

## IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4DR-TL-L20-835-DIM-UNV-OW-OF-CS\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN FROM BALLABS TEST NO. 20685.0

[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC

[ISSUE DATE] 10/02/2019

[MANUFAC] WILLIAMS INDOOR

[OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO

[LUMINAIRE] 4" RND RECESSED LED DOWNLIGHT

[MORE] OPEN SEMI-SPEC SPUN ALUMINUM REFLECTOR (WIDE)

[LUMCAT] 4DR-TL-L20-835-DIM-UNV-OW-OF-CS

[LAMPCAT] V13 BXRE-35E2000

[\_SEARCH\_SOURCETYPE] LED

[\_SEARCH\_APPLICATION] Indoor, Classroom, Commercial, Corridor, Hotel, Industrial, Office, Downlight

[\_SEARCH\_MOUNTING] Recessed

### CHARACTERISTICS

|                                 |                    |
|---------------------------------|--------------------|
| Lumens Per Lamp                 | N.A. (absolute)    |
| Total Lamp Lumens               | N.A. (absolute)    |
| Luminaire Lumens                | 2005               |
| Total Luminaire Efficiency      | N.A.               |
| Luminaire Efficacy Rating (LER) | 101                |
| Total Luminaire Watts           | 19.8               |
| Ballast Factor                  | 1.00               |
| CIE Type                        | Direct             |
| Spacing Criterion (0-180)       | 1.22               |
| Spacing Criterion (90-270)      | 1.22               |
| Spacing Criterion (Diagonal)    | 0.94               |
| Basic Luminous Shape            | Circular           |
| Luminous Length (0-180)         | 0.37 ft (Diameter) |
| Luminous Width (90-270)         | 0.37 ft (Diameter) |
| Luminous Height                 | 0.00 ft            |

### LUMINANCE DATA (cd/sq.m)

| Angle In<br>Degrees | Average<br>0-Deg | Average<br>45-Deg | Average<br>90-Deg |
|---------------------|------------------|-------------------|-------------------|
| 45                  | 6080             | 6080              | 6080              |
| 55                  | 1874             | 1874              | 1874              |
| 65                  | 231              | 231               | 231               |
| 75                  | 0                | 0                 | 0                 |
| 85                  | 0                | 0                 | 0                 |

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## CANDELA TABULATION

|           | <u>0</u> |
|-----------|----------|
| <b>0</b>  | 1720.731 |
| <b>5</b>  | 1772.068 |
| <b>10</b> | 1825.306 |
| <b>15</b> | 1863.333 |
| <b>20</b> | 1946.042 |
| <b>25</b> | 2120.967 |
| <b>30</b> | 1661.789 |
| <b>35</b> | 291.859  |
| <b>40</b> | 76.054   |
| <b>45</b> | 41.830   |
| <b>50</b> | 21.866   |
| <b>55</b> | 10.457   |
| <b>60</b> | 4.753    |
| <b>65</b> | 0.951    |
| <b>70</b> | 0.951    |
| <b>75</b> | 0.000    |
| <b>80</b> | 0.000    |
| <b>85</b> | 0.000    |
| <b>90</b> | 0.000    |

