y | 0.4011 |
| Observer | CIE 1976 2 degree |
| Chromaticity Ordinate u' | 0.2514 |
| Chromaticity Ordinate v' | 0.5201 |
| Correlated Color Temp CCT (K) | 2987 |
| ANSI C78.377-2008 Duv | -0.001 |
| Total Radiant Flux (milliWatts) | 2493 * |
| Scotopic / Photopic Lumen Ratio | 1.378 |
| ELECTRICAL | |
| Input Voltage (Volts AC) | 120.0 |
| Input Current (Amps AC) | 0.088 |
| Input Power (Watts) | 10.5 |
| Input Power Factor (%) | 99.4 |
| Input Current THD (%) | 10.1 |
| Input Voltage THD (%) | 0.1 |
| EFFICACY (lumens/Watt) | 71.1 |

| COLOR RENDERING INDICES | CRI |
|---------------------------------|-----|
| Ra (Average 1-8) | 84 |
| R1 Light greyish red | 83 |
| R2 Dark greyish yellow | 91 |
| R3 Strong yellowish green | 96 |
| R4 Moderate yellowish green | 81 |
| R5 Light bluish green | 82 |
| R6 Light blue | 87 |
| R7 Light violet | 86 |
| R8 Light reddish purple | 68 |
| R9 Strong red | 27 |
| R10 Strong yellow | 78 |
| R11 Strong green | 79 |
| R12 Strong blue | 68 |
| R13 Light yellowish pink (skin) | 84 |
| R14 Moderate olive green (leaf) | 98 |

*NOTE: The total lumen output shown on this report was obtained from photometric test ITL84573



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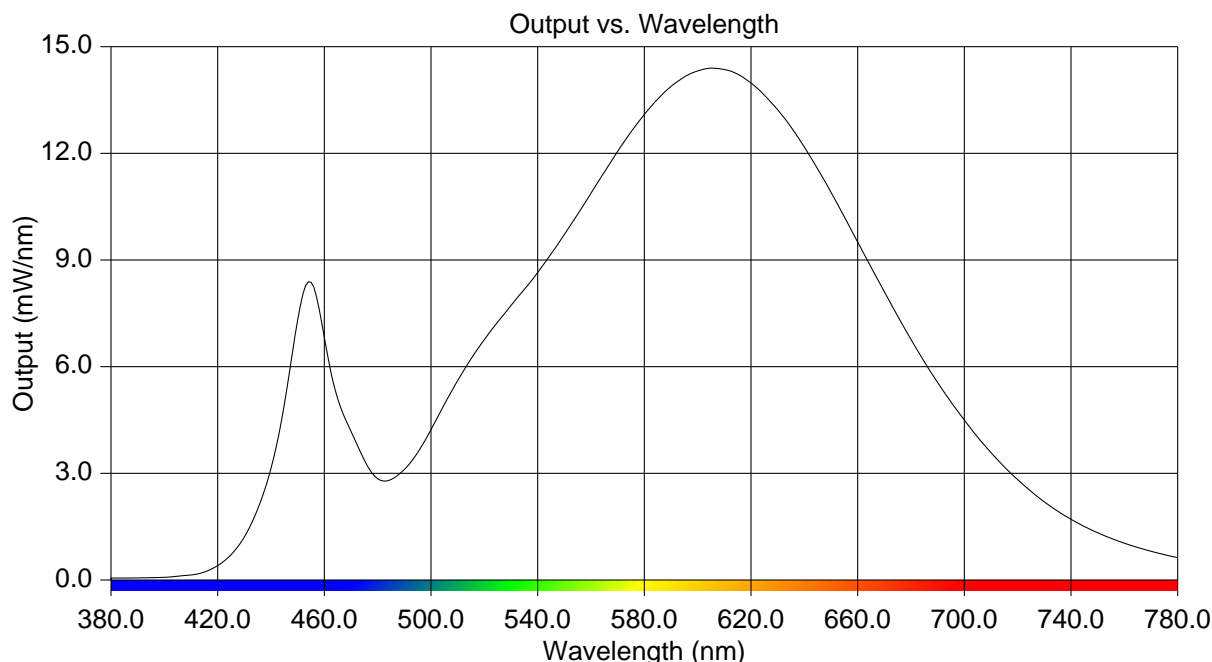
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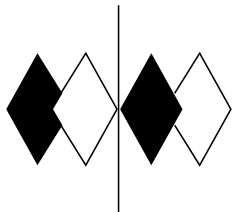
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RESULTS:

| Wavelength | mW per nm | Wavelength | mW per nm | Wavelength | mW per nm |
|------------|-----------|------------|-----------|------------|-----------|
| 380 | 0.056 | 515 | 6.221 | 650 | 10.903 |
| 385 | 0.055 | 520 | 6.759 | 655 | 10.215 |
| 390 | 0.058 | 525 | 7.255 | 660 | 9.506 |
| 395 | 0.066 | 530 | 7.720 | 665 | 8.802 |
| 400 | 0.075 | 535 | 8.175 | 670 | 8.107 |
| 405 | 0.107 | 540 | 8.647 | 675 | 7.424 |
| 410 | 0.142 | 545 | 9.168 | 680 | 6.765 |
| 415 | 0.224 | 550 | 9.717 | 685 | 6.139 |
| 420 | 0.403 | 555 | 10.285 | 690 | 5.553 |
| 425 | 0.710 | 560 | 10.879 | 695 | 5.008 |
| 430 | 1.209 | 565 | 11.470 | 700 | 4.499 |
| 435 | 1.993 | 570 | 12.055 | 705 | 4.017 |
| 440 | 3.140 | 575 | 12.604 | 710 | 3.584 |
| 445 | 4.937 | 580 | 13.094 | 715 | 3.181 |
| 450 | 7.314 | 585 | 13.523 | 720 | 2.822 |
| 455 | 8.373 | 590 | 13.880 | 725 | 2.494 |
| 460 | 6.825 | 595 | 14.149 | 730 | 2.198 |
| 465 | 5.102 | 600 | 14.317 | 735 | 1.937 |
| 470 | 4.180 | 605 | 14.398 | 740 | 1.708 |
| 475 | 3.370 | 610 | 14.357 | 745 | 1.505 |
| 480 | 2.847 | 615 | 14.226 | 750 | 1.329 |
| 485 | 2.825 | 620 | 13.979 | 755 | 1.173 |
| 490 | 3.107 | 625 | 13.635 | 760 | 1.035 |
| 495 | 3.583 | 630 | 13.226 | 765 | 0.915 |
| 500 | 4.228 | 635 | 12.739 | 770 | 0.809 |
| 505 | 4.938 | 640 | 12.177 | 775 | 0.713 |
| 510 | 5.610 | 645 | 11.560 | 780 | 0.629 |





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CIE Chromaticity Diagram

