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## Indoor Distribution Test Report

Relevant Standards  
IES LM-79-2008, ANSI C82.77-2002

**Prepared For**  
**H E Williams Inc**  
831 W Fairview Ave  
PO Box 837  
Carthage, MO 64836-0837  
United States

**Catalog Number**  
**6DR-L40/835-DIM-UNV-O-N-OF-CS**  
Order Number  
12326812  
Test Number  
12326812.23

Test Date

2018-06-08

Prepared By

Cordaryl Cousar, Technician

Approved By

Alexa Lambert, Project Handler

The results contained in this report pertain only to the tested sample.  
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**Luminaire Description:** Black formed aluminum housing, specular reflector, no lens enclosure  
**Lamp:** One white LED  
**Mounting:** Recessed  
**Ballast/Driver:** Philips XI036C100V054DSM5

**Luminaire**



**Luminaire Characteristics**

Luminous Diameter: 6.00 in.

**Summary of Results**

|                         |               |
|-------------------------|---------------|
| Total Luminaire Output: | 4011 Lumens   |
| Luminaire Efficacy:     | 110.1 lm/w    |
| Maximum Candela:        | 36944 Candela |

**Test Conditions**

|                   |           |
|-------------------|-----------|
| Test Temperature: | 24.8 °C   |
| Voltage:          | 120.0 VAC |
| Current:          | 0.3043 A  |
| Power:            | 36.41 W   |
| Power Factor:     | 0.997     |
| Frequency:        | 60 Hz     |
| Current THD:      | 5.41 %    |

Laboratory results may not be representative of field performance  
Ballast factors have not been applied



## Distribution - Goniophotometer

### Distribution Test Conditions

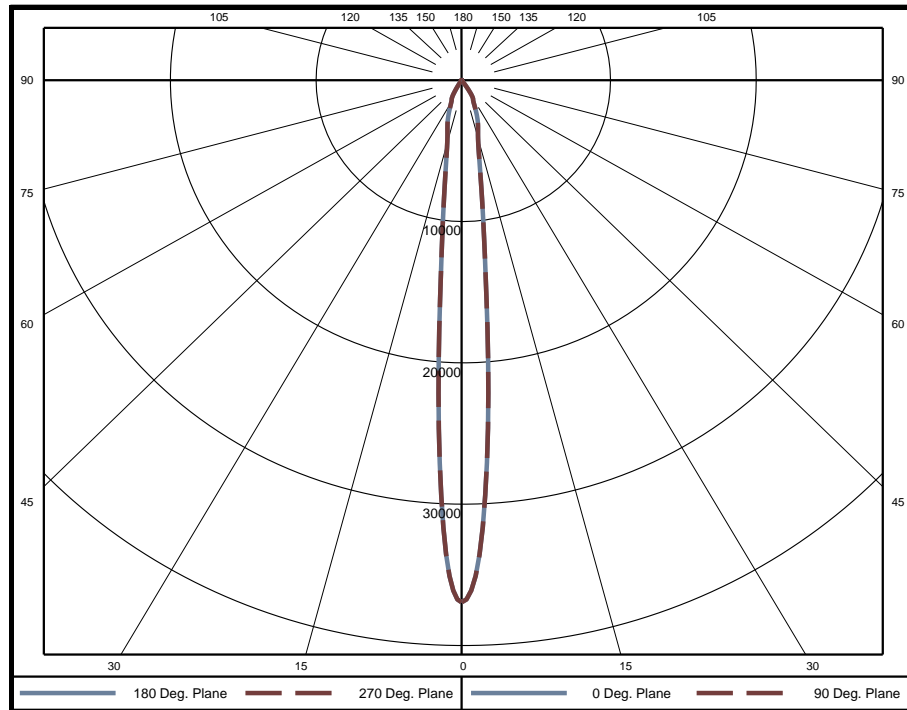
| Temperature | Voltage   | Current  | Power   | Power Factor | Frequency | Current THD |
|-------------|-----------|----------|---------|--------------|-----------|-------------|
| 24.8 °C     | 120.0 VAC | 0.3043 A | 36.41 W | 0.997        | 60 Hz     | 5.41 %      |

