



# 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: 18374

DATE: 07-16-2010

PREPARED FOR: LUMETTA, INC.

CATALOG NUMBER: FP53T3431Z

LUMINAIRE: FORMED STEEL HOUSING WITH WHITE REFLECTOR, TRANSLUCENT WHITE PLASTIC SIDE DIFFUSERS WITH TRANSLUCENT WHITE PLASTIC UPPER AND LOWER ENCLOSURES.

LAMP: TWO HORIZONTAL 42 WATT TRIPLE TUBE COMPACT FLUORESCENT LAMPS RATED AT 3200 LUMENS EACH.

LAMP CATALOG NUMBER: SYLVANIA CF42DT/E/IN/835

BALLAST: ONE FULHAM RACEHORSE 4 RH4-UNV-242-C

MOUNTING: PENDANT

ELECTRICAL VALUES: 120.0VAC, 0.8009A, 95.76W

### Candela Distribution

|     | 0   | 22.5 | 45  | 67.5 | 90  | 112.5 | 135 | 157.5 | 180 | 202.5 | 225 | 247.5 | 270 | 292.5 | 315 | 337.5 | Flux  |
|-----|-----|------|-----|------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-------|
| 0   | 731 | 731  | 731 | 731  | 731 | 731   | 731 | 731   | 731 | 731   | 731 | 731   | 731 | 731   | 731 | 731   |       |
| 5   | 724 | 724  | 724 | 724  | 724 | 724   | 724 | 724   | 724 | 724   | 724 | 724   | 724 | 724   | 724 | 724   | 68.6  |
| 15  | 687 | 687  | 687 | 687  | 687 | 687   | 687 | 687   | 687 | 687   | 687 | 687   | 687 | 687   | 687 | 687   | 193.7 |
| 25  | 633 | 633  | 633 | 633  | 633 | 633   | 633 | 633   | 633 | 633   | 633 | 633   | 633 | 633   | 633 | 633   | 291.6 |
| 35  | 568 | 568  | 568 | 568  | 568 | 568   | 568 | 568   | 568 | 568   | 568 | 568   | 568 | 568   | 568 | 568   | 356.1 |
| 45  | 508 | 508  | 508 | 508  | 508 | 508   | 508 | 508   | 508 | 508   | 508 | 508   | 508 | 508   | 508 | 508   | 392.5 |
| 55  | 442 | 442  | 442 | 442  | 442 | 442   | 442 | 442   | 442 | 442   | 442 | 442   | 442 | 442   | 442 | 442   | 395.4 |
| 65  | 368 | 368  | 368 | 368  | 368 | 368   | 368 | 368   | 368 | 368   | 368 | 368   | 368 | 368   | 368 | 368   | 365.0 |
| 75  | 290 | 290  | 290 | 290  | 290 | 290   | 290 | 290   | 290 | 290   | 290 | 290   | 290 | 290   | 290 | 290   | 306.3 |
| 85  | 212 | 212  | 212 | 212  | 212 | 212   | 212 | 212   | 212 | 212   | 212 | 212   | 212 | 212   | 212 | 212   | 233.6 |
| 90  | 188 | 188  | 188 | 188  | 188 | 188   | 188 | 188   | 188 | 188   | 188 | 188   | 188 | 188   | 188 | 188   |       |
| 95  | 186 | 186  | 186 | 186  | 186 | 186   | 186 | 186   | 186 | 186   | 186 | 186   | 186 | 186   | 186 | 186   | 209.8 |
| 105 | 268 | 268  | 268 | 268  | 268 | 268   | 268 | 268   | 268 | 268   | 268 | 268   | 268 | 268   | 268 | 268   | 284.5 |
| 115 | 386 | 386  | 386 | 386  | 386 | 386   | 386 | 386   | 386 | 386   | 386 | 386   | 386 | 386   | 386 | 386   | 382.2 |
| 125 | 501 | 501  | 501 | 501  | 501 | 501   | 501 | 501   | 501 | 501   | 501 | 501   | 501 | 501   | 501 | 501   | 447.8 |
| 135 | 597 | 597  | 597 | 597  | 597 | 597   | 597 | 597   | 597 | 597   | 597 | 597   | 597 | 597   | 597 | 597   | 460.2 |
| 145 | 656 | 656  | 656 | 656  | 656 | 656   | 656 | 656   | 656 | 656   | 656 | 656   | 656 | 656   | 656 | 656   | 411.3 |
| 155 | 710 | 710  | 710 | 710  | 710 | 710   | 710 | 710   | 710 | 710   | 710 | 710   | 710 | 710   | 710 | 710   | 327.6 |
| 165 | 771 | 771  | 771 | 771  | 771 | 771   | 771 | 771   | 771 | 771   | 771 | 771   | 771 | 771   | 771 | 771   | 217.4 |
| 175 | 815 | 815  | 815 | 815  | 815 | 815   | 815 | 815   | 815 | 815   | 815 | 815   | 815 | 815   | 815 | 815   | 77.2  |
| 180 | 831 | 831  | 831 | 831  | 831 | 831   | 831 | 831   | 831 | 831   | 831 | 831   | 831 | 831   | 831 | 831   |       |

