



# 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](http://www.LuminaireTesting.com)

LTL NUMBER: 13052

DATE: 04-21-2008

PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

CATALOG NUMBER: MLP-I1/D1-4-X-OP/LP-X-120-T5HO

LUMINAIRE: EXTRUDED ALUMINUM HOUSING, FORMED SPECULAR ALUMINUM UPPER REFLECTOR, FORMED WHITE ENAMEL ALUMINUM LOWER REFLECTOR, CLEAR LINEAR PRISMATIC PLASTIC LOWER LENS, OPEN TOP.

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

LAMP CATALOG NUMBER: PHILIPS F54T5/850/HO/ALTO

BALLASTS: TWO UNIVERSAL LIGHTING TECHNOLOGIES BB254PUNV-D

MOUNTING: WALL

NOTE: THIS TEST WAS CALCULATED FROM MEASURED DATA FROM LTL

TEST NUMBERS 12733 AND 12716

LUMEN TO CANDELA RATIO USED = 9.18

TOTAL INPUT WATTS =110.7 AT 120.0 VOLTS

THE 0 DEGREE PLANE IS PERPENDICULAR TO THE LAMPS.

| CANDELA DISTRIBUTION |      |      |      |      |      |       |       |       |       | FLUX |
|----------------------|------|------|------|------|------|-------|-------|-------|-------|------|
|                      | 0.0  | 22.5 | 45.0 | 67.5 | 90.0 | 112.5 | 135.0 | 157.5 | 180.0 |      |
| 0                    | 971  | 971  | 971  | 971  | 971  | 971   | 971   | 971   | 971   |      |
| 5                    | 970  | 969  | 974  | 963  | 971  | 968   | 976   | 971   | 973   | 92   |
| 15                   | 938  | 939  | 945  | 940  | 941  | 940   | 942   | 928   | 924   | 265  |
| 25                   | 801  | 811  | 850  | 873  | 880  | 866   | 834   | 794   | 780   | 385  |
| 35                   | 640  | 645  | 682  | 747  | 782  | 730   | 664   | 640   | 638   | 433  |
| 45                   | 484  | 494  | 518  | 566  | 640  | 547   | 516   | 490   | 475   | 408  |
| 55                   | 261  | 281  | 330  | 376  | 436  | 362   | 318   | 267   | 247   | 294  |
| 65                   | 138  | 0    | 167  | 205  | 208  | 195   | 159   | 137   | 132   | 151  |
| 75                   | 82   | 1    | 88   | 90   | 73   | 84    | 84    | 81    | 79    | 78   |
| 85                   | 32   | 0    | 34   | 28   | 12   | 21    | 26    | 24    | 24    | 25   |
| 90                   | 7    | 7    | 6    | 4    | 0    | 0     | 2     | 4     | 4     |      |
| 95                   | 29   | 30   | 48   | 97   | 31   | 62    | 114   | 101   | 125   | 83   |
| 105                  | 437  | 490  | 486  | 342  | 153  | 100   | 56    | 192   | 231   | 288  |
| 115                  | 858  | 816  | 656  | 686  | 314  | 275   | 224   | 171   | 141   | 450  |
| 125                  | 920  | 925  | 993  | 973  | 478  | 409   | 389   | 269   | 297   | 568  |
| 135                  | 1269 | 1276 | 1373 | 1041 | 625  | 589   | 546   | 529   | 527   | 661  |
| 145                  | 1644 | 1633 | 1433 | 1071 | 749  | 732   | 649   | 648   | 662   | 630  |
| 155                  | 1594 | 1503 | 1318 | 1039 | 848  | 852   | 852   | 766   | 763   | 482  |
| 165                  | 1332 | 1261 | 1147 | 997  | 921  | 943   | 924   | 907   | 908   | 292  |
| 175                  | 1035 | 1013 | 1002 | 974  | 962  | 959   | 979   | 981   | 983   | 94   |
| 180                  | 967  | 967  | 967  | 967  | 967  | 967   | 967   | 967   | 967   |      |

## ZONAL LUMEN SUMMARY

| ZONE   | LUMENS | %LAMP | %FIXT |
|--------|--------|-------|-------|
| 0- 30  | 742    | 8.4   | 13.1  |
| 0- 40  | 1175   | 13.4  | 20.7  |
| 0- 60  | 1878   | 21.3  | 33.1  |
| 0- 90  | 2132   | 24.2  | 37.5  |
| 90-120 | 821    | 9.3   | 14.5  |
| 90-130 | 1389   | 15.8  | 24.5  |
| 90-150 | 2680   | 30.5  | 47.2  |
| 90-180 | 3548   | 40.3  | 62.5  |
| 0-180  | 5680   | 64.6  | 100.0 |