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**ZONAL LUMEN SUMMARY**

| Zone    | Lumens  | %Lamp | %Fixt  |
|---------|---------|-------|--------|
| 0-20    | 703.20  | N.A.  | 35.10  |
| 0-30    | 1608.46 | N.A.  | 80.20  |
| 0-40    | 1957.54 | N.A.  | 97.60  |
| 0-60    | 2002.78 | N.A.  | 99.90  |
| 0-80    | 2004.89 | N.A.  | 100.00 |
| 0-90    | 2004.89 | N.A.  | 100.00 |
| 10-90   | 1834.45 | N.A.  | 91.50  |
| 20-40   | 1254.34 | N.A.  | 62.60  |
| 20-50   | 1289.03 | N.A.  | 64.30  |
| 40-70   | 47.11   | N.A.  | 2.30   |
| 60-80   | 2.12    | N.A.  | 0.10   |
| 70-80   | 0.25    | N.A.  | 0.00   |
| 80-90   | 0.00    | N.A.  | 0.00   |
| 90-110  | 0.00    | N.A.  | 0.00   |
| 90-120  | 0.00    | N.A.  | 0.00   |
| 90-130  | 0.00    | N.A.  | 0.00   |
| 90-150  | 0.00    | N.A.  | 0.00   |
| 90-180  | 0.00    | N.A.  | 0.00   |
| 110-180 | 0.00    | N.A.  | 0.00   |
| 0-180   | 2004.89 | N.A.  | 100.00 |

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

| Zone    | Lumens |
|---------|--------|
| 0-10    | 170.44 |
| 10-20   | 532.75 |
| 20-30   | 905.27 |
| 30-40   | 349.07 |
| 40-50   | 34.70  |
| 50-60   | 10.54  |
| 60-70   | 1.87   |
| 70-80   | 0.25   |
| 80-90   | 0.00   |
| 90-100  | 0.00   |
| 100-110 | 0.00   |
| 110-120 | 0.00   |
| 120-130 | 0.00   |
| 130-140 | 0.00   |
| 140-150 | 0.00   |
| 150-160 | 0.00   |
| 160-170 | 0.00   |
| 170-180 | 0.00   |

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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  | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1  | 114 | 111 | 109 | 106 | 111 | 109 | 107 | 105 | 105 | 103 | 102 | 101 | 100 | 98  | 98  | 97  | 96  | 94  |
| 2  | 108 | 104 | 100 | 96  | 106 | 102 | 98  | 95  | 99  | 96  | 93  | 96  | 93  | 91  | 93  | 91  | 89  | 88  |
| 3  | 103 | 97  | 92  | 88  | 101 | 95  | 91  | 87  | 93  | 89  | 86  | 90  | 87  | 85  | 88  | 86  | 83  | 82  |
| 4  | 98  | 91  | 85  | 81  | 96  | 90  | 85  | 81  | 87  | 83  | 80  | 85  | 82  | 79  | 84  | 81  | 78  | 77  |
| 5  | 93  | 85  | 79  | 75  | 92  | 84  | 79  | 75  | 82  | 78  | 74  | 81  | 77  | 74  | 79  | 76  | 73  | 72  |
| 6  | 89  | 80  | 74  | 70  | 87  | 79  | 74  | 70  | 78  | 73  | 69  | 76  | 72  | 69  | 75  | 71  | 68  | 67  |
| 7  | 84  | 75  | 69  | 65  | 83  | 75  | 69  | 65  | 73  | 68  | 65  | 72  | 68  | 64  | 71  | 67  | 64  | 63  |
| 8  | 80  | 71  | 65  | 61  | 79  | 70  | 65  | 61  | 69  | 64  | 61  | 68  | 64  | 60  | 67  | 63  | 60  | 59  |
| 9  | 76  | 67  | 61  | 57  | 75  | 66  | 61  | 57  | 66  | 60  | 57  | 65  | 60  | 57  | 64  | 60  | 57  | 55  |
| 10 | 73  | 63  | 58  | 54  | 72  | 63  | 57  | 54  | 62  | 57  | 54  | 61  | 57  | 53  | 61  | 56  | 53  | 52  |