### Zonal Lumen Summary

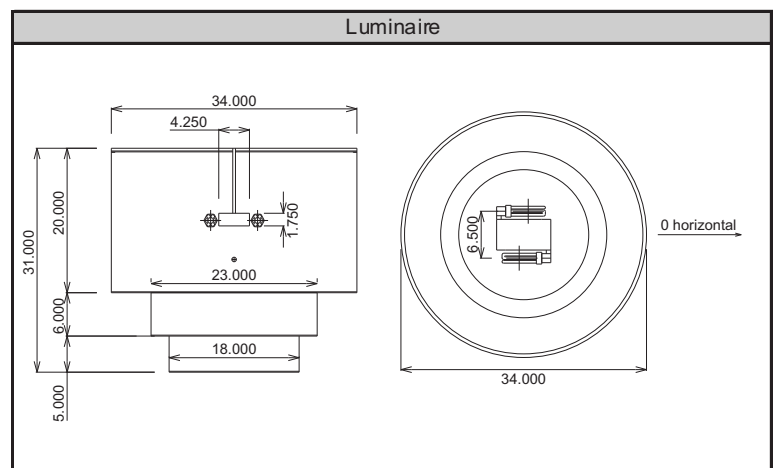
| Zone   | Lumens | % of Lamp | % of Luminaire |
|--------|--------|-----------|----------------|
| 0-30   | 553.9  | 8.7%      | 10.2%          |
| 0-40   | 910.0  | 14.2%     | 16.8%          |
| 0-60   | 1697.8 | 26.5%     | 31.3%          |
| 0-90   | 2602.8 | 40.7%     | 48.0%          |
| 90-180 | 2818.0 | 44.0%     | 52.0%          |
| 0-180  | 5420.8 | 84.7%     | 100.0%         |

Total luminaire efficiency: 84.7%

CIE Type: Direct/Indirect

Spacing Criterion: 1.23

Total reflectance of paint: 82.8



Approved By: MG

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



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Candela Tabulation (5 degree Vertical Increments)

