

REPORT NUMBER: ITL76171

PAGE: 1 OF 4

ISSUE DATE: 02/20/13

PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

CATALOG NUMBER: MLR5-1-4-X-TWA-120-T8

LUMINAIRE: EXTRUDED 3-PIECE METAL HOUSING WITH WHITE PAINTED GENERAL INTERIOR FINISH AND FABRICATED WHITE PAINTED METAL END CAPS, FORMED WHITE PAINTED METAL REFLECTOR AND SOCKET MOUNTING BRACKETS, EXTRUDED TRANSLUCENT WHITE FROSTED ACRYLIC DIFFUSER. DIFFUSER FROSTED BOTH SIDES.

LAMP: ONE 32-WATT T-8 FO32/835 LINEAR FLUORESCENT.

BALLAST: UNIVERSAL B232IUNV-C

MOUNTING: RECESSED

TOTAL REFLECTANCE OF PAINT = 88.9 %

THE 0 DEGREE PLANE IS PARALLEL WITH THE LAMP.

TOTAL INPUT WATTS = 33.3 AT 120.0 VOLTS

LUMEN TO CANDELA RATIO USED = 9.17

REPORT IS BASED ON 2950 LUMENS PER LAMP.

| CANDELA DISTRIBUTION |     |      |      |      |      | FLUX |
|----------------------|-----|------|------|------|------|------|
|                      | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |      |
| 0                    | 622 | 622  | 622  | 622  | 622  |      |
| 5                    | 620 | 621  | 619  | 616  | 616  | 59   |
| 15                   | 596 | 596  | 596  | 593  | 592  | 168  |
| 25                   | 549 | 551  | 549  | 548  | 546  | 253  |
| 35                   | 484 | 485  | 484  | 480  | 479  | 301  |
| 45                   | 400 | 401  | 400  | 396  | 394  | 308  |
| 55                   | 310 | 310  | 306  | 304  | 301  | 273  |
| 65                   | 209 | 210  | 206  | 207  | 206  | 206  |
| 75                   | 112 | 113  | 113  | 114  | 114  | 119  |
| 85                   | 30  | 29   | 32   | 31   | 32   | 35   |
| 90                   | 0   | 0    | 0    | 0    | 0    |      |

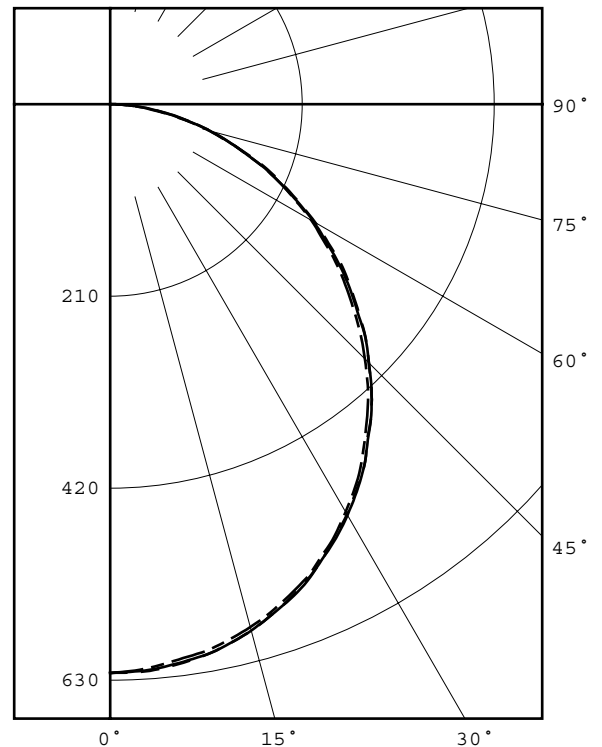
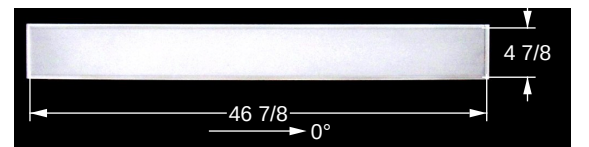
| ZONAL LUMEN SUMMARY |        |       |       |
|---------------------|--------|-------|-------|
| ZONE                | LUMENS | %LAMP | %FIXT |
| 0- 30               | 479    | 16.2  | 27.8  |
| 0- 40               | 781    | 26.5  | 45.3  |
| 0- 60               | 1362   | 46.2  | 79.1  |
| 0- 90               | 1722   | 58.4  | 100.0 |
| 90-180              | 0      | 0.0   | 0.0   |
| 0-180               | 1722   | 58.4  | 100.0 |