### Summary of Results

**Spacing Criteria**  
 0-180: 0.18  
 90-270: 0.18

**Total Lumen Output:** 4011 Lumens  
**Luminaire Efficacy:** 110.1 lm/w  
**Maximum Candela:** 36944 Candela

### Polar Plot



### Zonal Lumen Summary

| Zone  | Lumens | % of Luminaire | Zone    | Lumens | % of Luminaire | Zone    | Lumens | % of Luminaire |
|-------|--------|----------------|---------|--------|----------------|---------|--------|----------------|
| 0-5   | 660.2  | 16.5%          | 60-65   | 1.6    | 0.0%           | 120-125 | 0      | 0.0%           |
| 5-10  | 811.3  | 20.2%          | 65-70   | 1.0    | 0.0%           | 125-130 | 0      | 0.0%           |
| 10-15 | 622.6  | 15.5%          | 70-75   | 0.6    | 0.0%           | 130-135 | 0      | 0.0%           |
| 15-20 | 585.5  | 14.6%          | 75-80   | 0.3    | 0.0%           | 135-140 | 0      | 0.0%           |
| 20-25 | 527.0  | 13.1%          | 80-85   | 0.2    | 0.0%           | 140-145 | 0      | 0.0%           |
| 25-30 | 424.1  | 10.6%          | 85-90   | 0.1    | 0.0%           | 145-150 | 0      | 0.0%           |
| 30-35 | 302.4  | 7.5%           | 90-95   | 0      | 0.0%           | 150-155 | 0      | 0.0%           |
| 35-40 | 46.6   | 1.2%           | 95-100  | 0      | 0.0%           | 155-160 | 0      | 0.0%           |
| 40-45 | 12.3   | 0.3%           | 100-105 | 0      | 0.0%           | 160-165 | 0      | 0.0%           |
| 45-50 | 8.2    | 0.2%           | 105-110 | 0      | 0.0%           | 165-170 | 0      | 0.0%           |
| 50-55 | 4.7    | 0.1%           | 110-115 | 0      | 0.0%           | 170-175 | 0      | 0.0%           |
| 55-60 | 2.6    | 0.1%           | 115-120 | 0      | 0.0%           | 175-180 | 0      | 0.0%           |

| Zone   | Lumens | % of Luminaire |
|--------|--------|----------------|
| 0-40   | 3980   | 99.2%          |
| 0-60   | 4008   | 99.9%          |
| 0-90   | 4011   | 100.0%         |
| 90-180 | 0      | 0.0%           |



### Candela Tabulation

Horizontal Angle (Degrees)

| Vertical Angle (Degrees) | 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   | 36940 | 36940 | 36940 | 36940 | 36940 | 36940 | 36940 | 36940 | 36940 | 36940 | 36940 | 36940 | 36940 | 36940 | 36940 |
|                          | 5   | 19870 | 19870 | 19870 | 19870 | 19870 | 19870 | 19870 | 19870 | 19870 | 19870 | 19870 | 19870 | 19870 | 19870 | 19870 |
|                          | 10  | 7245  | 7245  | 7245  | 7245  | 7245  | 7245  | 7245  | 7245  | 7245  | 7245  | 7245  | 7245  | 7245  | 7245  | 7245  |
|                          | 15  | 4139  | 4139  | 4139  | 4139  | 4139  | 4139  | 4139  | 4139  | 4139  | 4139  | 4139  | 4139  | 4139  | 4139  | 4139  |
|                          | 20  | 3074  | 3074  | 3074  | 3074  | 3074  | 3074  | 3074  | 3074  | 3074  | 3074  | 3074  | 3074  | 3074  | 3074  | 3074  |
|                          | 25  | 2001  | 2001  | 2001  | 2001  | 2001  | 2001  | 2001  | 2001  | 2001  | 2001  | 2001  | 2001  | 2001  | 2001  | 2001  |
|                          | 30  | 1478  | 1478  | 1478  | 1478  | 1478  | 1478  | 1478  | 1478  | 1478  | 1478  | 1478  | 1478  | 1478  | 1478  | 1478  |
|                          | 35  | 450   | 450   | 450   | 450   | 450   | 450   | 450   | 450   | 450   | 450   | 450   | 450   | 450   | 450   | 450   |
|                          | 40  | 42    | 42    | 42    | 42    | 42    | 42    | 42    | 42    | 42    | 42    | 42    | 42    | 42    | 42    | 42    |
|                          | 45  | 26    | 26    | 26    | 26    | 26    | 26    | 26    | 26    | 26    | 26    | 26    | 26    | 26    | 26    | 26    |
|                          | 50  | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    |
|                          | 55  | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     |
|                          | 60  | 4     | 4     | 4     | 4     | 4     | 4     | 4     | 4     | 4     | 4     | 4     | 4     | 4     | 4     | 4     |
|                          | 65  | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     |
|                          | 70  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
|                          | 75  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
|                          | 80  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 85  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 90  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 95  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 100 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 105 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 110 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 115 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 120 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 125 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 130 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 135 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 140 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 145 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 150 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 155 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 160 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 165 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 170 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 175 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | 180 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |

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

Horizontal Angle (Degrees)

