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## Indoor Distribution Test Report

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

**Prepared For**  
**Mercury Lighting**

John Andrews  
20 Audrey Pl  
Fairfield, NJ 07004-3416  
United States

**Catalog Number**  
**LHBT-2-16000HL-40K-U80TW-2D-UNI-172WATT**

Order Number  
11185132  
Test Number  
1223873

Test Date

2016-03-17

Prepared By

Javier Caban, Technician

Approved By

Timothy Wagner, Project Handler

The results contained in this report pertain only to the tested sample.  
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**Luminaire Description:** White steel housing, white steel reflectors, no enclosure  
**Lamp:** 160 white LEDs, two boards with 80 LEDs each  
**Mounting:** Recessed  
**Ballast/Driver:** Two Everline D21CC80UNVTW-D

#### Luminaire



#### Luminaire Characteristics

Luminous Length: 23.13 in.  
Luminous Width: 20.75 in.  
Luminous Height: 0.75 in.

#### Summary of Results

Total Luminaire Output: 18170 Lumens  
Luminaire Efficacy: 107.9 lm/w  
Maximum Candela: 6788 Candela

#### Test Conditions

Test Temperature: 25.4 °C  
Voltage: 120.0 VAC  
Current: 1.406 A  
Power: 168.4 W  
Power Factor: 0.998  
Frequency: 60 Hz  
Current THD: 5.45 %

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 |
|-------------|-----------|---------|---------|--------------|-----------|-------------|
| 25.4 °C     | 120.0 VAC | 1.406 A | 168.4 W | 0.998        | 60 Hz     | 5.45 %      |

### Summary of Results

#### Spacing Criteria

0-180: 1.27

90-270: 1.27

#### Total Lumen Output:

18170 Lumens

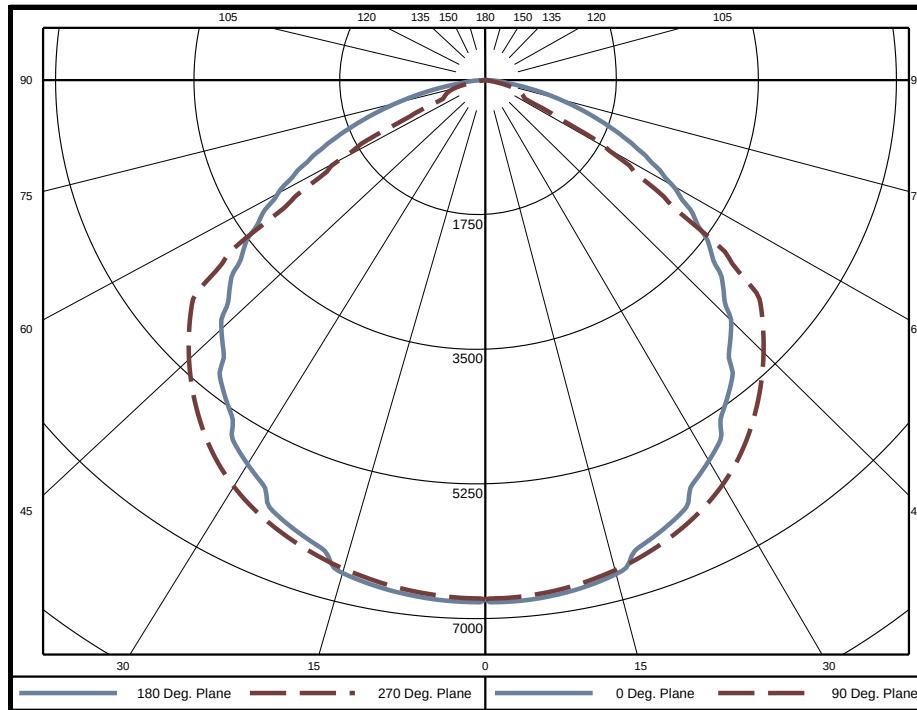
#### Luminaire Efficacy:

107.9 lm/w

#### Maximum Candela:

6788 Candela

### Polar Plot



### Zonal Lumen Summary

| Zone  | Lumens | % of Luminaire | Zone    | Lumens | % of Luminaire | Zone    | Lumens | % of Luminaire |
|-------|--------|----------------|---------|--------|----------------|---------|--------|----------------|
| 0-5   | 161    | 0.9%           | 60-65   | 1047   | 5.8%           | 120-125 | 0      | 0.0%           |
| 5-10  | 480    | 2.6%           | 65-70   | 658    | 3.6%           | 125-130 | 0      | 0.0%           |
| 10-15 | 788    | 4.3%           | 70-75   | 427    | 2.4%           | 130-135 | 0      | 0.0%           |
| 15-20 | 1070   | 5.9%           | 75-80   | 233    | 1.3%           | 135-140 | 0      | 0.0%           |
| 20-25 | 1320   | 7.3%           | 80-85   | 92     | 0.5%           | 140-145 | 0      | 0.0%           |
| 25-30 | 1529   | 8.4%           | 85-90   | 39     | 0.2%           | 145-150 | 0      | 0.0%           |
| 30-35 | 1698   | 9.3%           | 90-95   | 0      | 0.0%           | 150-155 | 0      | 0.0%           |
| 35-40 | 1796   | 9.9%           | 95-100  | 0      | 0.0%           | 155-160 | 0      | 0.0%           |
| 40-45 | 1840   | 10.1%          | 100-105 | 0      | 0.0%           | 160-165 | 0      | 0.0%           |
| 45-50 | 1829   | 10.1%          | 105-110 | 0      | 0.0%           | 165-170 | 0      | 0.0%           |
| 50-55 | 1733   | 9.5%           | 110-115 | 0      | 0.0%           | 170-175 | 0      | 0.0%           |
| 55-60 | 1434   | 7.9%           | 115-120 | 0      | 0.0%           | 175-180 | 0      | 0.0%           |