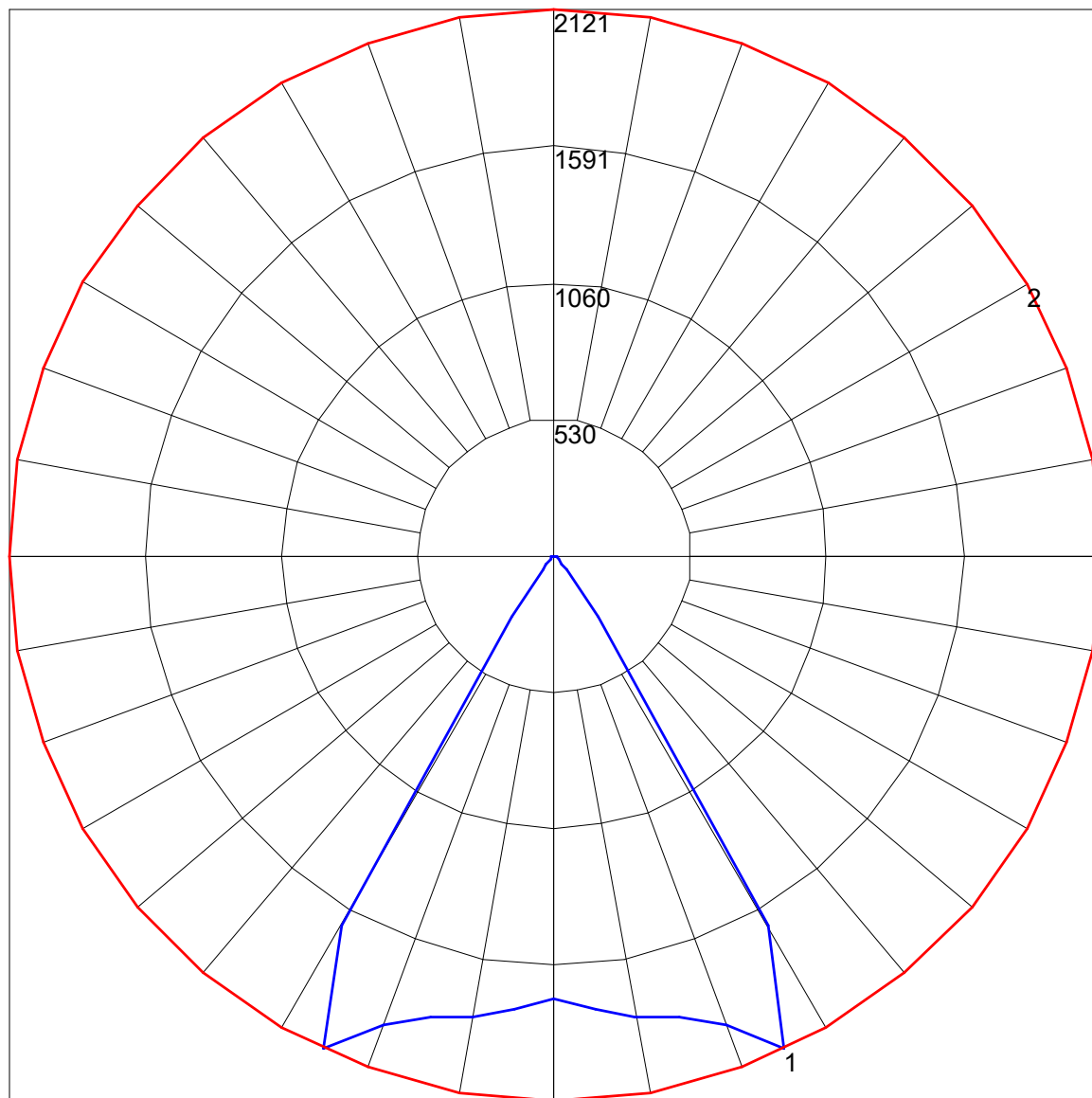
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**UGR TABLE - CORRECTED**