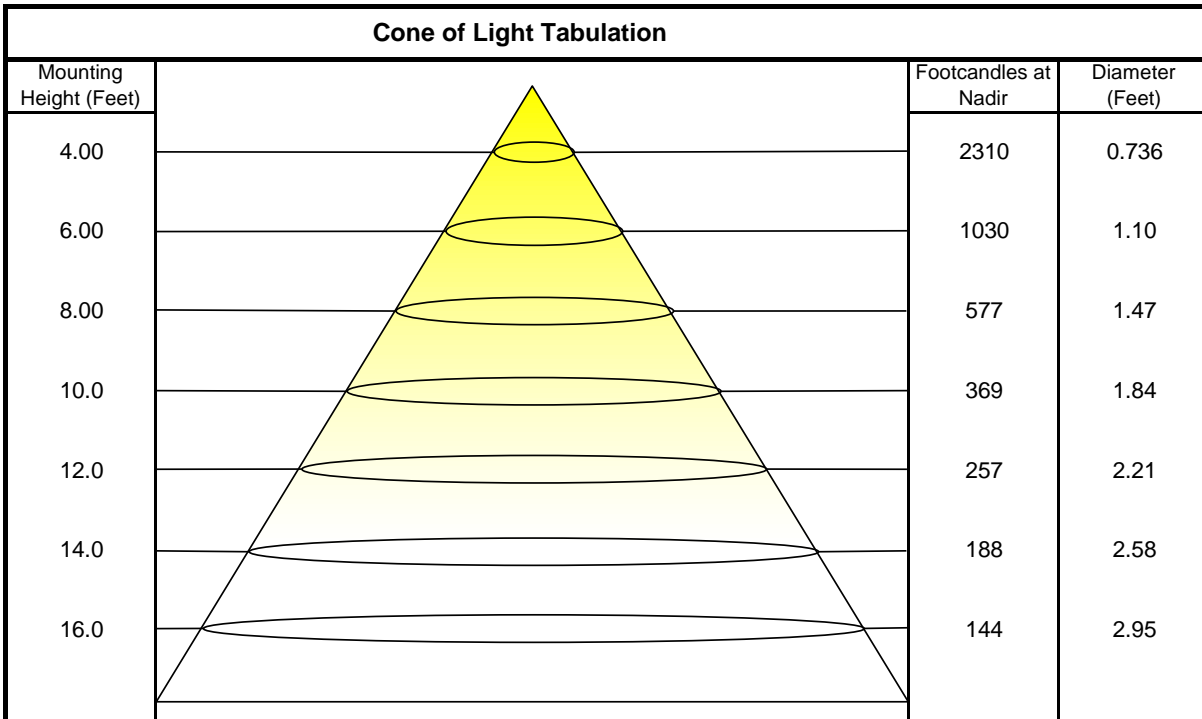
| Vertical Angle (Degrees) | 0  | 45      | 90      |
|--------------------------|----|---------|---------|
|                          | 0  | 2025000 | 2025000 |
|                          | 45 | 2016    | 2016    |
|                          | 55 | 729     | 729     |
|                          | 65 | 323     | 323     |
|                          | 75 | 173     | 173     |
|                          | 85 | 168     | 168     |



### Coefficients of Utilization - Zonal Cavity Method

| Effective Floor Cavity Reflectance 20% |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|--|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ceiling Cavity Reflectance             | 80  |     |     |     | 70  |     |     |     | 50  |     |     | 30  |     |     | 10  |     |     | 0   |
| Wall Reflectance                       | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 0   |
| Room Cavity Ratio (RCR)                | ** Values are expressed as percent of total lumen output delivered to the task surface ** |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 0                                      | 119   | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1                                      | 115   | 113 | 111 | 109 | 112 | 111 | 109 | 107 | 107 | 105 | 104 | 103 | 102 | 101 | 99  | 99  | 98  | 96  |
| 2                                      | 111   | 107 | 104 | 101 | 109 | 105 | 103 | 100 | 102 | 100 | 98  | 99  | 98  | 96  | 97  | 95  | 94  | 93  |
| 3                                      | 107   | 102 | 98  | 95  | 105 | 101 | 97  | 95  | 98  | 95  | 93  | 96  | 94  | 92  | 94  | 92  | 90  | 89  |
| 4                                      | 103   | 98  | 94  | 90  | 102 | 97  | 93  | 90  | 95  | 91  | 89  | 93  | 90  | 88  | 91  | 89  | 87  | 86  |
| 5                                      | 100   | 94  | 89  | 86  | 99  | 93  | 89  | 86  | 91  | 88  | 85  | 90  | 87  | 84  | 88  | 86  | 84  | 83  |
| 6                                      | 97  | 90  | 86  | 83  | 96  | 90  | 85  | 82  | 88  | 85  | 82  | 87  | 84  | 81  | 86  | 83  | 81  | 80  |
| 7                                      | 94  | 87  | 83  | 80  | 93  | 86  | 82  | 79  | 85  | 82  | 79  | 84  | 81  | 79  | 83  | 80  | 78  | 77  |
| 8                                      | 91  | 84  | 80  | 77  | 90  | 84  | 79  | 77  | 83  | 79  | 76  | 82  | 78  | 76  | 81  | 78  | 76  | 75  |
| 9                                      | 88  | 81  | 77  | 74  | 88  | 81  | 77  | 74  | 80  | 76  | 74  | 79  | 76  | 74  | 79  | 76  | 73  | 72  |
| 10                                     | 86  | 79  | 75  | 72  | 85  | 78  | 74  | 72  | 78  | 74  | 72  | 77  | 74  | 71  | 77  | 73  | 71  | 70  |