TOTAL LUMINAIRE EFFICIENCY = 58.4 %

CIE TYPE - DIRECT

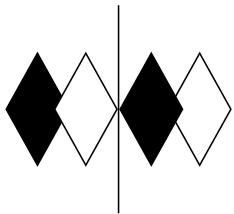
PLANE : 0-DEG 90-DEG  
SPACING CRITERIA : 1.24 1.23  
SHIELDING ANGLES : 90 90  
LUMINOUS LENGTH : 46.875 4.875

| LUMINANCE DATA IN CANDELA/SQ M |               |                |                |
|--------------------------------|---------------|----------------|----------------|
| ANGLE IN DEG                   | AVERAGE 0-DEG | AVERAGE 45-DEG | AVERAGE 90-DEG |
| 45                             | 3837.         | 3837.          | 3779.          |
| 55                             | 3666.         | 3619.          | 3560.          |
| 65                             | 3354.         | 3306.          | 3306.          |
| 75                             | 2935.         | 2961.          | 2988.          |
| 85                             | 2335.         | 2490.          | 2490.          |



LEGEND:  
0-deg - - - - -  
45-deg - - - - -  
90-deg - - - - -

Checked M. KLOPF  
Approved R. BEATTIE  
Lighting Engineer



**itl boulder**  
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

INDEPENDENT TESTING LABORATORIES, INC.  
3386 LONGHORN ROAD, BOULDER, CO 80302 USA

PHONE: (303)442-1255 • FAX: (303)449-5274 • E-MAIL: [itl@itlboulder.com](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL76171

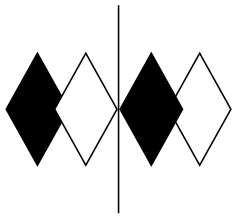
PAGE: 2 OF 4

ISSUE DATE: 02/20/13

PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

CANDELA DISTRIBUTION  
LATERAL ANGLE

|      | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |
|------|-----|------|------|------|------|
| 0.0  | 622 | 622  | 622  | 622  | 622  |
| 2.5  | 622 | 622  | 621  | 620  | 620  |
| 5.0  | 620 | 621  | 619  | 616  | 616  |
| 7.5  | 616 | 617  | 615  | 612  | 611  |
| 10.0 | 611 | 611  | 611  | 607  | 607  |
| 12.5 | 604 | 604  | 604  | 600  | 600  |
| 15.0 | 596 | 596  | 596  | 593  | 592  |
| 17.5 | 586 | 587  | 586  | 584  | 583  |
| 20.0 | 575 | 575  | 576  | 572  | 572  |
| 22.5 | 563 | 563  | 564  | 561  | 561  |
| 25.0 | 549 | 551  | 549  | 548  | 546  |
| 27.5 | 533 | 535  | 535  | 532  | 532  |
| 30.0 | 518 | 520  | 519  | 517  | 515  |
| 32.5 | 501 | 502  | 502  | 498  | 498  |
| 35.0 | 484 | 485  | 484  | 480  | 479  |
| 37.5 | 462 | 465  | 463  | 461  | 458  |
| 40.0 | 444 | 444  | 444  | 440  | 438  |
| 42.5 | 423 | 424  | 423  | 419  | 417  |
| 45.0 | 400 | 401  | 400  | 396  | 394  |
| 47.5 | 379 | 380  | 379  | 374  | 371  |
| 50.0 | 355 | 358  | 353  | 351  | 347  |
| 52.5 | 332 | 334  | 330  | 326  | 324  |
| 55.0 | 310 | 310  | 306  | 304  | 301  |
| 57.5 | 283 | 286  | 280  | 281  | 276  |
| 60.0 | 259 | 260  | 257  | 255  | 254  |
| 62.5 | 233 | 236  | 231  | 232  | 229  |
| 65.0 | 209 | 210  | 206  | 207  | 206  |
| 67.5 | 186 | 186  | 183  | 184  | 183  |
| 70.0 | 159 | 162  | 157  | 161  | 157  |
| 72.5 | 134 | 136  | 135  | 135  | 135  |
| 75.0 | 112 | 113  | 113  | 114  | 114  |
| 77.5 | 88  | 89   | 90   | 91   | 91   |
| 80.0 | 66  | 68   | 69   | 70   | 71   |
| 82.5 | 46  | 48   | 49   | 51   | 49   |
| 85.0 | 30  | 29   | 32   | 31   | 32   |
| 87.5 | 13  | 13   | 15   | 14   | 14   |
| 90.0 | 0   | 0    | 0    | 0    | 0    |