|                |      |                      |     |     |     |     |                    |     |     |     |     |
|----------------|------|----------------------|-----|-----|-----|-----|--------------------|-----|-----|-----|-----|
| Reflectances   |      |                      |     |     |     |     |                    |     |     |     |     |
| Ceiling Cavity | 70   | 70                   | 50  | 50  | 30  | 70  | 70                 | 50  | 50  | 30  |     |
| Walls          | 50   | 30                   | 50  | 30  | 30  | 50  | 30                 | 50  | 30  | 30  |     |
| Floor Cavity   | 20   | 20                   | 20  | 20  | 20  | 20  | 20                 | 20  | 20  | 20  |     |
| Room Size      |      | UGR Viewed Crosswise |     |     |     |     | UGR Viewed Endwise |     |     |     |     |
| X=2H           | Y=2H | 0.3                  | 1.2 | 0.6 | 1.5 | 1.8 | 0.3                | 1.2 | 0.6 | 1.5 | 1.8 |
|                | 3H   | 0.2                  | 1.0 | 0.5 | 1.3 | 1.7 | 0.2                | 1.0 | 0.5 | 1.3 | 1.7 |
|                | 4H   | 0.1                  | 0.8 | 0.5 | 1.2 | 1.5 | 0.1                | 0.8 | 0.5 | 1.2 | 1.5 |
|                | 6H   | 0.0                  | 0.6 | 0.4 | 1.0 | 1.4 | 0.0                | 0.6 | 0.4 | 1.0 | 1.4 |
|                | 8H   | 0.0                  | 0.5 | 0.3 | 0.9 | 1.3 | 0.0                | 0.5 | 0.3 | 0.9 | 1.3 |
|                | 12H  | 0.0                  | 0.4 | 0.2 | 0.8 | 1.2 | 0.0                | 0.4 | 0.2 | 0.8 | 1.2 |
| 4H             | 2H   | 0.0                  | 0.7 | 0.4 | 1.1 | 1.5 | 0.0                | 0.7 | 0.4 | 1.1 | 1.5 |
|                | 3H   | 0.0                  | 0.5 | 0.3 | 0.9 | 1.3 | 0.0                | 0.5 | 0.3 | 0.9 | 1.3 |
|                | 4H   | 0.0                  | 0.3 | 0.2 | 0.7 | 1.2 | 0.0                | 0.3 | 0.2 | 0.7 | 1.2 |
|                | 6H   | 0.0                  | 0.1 | 0.2 | 0.6 | 1.0 | 0.0                | 0.1 | 0.2 | 0.6 | 1.0 |
|                | 8H   | 0.0                  | 0.0 | 0.1 | 0.5 | 0.9 | 0.0                | 0.0 | 0.1 | 0.5 | 0.9 |
|                | 12H  | 0.0                  | 0.0 | 0.0 | 0.4 | 0.8 | 0.0                | 0.0 | 0.0 | 0.4 | 0.8 |
| 8H             | 4H   | 0.0                  | 0.0 | 0.1 | 0.5 | 0.9 | 0.0                | 0.0 | 0.1 | 0.5 | 0.9 |
|                | 6H   | 0.0                  | 0.0 | 0.0 | 0.3 | 0.8 | 0.0                | 0.0 | 0.0 | 0.3 | 0.8 |
|                | 8H   | 0.0                  | 0.0 | 0.0 | 0.2 | 0.7 | 0.0                | 0.0 | 0.0 | 0.2 | 0.7 |
|                | 12H  | 0.0                  | 0.0 | 0.0 | 0.1 | 0.7 | 0.0                | 0.0 | 0.0 | 0.1 | 0.7 |
| 12H            | 4H   | 0.0                  | 0.0 | 0.0 | 0.4 | 0.9 | 0.0                | 0.0 | 0.0 | 0.4 | 0.9 |
|                | 6H   | 0.0                  | 0.0 | 0.0 | 0.2 | 0.7 | 0.0                | 0.0 | 0.0 | 0.2 | 0.7 |
|                | 8H   | 0.0                  | 0.0 | 0.0 | 0.1 | 0.7 | 0.0                | 0.0 | 0.0 | 0.1 | 0.7 |

Maximum UGR = 1.8

POLAR GRAPH



Maximum Candela = 2120.967 Located At Horizontal Angle = 0, Vertical Angle = 25  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (25) (Through Max. Cd.)