| Zone   | Lumens | % of Luminaire |
|--------|--------|----------------|
| 0-40   | 8842   | 48.7%          |
| 0-60   | 15678  | 86.3%          |
| 0-90   | 18174  | 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   | 6750 | 6750 | 6750 | 6750 | 6750  | 6750 | 6750  | 6750 | 6750  | 6750 | 6750  | 6750 | 6750  | 6750 | 6750  |
|                          | 5   | 6778 | 6732 | 6742 | 6724 | 6721  | 6724 | 6742  | 6732 | 6778  | 6732 | 6742  | 6724 | 6721  | 6724 | 6742  |
|                          | 10  | 6727 | 6680 | 6688 | 6669 | 6666  | 6669 | 6688  | 6680 | 6727  | 6680 | 6688  | 6669 | 6666  | 6669 | 6688  |
|                          | 15  | 6632 | 6590 | 6593 | 6576 | 6575  | 6576 | 6593  | 6590 | 6632  | 6590 | 6593  | 6576 | 6575  | 6576 | 6593  |
|                          | 20  | 6325 | 6292 | 6456 | 6450 | 6451  | 6450 | 6456  | 6292 | 6325  | 6292 | 6456  | 6450 | 6451  | 6450 | 6456  |
|                          | 25  | 6129 | 6103 | 6130 | 6291 | 6289  | 6291 | 6130  | 6103 | 6129  | 6103 | 6130  | 6291 | 6289  | 6291 | 6130  |
|                          | 30  | 5739 | 5723 | 5918 | 6087 | 6076  | 6087 | 5918  | 5723 | 5739  | 5723 | 5918  | 6087 | 6076  | 6087 | 5918  |
|                          | 35  | 5314 | 5428 | 5564 | 5810 | 5790  | 5810 | 5564  | 5428 | 5314  | 5428 | 5564  | 5810 | 5790  | 5810 | 5564  |
|                          | 40  | 4964 | 4989 | 5210 | 5364 | 5437  | 5364 | 5210  | 4989 | 4964  | 4989 | 5210  | 5364 | 5437  | 5364 | 5210  |
|                          | 45  | 4485 | 4523 | 4734 | 4963 | 5040  | 4963 | 4734  | 4523 | 4485  | 4523 | 4734  | 4963 | 5040  | 4963 | 4734  |
|                          | 50  | 3978 | 4052 | 4305 | 4545 | 4613  | 4545 | 4305  | 4052 | 3978  | 4052 | 4305  | 4545 | 4613  | 4545 | 4305  |
|                          | 55  | 3387 | 3557 | 3778 | 3660 | 3208  | 3660 | 3778  | 3557 | 3387  | 3557 | 3778  | 3660 | 3208  | 3660 | 3778  |
|                          | 60  | 2837 | 2998 | 3190 | 2085 | 1834  | 2085 | 3190  | 2998 | 2837  | 2998 | 3190  | 2085 | 1834  | 2085 | 3190  |
|                          | 65  | 2232 | 2401 | 1864 | 884  | 555   | 884  | 1864  | 2401 | 2232  | 2401 | 1864  | 884  | 555   | 884  | 1864  |
|                          | 70  | 1628 | 1776 | 732  | 505  | 486   | 505  | 732   | 1776 | 1628  | 1776 | 732   | 505  | 486   | 505  | 732   |
|                          | 75  | 1036 | 1018 | 419  | 389  | 345   | 389  | 419   | 1018 | 1036  | 1018 | 419   | 389  | 345   | 389  | 419   |
|                          | 80  | 499  | 350  | 271  | 154  | 88    | 154  | 271   | 350  | 499   | 350  | 271   | 154  | 88    | 154  | 271   |
|                          | 85  | 187  | 177  | 96   | 55   | 23    | 55   | 96    | 177  | 187   | 177  | 96    | 55   | 23    | 55   | 96    |
|                          | 90  | 6    | 44   | 57   | 39   | 20    | 39   | 57    | 44   | 6     | 44   | 57    | 39   | 20    | 39   | 57    |
|                          | 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  | 21800 | 21800 |
|                          | 45 | 20490 | 21630 |
|                          | 55 | 19070 | 21280 |
|                          | 65 | 17060 | 14250 |
|                          | 75 | 12920 | 5232  |
|                          | 85 | 6926  | 3572  |



### Utilization of Lumens - 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 Lumens delivered to the task surface ** |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 0                                      | 21636                                                              | 21636 | 21636 | 21636 | 21133 | 21133 | 21133 | 21133 | 20194 | 20194 | 20194 | 19334 | 19334 | 19334 | 18545 | 18545 | 18545 | 18174 |
| 1                                      | 19986                                                              | 19210 | 18515 | 17889 | 19502 | 18802 | 18171 | 17598 | 18038 | 17520 | 17046 | 17336 | 16916 | 16527 | 16689 | 16353 | 16039 | 15672 |
| 2                                      | 18303                                                              | 16925 | 15785 | 14826 | 17839 | 16587 | 15540 | 14651 | 15952 | 15073 | 14313 | 15367 | 14635 | 13991 | 14826 | 14222 | 13683 | 13308 |
| 3                                      | 16757                                                              | 14962 | 13572 | 12465 | 16319 | 14679 | 13392 | 12354 | 14147 | 13045 | 12138 | 13655 | 12717 | 11930 | 13198 | 12407 | 11729 | 11349 |
| 4                                      | 15377                                                              | 13306 | 11790 | 10631 | 14970 | 13068 | 11653 | 10558 | 12620 | 11389 | 10415 | 12203 | 11138 | 10276 | 11816 | 10899 | 10140 | 9761  |
| 5                                      | 14156                                                              | 11912 | 10344 | 9186  | 13782 | 11711 | 10238 | 9136  | 11331 | 10033 | 9038  | 10978 | 9837  | 8942  | 10648 | 9649  | 8848  | 8474  |
| 6                                      | 13076                                                              | 10733 | 9160  | 8032  | 12735 | 10562 | 9077  | 7996  | 10239 | 8914  | 7927  | 9937  | 8758  | 7858  | 9654  | 8608  | 7791  | 7426  |
| 7                                      | 12122                                                              | 9731  | 8182  | 7096  | 11812 | 9586  | 8115  | 7070  | 9309  | 7984  | 7019  | 9049  | 7858  | 6969  | 8806  | 7736  | 6919  | 6566  |
| 8                                      | 11280                                                              | 8877  | 7365  | 6327  | 10999 | 8752  | 7311  | 6308  | 8513  | 7204  | 6270  | 8289  | 7100  | 6232  | 8079  | 7001  | 6194  | 5855  |
| 9                                      | 10533                                                              | 8142  | 6678  | 5689  | 10278 | 8034  | 6632  | 5674  | 7828  | 6544  | 5644  | 7633  | 6458  | 5615  | 7450  | 6375  | 5587  | 5260  |
| 10                                     | 9869                                                               | 7507  | 6093  | 5152  | 9638  | 7413  | 6055  | 5141  | 7234  | 5982  | 5118  | 7065  | 5910  | 5095  | 6905  | 5841  | 5072  | 4759  |