|     | 0   | 22.5 | 45  | 67.5 | 90  | 112.5 | 135 | 157.5 | 180 | 202.5 | 225 | 247.5 | 270 | 292.5 | 315 | 337.5 |
|-----|-----|------|-----|------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| 0   | 731 | 731  | 731 | 731  | 731 | 731   | 731 | 731   | 731 | 731   | 731 | 731   | 731 | 731   | 731 | 731   |
| 5   | 724 | 724  | 724 | 724  | 724 | 724   | 724 | 724   | 724 | 724   | 724 | 724   | 724 | 724   | 724 | 724   |
| 10  | 708 | 708  | 708 | 708  | 708 | 708   | 708 | 708   | 708 | 708   | 708 | 708   | 708 | 708   | 708 | 708   |
| 15  | 687 | 687  | 687 | 687  | 687 | 687   | 687 | 687   | 687 | 687   | 687 | 687   | 687 | 687   | 687 | 687   |
| 20  | 660 | 660  | 660 | 660  | 660 | 660   | 660 | 660   | 660 | 660   | 660 | 660   | 660 | 660   | 660 | 660   |
| 25  | 633 | 633  | 633 | 633  | 633 | 633   | 633 | 633   | 633 | 633   | 633 | 633   | 633 | 633   | 633 | 633   |
| 30  | 600 | 600  | 600 | 600  | 600 | 600   | 600 | 600   | 600 | 600   | 600 | 600   | 600 | 600   | 600 | 600   |
| 35  | 568 | 568  | 568 | 568  | 568 | 568   | 568 | 568   | 568 | 568   | 568 | 568   | 568 | 568   | 568 | 568   |
| 40  | 538 | 538  | 538 | 538  | 538 | 538   | 538 | 538   | 538 | 538   | 538 | 538   | 538 | 538   | 538 | 538   |
| 45  | 508 | 508  | 508 | 508  | 508 | 508   | 508 | 508   | 508 | 508   | 508 | 508   | 508 | 508   | 508 | 508   |
| 50  | 476 | 476  | 476 | 476  | 476 | 476   | 476 | 476   | 476 | 476   | 476 | 476   | 476 | 476   | 476 | 476   |
| 55  | 442 | 442  | 442 | 442  | 442 | 442   | 442 | 442   | 442 | 442   | 442 | 442   | 442 | 442   | 442 | 442   |
| 60  | 406 | 406  | 406 | 406  | 406 | 406   | 406 | 406   | 406 | 406   | 406 | 406   | 406 | 406   | 406 | 406   |
| 65  | 368 | 368  | 368 | 368  | 368 | 368   | 368 | 368   | 368 | 368   | 368 | 368   | 368 | 368   | 368 | 368   |
| 70  | 329 | 329  | 329 | 329  | 329 | 329   | 329 | 329   | 329 | 329   | 329 | 329   | 329 | 329   | 329 | 329   |
| 75  | 290 | 290  | 290 | 290  | 290 | 290   | 290 | 290   | 290 | 290   | 290 | 290   | 290 | 290   | 290 | 290   |
| 80  | 251 | 251  | 251 | 251  | 251 | 251   | 251 | 251   | 251 | 251   | 251 | 251   | 251 | 251   | 251 | 251   |
| 85  | 212 | 212  | 212 | 212  | 212 | 212   | 212 | 212   | 212 | 212   | 212 | 212   | 212 | 212   | 212 | 212   |
| 90  | 188 | 188  | 188 | 188  | 188 | 188   | 188 | 188   | 188 | 188   | 188 | 188   | 188 | 188   | 188 | 188   |
| 95  | 186 | 186  | 186 | 186  | 186 | 186   | 186 | 186   | 186 | 186   | 186 | 186   | 186 | 186   | 186 | 186   |
| 100 | 217 | 217  | 217 | 217  | 217 | 217   | 217 | 217   | 217 | 217   | 217 | 217   | 217 | 217   | 217 | 217   |
| 105 | 268 | 268  | 268 | 268  | 268 | 268   | 268 | 268   | 268 | 268   | 268 | 268   | 268 | 268   | 268 | 268   |
| 110 | 326 | 326  | 326 | 326  | 326 | 326   | 326 | 326   | 326 | 326   | 326 | 326   | 326 | 326   | 326 | 326   |
| 115 | 386 | 386  | 386 | 386  | 386 | 386   | 386 | 386   | 386 | 386   | 386 | 386   | 386 | 386   | 386 | 386   |
| 120 | 444 | 444  | 444 | 444  | 444 | 444   | 444 | 444   | 444 | 444   | 444 | 444   | 444 | 444   | 444 | 444   |
| 125 | 501 | 501  | 501 | 501  | 501 | 501   | 501 | 501   | 501 | 501   | 501 | 501   | 501 | 501   | 501 | 501   |
| 130 | 552 | 552  | 552 | 552  | 552 | 552   | 552 | 552   | 552 | 552   | 552 | 552   | 552 | 552   | 552 | 552   |
| 135 | 597 | 597  | 597 | 597  | 597 | 597   | 597 | 597   | 597 | 597   | 597 | 597   | 597 | 597   | 597 | 597   |
| 140 | 632 | 632  | 632 | 632  | 632 | 632   | 632 | 632   | 632 | 632   | 632 | 632   | 632 | 632   | 632 | 632   |
| 145 | 656 | 656  | 656 | 656  | 656 | 656   | 656 | 656   | 656 | 656   | 656 | 656   | 656 | 656   | 656 | 656   |
| 150 | 679 | 679  | 679 | 679  | 679 | 679   | 679 | 679   | 679 | 679   | 679 | 679   | 679 | 679   | 679 | 679   |
| 155 | 710 | 710  | 710 | 710  | 710 | 710   | 710 | 710   | 710 | 710   | 710 | 710   | 710 | 710   | 710 | 710   |
| 160 | 741 | 741  | 741 | 741  | 741 | 741   | 741 | 741   | 741 | 741   | 741 | 741   | 741 | 741   | 741 | 741   |
| 165 | 771 | 771  | 771 | 771  | 771 | 771   | 771 | 771   | 771 | 771   | 771 | 771   | 771 | 771   | 771 | 771   |
| 170 | 795 | 795  | 795 | 795  | 795 | 795   | 795 | 795   | 795 | 795   | 795 | 795   | 795 | 795   | 795 | 795   |
| 175 | 815 | 815  | 815 | 815  | 815 | 815   | 815 | 815   | 815 | 815   | 815 | 815   | 815 | 815   | 815 | 815   |
| 180 | 831 | 831  | 831 | 831  | 831 | 831   | 831 | 831   | 831 | 831   | 831 | 831   | 831 | 831   | 831 | 831   |

