LTL LUMINAIRE TESTING LABORATORY, INC.

SUSTAINING MEMBER of the IESNA

905 Harrison Street · Allentown, PA 18103 · 610-770-1044 · Fax 610-770-8912 · www.LuminaireTesting.com

LTL NUMBER: 08693 DATE: 02-10-2005

PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

CATALOG NUMBER: LMSI/D03-PH-LI/PB-T5HO

LUMINAIRE: EXTRUDED ALUMINUM HOUSING WITH PERFORATED SECTIONS AND TRANSLUCENT WHITE ACRYLIC INSERTS, FORMED SPECULAR ALUMINUM REFLECTORS, 15 CELL, 1-3/8" DEEP, FORMED SEMI-SPECULAR ALUMINUM LOUVER WITH TRANSLUCENT WHITE ACRYLIC OVERLAY, FORMED SPECULAR ALUMINUM UPPER REFLECTOR SURROUNDING MIDDLE LAMP.

LAMPS: THREE HORIZONTAL 54 WATT HIGH OUTPUT T5 LINEAR FLUORESCENT LAMPS RATED AT 4400 LUMENS EACH.

LAMP CATALOG NUMBER: PHILIPS F54T5/841/HO/ALTO

BALLASTS: TWO UNIVERSAL LIGHTING TECHNOLOGIES B254PUNV-D

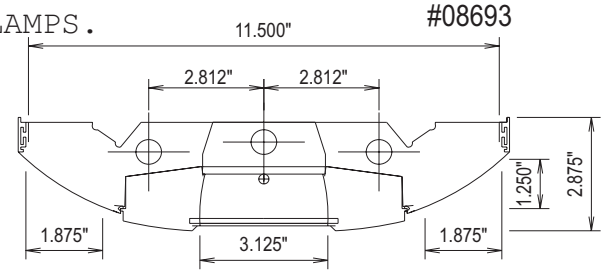
MOUNTING: PENDANT

LUMEN TO CANDELA RATIO USED = 9.18

TOTAL INPUT WATTS =168.6 AT 120.0 VOLTS

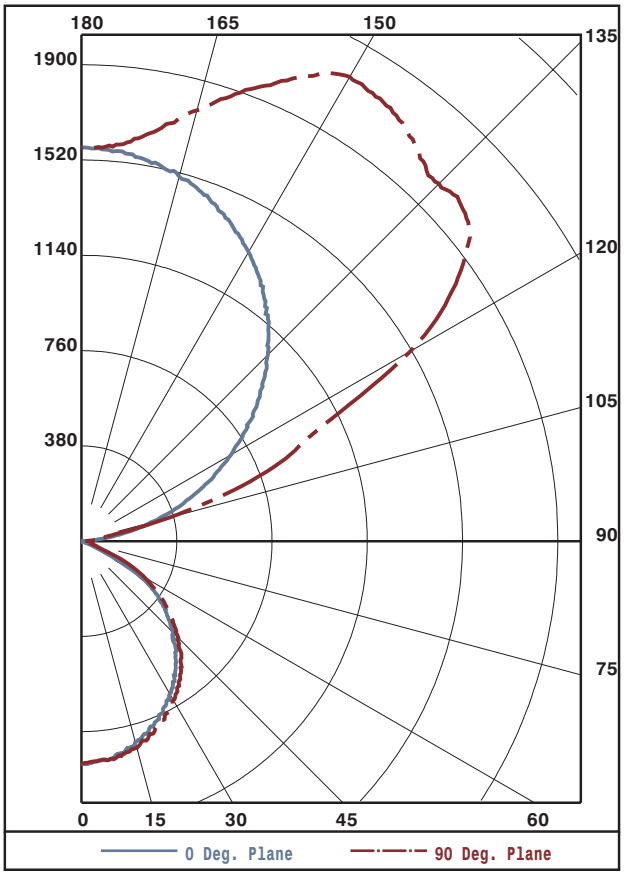
THE 0 DEGREE PLANE IS PARALLEL WITH THE LAMPS.

#08693




CANDELA DISTRIBUTION

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 | FLUX |
|---|---|---|---|---|---|---|
| 0 | 888 | 888 | 888 | 888 | 888 | |
| 5 | 879 | 881 | 885 | 880 | 878 | 84 |
| 15 | 828 | 836 | 841 | 846 | 855 | 237 |
| 25 | 760 | 751 | 760 | 766 | 784 | 352 |
| 35 | 653 | 642 | 649 | 659 | 680 | 411 |
| 45 | 518 | 511 | 510 | 525 | 546 | 396 |
| 55 | 358 | 348 | 350 | 363 | 386 | 316 |
| 65 | 70 | 93 | 131 | 158 | 183 | 132 |
| 75 | 7 | 17 | 26 | 33 | 42 | 30 |
| 85 | 0 | 2 | 15 | 20 | 20 | 12 |
| 90 | 0 | 1 | 8 | 17 | 18 | |
| 95 | 46 | 53 | 54 | 61 | 66 | 76 |
| 105 | 284 | 609 | 522 | 409 | 362 | 490 |
| 115 | 556 | 949 | 1238 | 1085 | 1025 | 1014 |
| 125 | 806 | 1250 | 1569 | 1802 | 1832 | 1328 |
| 135 | 1050 | 1411 | 1788 | 1939 | 2016 | 1293 |
| 145 | 1246 | 1483 | 1881 | 2069 | 2120 | 1116 |
| 155 | 1403 | 1524 | 1774 | 1968 | 2040 | 808 |
| 165 | 1505 | 1543 | 1648 | 1741 | 1779 | 468 |
| 175 | 1561 | 1564 | 1575 | 1583 | 1588 | 151 |
| 180 | 1570 | 1570 | 1570 | 1570 | 1570 | |