**itl boulder**  
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

INDEPENDENT TESTING LABORATORIES, INC.  
3386 LONGHORN ROAD, BOULDER, CO 80302 USA

PHONE: (303)442-1255 • FAX: (303)449-5274 • E-MAIL: [itl@itlboulder.com](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL76171

PAGE: 3 OF 4

ISSUE DATE: 02/20/13

PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

5-DEGREE

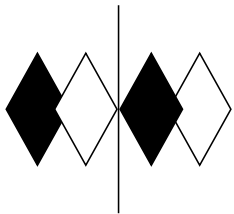
ZONAL LUMEN SUMMARY

|        |     |
|--------|-----|
| 0- 5   | 15  |
| 5- 10  | 44  |
| 10- 15 | 71  |
| 15- 20 | 96  |
| 20- 25 | 118 |
| 25- 30 | 135 |
| 30- 35 | 147 |
| 35- 40 | 154 |
| 40- 45 | 156 |
| 45- 50 | 152 |
| 50- 55 | 143 |
| 55- 60 | 130 |
| 60- 65 | 113 |
| 65- 70 | 93  |
| 70- 75 | 71  |
| 75- 80 | 48  |
| 80- 85 | 27  |
| 85- 90 | 8   |

10-DEGREE

ZONAL LUMEN SUMMARY

|       |      |
|-------|------|
| 0- 10 | 59   |
| 0- 20 | 227  |
| 0- 30 | 479  |
| 0- 40 | 781  |
| 0- 50 | 1089 |
| 0- 60 | 1362 |
| 0- 70 | 1568 |
| 0- 80 | 1687 |
| 0- 90 | 1722 |



**itl boulder**  
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

INDEPENDENT TESTING LABORATORIES, INC.  
3386 LONGHORN ROAD, BOULDER, CO 80302 USA

PHONE: (303)442-1255 • FAX: (303)449-5274 • E-MAIL: [itl@itlboulder.com](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL76171

PAGE: 4 OF 4

ISSUE DATE: 02/20/13

PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

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  | 69 | 69 | 69 | 69 | 68 | 68 | 68 | 68 | 65 | 65 | 65 | 62 | 62 | 62 | 60 | 60 | 60 | 58 |
| 1  | 63 | 61 | 58 | 56 | 62 | 59 | 57 | 55 | 57 | 55 | 53 | 55 | 53 | 52 | 52 | 51 | 50 | 49 |
| 2  | 58 | 53 | 49 | 46 | 56 | 52 | 48 | 45 | 50 | 47 | 44 | 48 | 45 | 43 | 46 | 44 | 42 | 41 |
| 3  | 53 | 46 | 42 | 38 | 51 | 46 | 41 | 38 | 44 | 40 | 37 | 42 | 39 | 36 | 41 | 38 | 36 | 34 |
| 4  | 48 | 41 | 36 | 32 | 47 | 40 | 36 | 32 | 39 | 35 | 31 | 38 | 34 | 31 | 36 | 33 | 31 | 29 |
| 5  | 44 | 37 | 32 | 28 | 43 | 36 | 31 | 28 | 35 | 31 | 27 | 34 | 30 | 27 | 33 | 29 | 27 | 25 |
| 6  | 41 | 33 | 28 | 24 | 40 | 33 | 28 | 24 | 32 | 27 | 24 | 31 | 27 | 24 | 30 | 26 | 23 | 22 |
| 7  | 38 | 30 | 25 | 21 | 37 | 30 | 25 | 21 | 29 | 24 | 21 | 28 | 24 | 21 | 27 | 23 | 21 | 20 |
| 8  | 35 | 27 | 22 | 19 | 34 | 27 | 22 | 19 | 26 | 22 | 19 | 26 | 22 | 19 | 25 | 21 | 19 | 18 |
| 9  | 33 | 25 | 20 | 17 | 32 | 25 | 20 | 17 | 24 | 20 | 17 | 24 | 20 | 17 | 23 | 19 | 17 | 16 |
| 10 | 31 | 23 | 19 | 16 | 30 | 23 | 19 | 16 | 22 | 18 | 15 | 22 | 18 | 15 | 21 | 18 | 15 | 14 |

ALL CANDELA, LUMENS, LUMINANCE, COEFFICIENT OF UTILIZATION AND VCP VALUES IN THIS REPORT ARE BASED ON RELATIVE PHOTOMETRY WHICH ASSUMES A BALLAST FACTOR OF 1.000. ANY CALCULATIONS PREPARED FROM THESE DATA SHOULD INCLUDE AN APPROPRIATE BALLAST FACTOR.