Zonal Lumen Tabulation (5 degree zones)

| Zone  | Lumens | Zone  | Lumens | Zone    | Lumens | Zone    | Lumens |
|-------|--------|-------|--------|---------|--------|---------|--------|
| 0-5   | 17.4   | 45-50 | 198.8  | 90-95   | 101.3  | 135-140 | 228.2  |
| 5-10  | 51.2   | 50-55 | 199.5  | 95-100  | 108.5  | 140-145 | 215.1  |
| 10-15 | 82.7   | 55-60 | 196.0  | 100-105 | 129.3  | 145-150 | 196.2  |
| 15-20 | 111.0  | 60-65 | 188.3  | 105-110 | 155.2  | 150-155 | 175.5  |
| 20-25 | 135.6  | 65-70 | 176.7  | 110-115 | 180.3  | 155-160 | 152.1  |
| 25-30 | 156.0  | 70-75 | 161.9  | 115-120 | 201.8  | 160-165 | 124.5  |
| 30-35 | 171.7  | 75-80 | 144.5  | 120-125 | 218.6  | 165-170 | 92.9   |
| 35-40 | 184.4  | 80-85 | 125.6  | 125-130 | 229.1  | 170-175 | 57.6   |
| 40-45 | 193.7  | 85-90 | 108.1  | 130-135 | 232.1  | 175-180 | 19.6   |