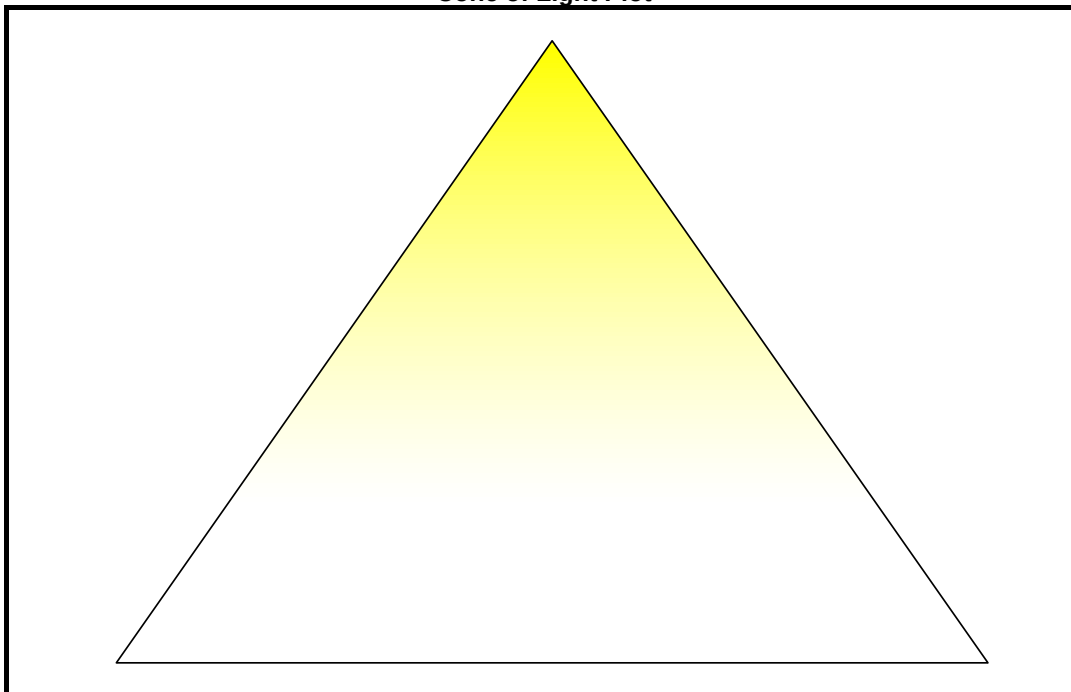
### Cone of Light Tabulation

| Mounting Height | Footcandles at Nadir | Diameter (Feet) |
|-----------------|----------------------|-----------------|
| 4.00            | 422                  | 5.22            |
| 6.00            | 187                  | 7.83            |
| 8.00            | 105                  | 10.4            |
| 10.0            | 67.5                 | 13.0            |
| 12.0            | 46.9                 | 15.7            |
| 14.0            | 34.4                 | 18.3            |
| 16.0            | 26.4                 | 20.9            |