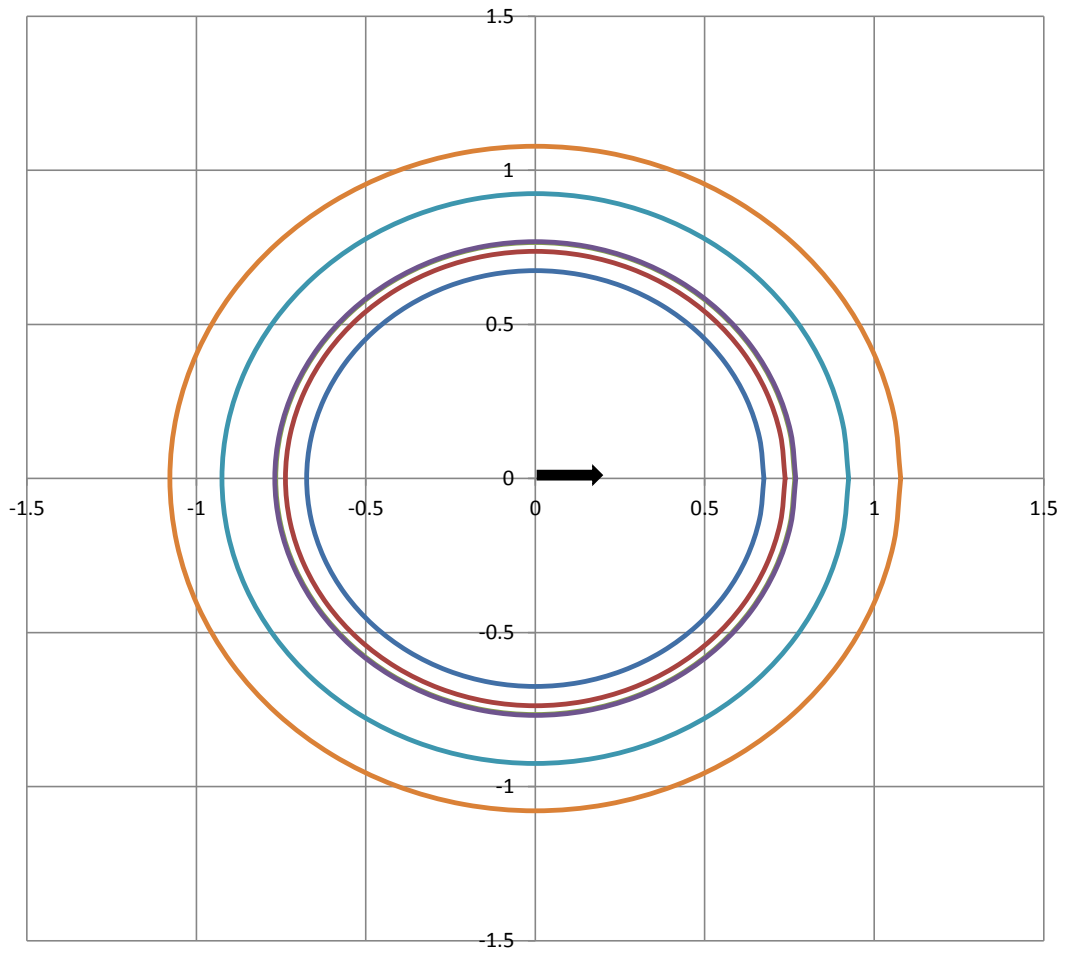
| Beam and Field Information |               |
|----------------------------|---------------|
| CIE Type:                  | Direct        |
| Center Beam Intensity:     | 36940 Candela |
| Central Cone Intensity:    | 30317 Candela |
| Beam Flux:                 | 722.7 Lumens  |
| Beam Angle (0-180):        | 10.6 Degrees  |
| Beam Angle (90-270):       | 10.6 Degrees  |
| Field Angle (0-180):       | 33.7 Degrees  |
| Field Angle (90-270):      | 33.7 Degrees  |





## ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

5 fc    2 fc    1 fc    0.5 fc    0.2 fc    0.1 fc