| Coefficients of Utilization - Zonal Cavity Method |       |       |       |       |       |       |       |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Effective Floor Cavity Reflectance 20%            |       |       |       |       |       |       |       |       |       |       |       |       |
| Ceiling Cavity Reflectance                        | 90    |       |       |       | 80    |       |       |       | 70    |       |       |       |
| Wall Reflectance                                  | 70    | 50    | 30    | 10    | 70    | 50    | 30    | 10    | 70    | 50    | 30    | 10    |
| Room Cavity Ratio (RCR)                           |       |       |       |       |       |       |       |       |       |       |       |       |
| 0   | 0.979 | 0.979 | 0.979 | 0.979 | 0.903 | 0.903 | 0.903 | 0.903 | 0.831 | 0.831 | 0.831 | 0.831 |
| 1   | 0.88  | 0.829 | 0.784 | 0.744 | 0.808 | 0.764 | 0.725 | 0.69  | 0.74  | 0.702 | 0.668 | 0.637 |
| 2   | 0.796 | 0.714 | 0.647 | 0.592 | 0.729 | 0.658 | 0.6   | 0.55  | 0.666 | 0.605 | 0.553 | 0.51  |
| 3   | 0.723 | 0.622 | 0.545 | 0.484 | 0.661 | 0.573 | 0.505 | 0.451 | 0.603 | 0.527 | 0.467 | 0.419 |
| 4   | 0.659 | 0.546 | 0.465 | 0.403 | 0.603 | 0.504 | 0.432 | 0.377 | 0.549 | 0.464 | 0.4   | 0.351 |
| 5   | 0.603 | 0.484 | 0.402 | 0.342 | 0.551 | 0.447 | 0.374 | 0.32  | 0.503 | 0.411 | 0.346 | 0.298 |
| 6   | 0.554 | 0.431 | 0.351 | 0.294 | 0.507 | 0.399 | 0.327 | 0.275 | 0.462 | 0.368 | 0.303 | 0.257 |
| 7   | 0.511 | 0.388 | 0.309 | 0.255 | 0.468 | 0.359 | 0.289 | 0.239 | 0.427 | 0.332 | 0.268 | 0.224 |
| 8   | 0.473 | 0.351 | 0.275 | 0.224 | 0.434 | 0.325 | 0.257 | 0.21  | 0.396 | 0.301 | 0.239 | 0.197 |
| 9   | 0.44  | 0.319 | 0.246 | 0.198 | 0.403 | 0.296 | 0.23  | 0.186 | 0.369 | 0.274 | 0.215 | 0.174 |
| 10  | 0.41  | 0.291 | 0.222 | 0.176 | 0.376 | 0.271 | 0.208 | 0.166 | 0.345 | 0.251 | 0.194 | 0.156 |

| Ceiling Cavity Reflectance | 50    |       |       |       | 30    |       |       | 10    |       |       | 0     |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Wall Reflectance           | 70    | 50    | 30    | 10    | 50    | 30    | 10    | 50    | 30    | 10    | 0     |
| Room Cavity Ratio (RCR)    |       |       |       |       |       |       |       |       |       |       |       |
| 0                          | 0.696 | 0.696 | 0.696 | 0.696 | 0.573 | 0.573 | 0.573 | 0.46  | 0.46  | 0.46  | 0.407 |
| 1                          | 0.613 | 0.586 | 0.561 | 0.537 | 0.479 | 0.461 | 0.444 | 0.38  | 0.368 | 0.355 | 0.309 |
| 2                          | 0.549 | 0.504 | 0.466 | 0.432 | 0.411 | 0.383 | 0.358 | 0.325 | 0.305 | 0.287 | 0.246 |
| 3                          | 0.496 | 0.439 | 0.394 | 0.356 | 0.358 | 0.324 | 0.296 | 0.283 | 0.259 | 0.237 | 0.201 |
| 4                          | 0.451 | 0.387 | 0.338 | 0.299 | 0.316 | 0.279 | 0.249 | 0.25  | 0.223 | 0.2   | 0.168 |
| 5                          | 0.413 | 0.344 | 0.294 | 0.255 | 0.282 | 0.243 | 0.213 | 0.224 | 0.195 | 0.172 | 0.143 |
| 6                          | 0.381 | 0.309 | 0.258 | 0.22  | 0.254 | 0.215 | 0.185 | 0.202 | 0.173 | 0.15  | 0.124 |
| 7                          | 0.352 | 0.279 | 0.229 | 0.192 | 0.23  | 0.191 | 0.162 | 0.184 | 0.154 | 0.132 | 0.109 |
| 8                          | 0.327 | 0.254 | 0.205 | 0.17  | 0.21  | 0.171 | 0.143 | 0.168 | 0.139 | 0.117 | 0.096 |
| 9                          | 0.306 | 0.232 | 0.184 | 0.151 | 0.193 | 0.155 | 0.128 | 0.155 | 0.126 | 0.105 | 0.086 |
| 10                         | 0.286 | 0.213 | 0.167 | 0.135 | 0.178 | 0.141 | 0.115 | 0.144 | 0.115 | 0.095 | 0.078 |

Average Luminance Table (cd/m<sup>2</sup>)

|    | 0    | 45   | 90   |
|----|------|------|------|
| 0  | 1248 | 1248 | 1248 |
| 45 | 803  | 803  | 803  |
| 55 | 689  | 689  | 689  |
| 65 | 585  | 585  | 585  |
| 75 | 484  | 484  | 484  |
| 85 | 385  | 385  | 385  |

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.