### Beam and Field Information

|                         |                |
|-------------------------|----------------|
| CIE Type:               | Direct         |
| Center Beam Intensity:  | 6750 Candela   |
| Central Cone Intensity: | 6746 Candela   |
| Beam Flux:              | 14763.5 Lumens |
| Beam Angle (0-180):     | 110.2 Degrees  |
| Beam Angle (90-270):    | 109.5 Degrees  |
| Field Angle (0-180):    | 156.6 Degrees  |
| Field Angle (90-270):   | 127.8 Degrees  |

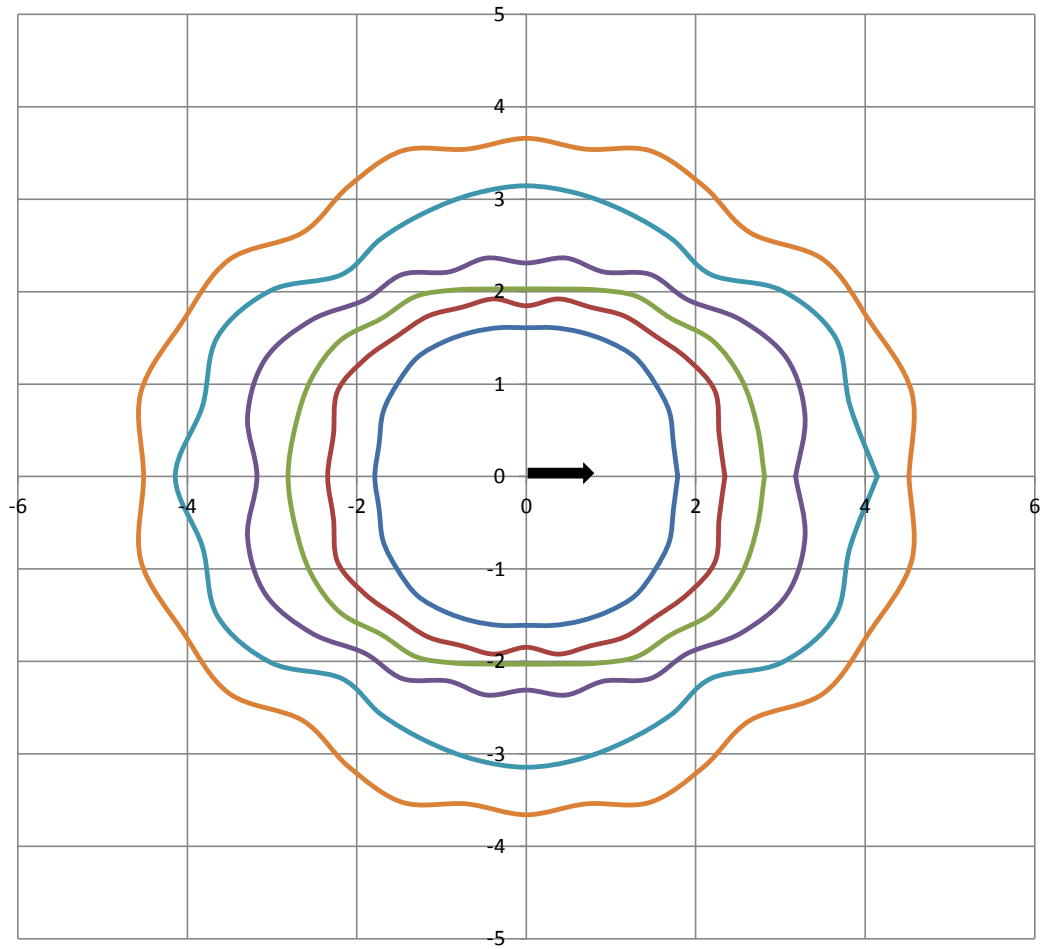
### Cone of Light Plot





## 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