ZONAL LUMEN SUMMARY

| ZONE | LUMENS | %LAMP | %FIXT |
|---|---|---|---|
| 0- 30 | 672 | 5.1 | 7.7 |
| 0- 40 | 1083 | 8.2 | 12.4 |
| 0- 60 | 1795 | 13.6 | 20.6 |
| 0- 90 | 1969 | 14.9 | 22.6 |
| 90-120 | 1580 | 12.0 | 18.1 |
| 90-130 | 2907 | 22.0 | 33.4 |
| 90-150 | 5317 | 40.3 | 61.0 |
| 90-180 | 6744 | 51.1 | 77.4 |
| 0-180 | 8712 | 66.0 | 100.0 |

TOTAL LUMINAIRE EFFICIENCY: 66.0%

| | | |
|---|---|---|
| CIE TYPE: | SEMI-INDIRECT | |
| PLANE: | 0-DEG | 90-DEG |
| SPACING CRITERIA: | 1.2 | 1.2 |

TESTED BY HERSCHEL SCHRECK

CHECKED BY MIKE GRATHER

THIS REPORT BASED ON LM-41 AND OTHER PERTINENT IESNA PROCEDURES.

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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

| 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 |
| 0 | 66 | 66 | 66 | 66 | 59 | 59 | 59 | 59 | 45 | 45 | 45 | 32 | 32 | 32 | 20 | 20 | 20 | 15 |
| 1 | 61 | 58 | 56 | 54 | 54 | 52 | 50 | 48 | 40 | 39 | 37 | 29 | 28 | 27 | 19 | 18 | 18 | 13 |
| 2 | 56 | 51 | 48 | 45 | 49 | 46 | 43 | 40 | 35 | 33 | 32 | 26 | 24 | 23 | 17 | 16 | 16 | 12 |
| 3 | 51 | 45 | 41 | 37 | 45 | 40 | 37 | 34 | 31 | 29 | 27 | 23 | 21 | 20 | 15 | 14 | 14 | 10 |
| 4 | 47 | 40 | 35 | 32 | 41 | 36 | 32 | 29 | 28 | 25 | 23 | 21 | 19 | 17 | 14 | 13 | 12 | 9 |
| 5 | 43 | 36 | 31 | 27 | 38 | 32 | 28 | 25 | 25 | 22 | 20 | 18 | 17 | 15 | 12 | 11 | 10 | 8 |
| 6 | 39 | 32 | 27 | 23 | 35 | 29 | 24 | 21 | 22 | 19 | 17 | 17 | 15 | 13 | 11 | 10 | 9 | 7 |
| 7 | 36 | 29 | 24 | 20 | 32 | 26 | 21 | 18 | 20 | 17 | 15 | 15 | 13 | 11 | 10 | 9 | 8 | 6 |
| 8 | 33 | 26 | 21 | 18 | 30 | 23 | 19 | 16 | 18 | 15 | 13 | 13 | 11 | 10 | 9 | 8 | 7 | 5 |
| 9 | 31 | 23 | 19 | 15 | 27 | 21 | 17 | 14 | 16 | 13 | 11 | 12 | 10 | 9 | 8 | 7 | 6 | 5 |
| 10 | 29 | 21 | 17 | 14 | 25 | 19 | 15 | 12 | 15 | 12 | 10 | 11 | 9 | 8 | 7 | 6 | 5 | 4 |

| PLANE: | 0-DEG | 90-DEG |
|---|---|---|
| LUMINOUS LENGTH: | 46.750 | 11.625 |
| HEIGHT OF SIDE: | 0.000 | 1.250 |

LUMINANCE IN CANDELA PER SQUARE METER

| ANGLE IN DEG | AVERAGE 0-DEG | AVERAGE 45-DEG | AVERAGE 90-DEG |
|---|---|---|---|
| 0 | 4630. | 4630. | 4630. |
| 45 | 3820. | 4305. | 4026. |
| 55 | 3255. | 3410. | 3456. |
| 65 | 864. | 1565. | 1953. |
| 75 | 141. | 418. | 576. |
| 85 | 0. | 386. | 401. |