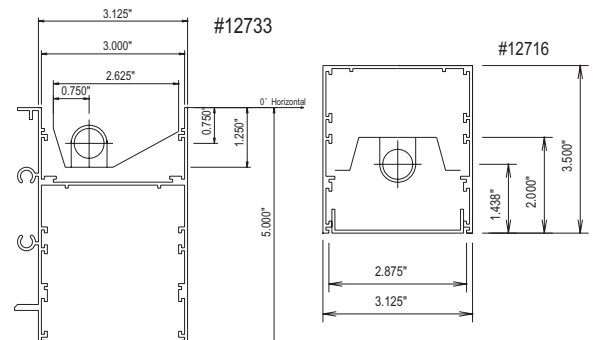
TOTAL LUMINAIRE EFFICIENCY:

64.6%

CIE TYPE: SEMI-INDIRECT

PLANE: 0-DEG 90-DEG 180-DEG

SPACING CRITERIA: 1.1 1.3 1.1



Approved By: MG

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



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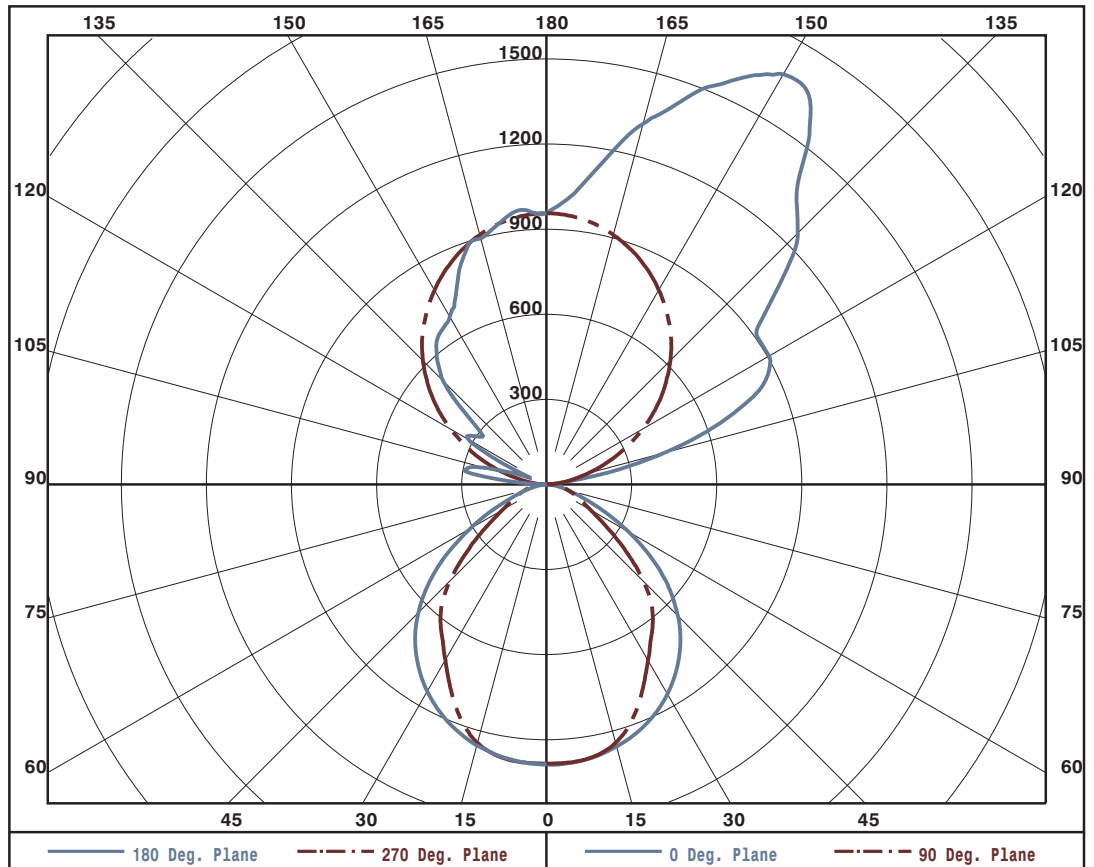
## ZONAL LUMEN SUMMARY