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CANDELA DISTRIBUTION

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |
|---|---|---|---|---|---|
| 0 | 888 | 888 | 888 | 888 | 888 |
| 5 | 879 | 881 | 885 | 880 | 878 |
| 10 | 861 | 863 | 869 | 865 | 868 |
| 15 | 828 | 836 | 841 | 846 | 855 |
| 20 | 793 | 799 | 802 | 810 | 819 |
| 25 | 760 | 751 | 760 | 766 | 784 |
| 30 | 704 | 703 | 708 | 718 | 732 |
| 35 | 653 | 642 | 649 | 659 | 680 |
| 40 | 581 | 581 | 582 | 597 | 615 |
| 45 | 518 | 511 | 510 | 525 | 546 |
| 50 | 440 | 430 | 433 | 440 | 463 |
| 55 | 358 | 348 | 350 | 363 | 386 |
| 60 | 237 | 237 | 246 | 266 | 291 |
| 65 | 70 | 93 | 131 | 158 | 183 |
| 70 | 13 | 25 | 48 | 66 | 69 |
| 75 | 7 | 17 | 26 | 33 | 42 |
| 80 | 1 | 9 | 19 | 29 | 38 |
| 85 | 0 | 2 | 15 | 20 | 20 |
| 90 | 0 | 1 | 8 | 17 | 18 |
| 95 | 46 | 53 | 54 | 61 | 66 |
| 100 | 160 | 299 | 184 | 103 | 101 |
| 105 | 284 | 609 | 522 | 409 | 362 |
| 110 | 427 | 810 | 834 | 774 | 748 |
| 115 | 556 | 949 | 1238 | 1085 | 1025 |
| 120 | 688 | 1116 | 1480 | 1551 | 1514 |
| 125 | 806 | 1250 | 1569 | 1802 | 1832 |
| 130 | 931 | 1345 | 1670 | 1917 | 2004 |
| 135 | 1050 | 1411 | 1788 | 1939 | 2016 |
| 140 | 1156 | 1456 | 1872 | 2026 | 2067 |
| 145 | 1246 | 1483 | 1881 | 2069 | 2120 |
| 150 | 1333 | 1512 | 1835 | 2078 | 2139 |
| 155 | 1403 | 1524 | 1774 | 1968 | 2040 |
| 160 | 1466 | 1538 | 1713 | 1854 | 1915 |
| 165 | 1505 | 1543 | 1648 | 1741 | 1779 |
| 170 | 1539 | 1549 | 1600 | 1638 | 1657 |
| 175 | 1561 | 1564 | 1575 | 1583 | 1588 |
| 180 | 1570 | 1570 | 1570 | 1570 | 1570 |

ZONAL LUMEN SUMMARY

| | |
|---|---|
| 0- 5 | 21. |
| 5- 10 | 62. |
| 10- 15 | 101. |
| 15- 20 | 136. |
| 20- 25 | 165. |
| 25- 30 | 187. |
| 30- 35 | 202. |
| 35- 40 | 209. |
| 40- 45 | 203. |
| 45- 50 | 194. |
| 50- 55 | 174. |
| 55- 60 | 142. |
| 60- 65 | 93. |
| 65- 70 | 39. |
| 70- 75 | 17. |
| 75- 80 | 13. |
| 80- 85 | 7. |
| 85- 90 | 5. |
| 90- 95 | 17. |
| 95-100 | 58. |
| 100-105 | 168. |
| 105-110 | 321. |
| 110-115 | 447. |
| 115-120 | 567. |
| 120-125 | 652. |
| 125-130 | 676. |
| 130-135 | 662. |
| 135-140 | 631. |
| 140-145 | 590. |
| 145-150 | 527. |
| 150-155 | 448. |
| 155-160 | 360. |
| 160-165 | 276. |
| 165-170 | 192. |
| 170-175 | 113. |
| 175-180 | 38. |

THIS TEST WAS CONDUCTED USING RELATIVE PHOTOMETRY TECHNIQUES ACCORDING TO STANDARD IESNA PROCEDURES. THE USER MUST THEREFORE USE CAUTION IN THE FOLLOWING SITUATIONS: 1) THIS TEST WAS PERFORMED USING A SPECIFIC BALLAST/LAMP COMBINATION. EXTRAPOLATION OF THESE DATA FOR OTHER BALLAST/LAMP COMBINATIONS MAY PRODUCE ERRONEOUS RESULTS. 2) ACCORDING TO IESNA PROCEDURES, THE BALLAST(S) AND LAMP(S) ARE PRESUMED TO PRODUCE 100% OF RATED OUTPUT. AN APPROPRIATE BALLAST FACTOR MUST BE APPLIED TO THE LUMEN OUTPUT RATINGS AND LUMINOUS INTENSITY VALUES GIVEN. 3) THIS TEST WAS CONDUCTED IN A CONTROLLED LABORATORY ENVIRONMENT WHERE THE AMBIENT TEMPERATURE WAS HELD AT 25°C ±1°C. FIELD PERFORMANCE MAY DIFFER PARTICULARLY IN REGARDS TO CHANGE IN LUMINOUS OUTPUT AS A RESULT OF DIFFERENCE IN AMBIENT TEMPERATURE AND METHOD OF MOUNTING THE LUMINAIRE.