|         |      |
|---------|------|
| 0- 5    | 23.  |
| 5- 10   | 69.  |
| 10- 15  | 113. |
| 15- 20  | 152. |
| 20- 25  | 182. |
| 25- 30  | 203. |
| 30- 35  | 215. |
| 35- 40  | 218. |
| 40- 45  | 214. |
| 45- 50  | 195. |
| 50- 55  | 165. |
| 55- 60  | 129. |
| 60- 65  | 87.  |
| 65- 70  | 64.  |
| 70- 75  | 46.  |
| 75- 80  | 31.  |
| 80- 85  | 19.  |
| 85- 90  | 7.   |
| 90- 95  | 11.  |
| 95-100  | 72.  |
| 100-105 | 128. |
| 105-110 | 160. |
| 110-115 | 205. |
| 115-120 | 246. |
| 120-125 | 273. |
| 125-130 | 295. |
| 130-135 | 326. |
| 135-140 | 335. |
| 140-145 | 328. |
| 145-150 | 302. |
| 150-155 | 262. |
| 155-160 | 220. |
| 160-165 | 171. |
| 165-170 | 121. |
| 170-175 | 71.  |
| 175-180 | 23.  |

PLANE: 0-DEG 90-DEG  
LUMINOUS LENGTH: 2.875 48.000

## LUMINANCE IN CANDELA PER SQUARE METER

| ANGLE<br>IN DEG | AVERAGE<br>0-DEG | AVERAGE<br>45-DEG | AVERAGE<br>90-DEG |
|-----------------|------------------|-------------------|-------------------|
| 0               | 10905.           | 10905.            | 10905.            |
| 45              | 7687.            | 8227.             | 10165.            |
| 55              | 5111.            | 6462.             | 8537.             |
| 65              | 3667.            | 4438.             | 5528.             |
| 75              | 3558.            | 3819.             | 3168.             |
| 85              | 4124.            | 4381.             | 1546.             |



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## CANDELA DISTRIBUTION

[illegible]



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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  | 67 | 67 | 67 | 67 | 61 | 61 | 61 | 61 | 49 | 49 | 49 | 39 | 39 | 39 | 29 | 29 | 29 | 24 |
| 1  | 62 | 59 | 57 | 55 | 56 | 54 | 52 | 50 | 44 | 43 | 41 | 35 | 34 | 33 | 26 | 26 | 25 | 21 |
| 2  | 57 | 52 | 49 | 46 | 51 | 48 | 45 | 42 | 39 | 37 | 35 | 31 | 30 | 28 | 24 | 23 | 22 | 19 |
| 3  | 52 | 46 | 42 | 39 | 47 | 42 | 39 | 36 | 35 | 32 | 30 | 28 | 26 | 25 | 21 | 20 | 19 | 16 |
| 4  | 48 | 41 | 37 | 33 | 43 | 38 | 34 | 31 | 31 | 28 | 26 | 25 | 23 | 21 | 19 | 18 | 17 | 14 |
| 5  | 44 | 37 | 32 | 28 | 40 | 34 | 29 | 26 | 28 | 25 | 22 | 23 | 20 | 19 | 17 | 16 | 15 | 13 |
| 6  | 40 | 33 | 28 | 25 | 37 | 30 | 26 | 23 | 25 | 22 | 20 | 20 | 18 | 16 | 16 | 14 | 13 | 11 |
| 7  | 37 | 30 | 25 | 21 | 34 | 27 | 23 | 20 | 23 | 19 | 17 | 18 | 16 | 14 | 14 | 13 | 12 | 10 |
| 8  | 34 | 27 | 22 | 19 | 31 | 25 | 20 | 17 | 21 | 17 | 15 | 17 | 14 | 13 | 13 | 11 | 10 | 9  |
| 9  | 32 | 24 | 19 | 16 | 29 | 22 | 18 | 15 | 19 | 15 | 13 | 15 | 13 | 11 | 12 | 10 | 9  | 7  |
| 10 | 30 | 22 | 17 | 14 | 27 | 20 | 16 | 14 | 17 | 14 | 12 | 14 | 11 | 10 | 11 | 9  | 8  | 7  |

NOTE: THE ZONAL CAVITY CALCULATION TECHNIQUE IS ACCURATE WHEN LUMINAIRES WITH SYMMETRIC CANDELA DISTRIBUTIONS ARE EMPLOYED AND WHEN THE LUMINAIRES ARE LOCATED SYMMETRICALLY THROUGHOUT THE ROOM. THIS UNIT HAS SPECIAL CHARACTERISTICS AND THEREFORE THESE COEFFICIENTS SHOULD BE USED WITH CAUTION.

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.