

# AMERICAN GAS LAMP WORKS TEST REPORT

**SCOPE OF WORK**

LED Performance Testing

**MODEL NUMBER**

Model #3200 Grand Bavarian Lamp

**PROJECT NUMBER**

G105724524

**REPORT NUMBER**

105724524CRT-005

**ISSUE DATE**

2/26/2024

**REVISION DATE**

None

**TEST DATES**

2/23/2024

**DOCUMENT CONTROL NUMBER**

RTTDS-R-AMER-Test-3407

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**REPORT NUMBER**

105724524CRT-005

**MODEL NUMBER(s)**

MODEL #3200 GRAND BAVARIAN LAMP

**REPORT RENDERED TO:**

AMERICAN GAS LAMP WORKS  
1299 4TH AVE  
NEW KENSINGTON, PA 15068

**STATEMENT OF LIMITATION**

NVLAP Lab Code 100402-0. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. government.

**AUTHORIZATION**

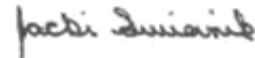
The testing performed was authorized by signed quote number QU-01416591.

**TEST STANDARDS**

ANSI/IES LM-79-19: Optical and Electrical Measurements of Solid State Lighting Products  
IES LM-79-08: Electrical and Photometric Measurements of Solid State Lighting

In Charge of Testing:

Reviewer:



Melanie Brittain  
Senior Associate Engineer  
Lighting Division

Jacki Swiernik  
Staff Engineer  
Lighting Division

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**SAMPLE INFORMATION**

**REPORT NO. 105724524CRT-005**

**ITEMS RECEIVED**

| Item No. | Control No.       | Model No.                       | Description                                 | Type       | Received Date | Sampling Date |
|----------|-------------------|---------------------------------|---|------------|---------------|---------------|
| 1        | CRT2402191502-001 | Model #3200 Grand Bavarian Lamp | 6 Sided Outdoor Lamp with Frosted Poly Lens | Production | 2/19/2024     | N/A           |
| 2        |                   | CS15761_STRADA-2x2MX-8-SCL      | Type II Lens                                |            |               |               |
| 3        |                   | CS15751_STRADA-2x2MX-8-DWC      | Type III Lens                               |            |               |               |
| 4        |                   | CS15750_STRADA-2x2MX-8-T4-B     | Type IV Lens                                |            |               |               |
| 5        |                   | CS15763_STRADA-2x2MX-8-VSM      | Type V Lens                                 |            |               |               |

**TESTED SAMPLE CONFIGURATIONS**

| Config No. | Tested Model No.                         | Item Nos. Utilized |
|------------|--|--------------------|
| 1          | Model #3200 Grand Bavarian Lamp Type II  | 1, 2               |
| 2          | Model #3200 Grand Bavarian Lamp Type III | 1, 3               |
| 3          | Model #3200 Grand Bavarian Lamp Type IV  | 1, 4               |
| 4          | Model #3200 Grand Bavarian Lamp Type V   | 1, 5               |

**SUMMARY**

**REPORT NO. 105724524CRT-005**

**PRODUCT INFORMATION AND SUMMARY OF DATA**

| <b>Test Configuration 1</b> |  |
|-----------------------------|--|
| <b>Product Model No.:</b>   | Model #3200 Grand Bavarian Lamp                                    |
| <b>Product Description:</b> | 6 Sided Outdoor Lamp with Frosted Poly Lens                        |
| <b>LED Model No.:</b>       | Lumileds(L224-5080004MLU010), Mechatronix(Coolblock SQ-01-2x2MX-B) |
| <b>Driver Model No.:</b>    | Inventronics EUM-050S150DT   |

**TEST METHODS**

**SEASONING IN SAMPLE ORIENTATION - LED PRODUCTS**

No seasoning was performed in accordance with ANSI/IES LM-79-19

**DUT SAMPLING METHOD**

For testing plans, program requirements, or shipments requiring sampling of DUTs or components, the selections for each test were random. All samples are marked with control numbers regardless of being tested.

**TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING**

A Type C Mirror Goniophotometer system was used to measure the luminous intensity (candela) at each angle of distribution for the DUT. Electrical measurements of the unit were measured using a power analyzer. Each DUT was operated at the rated input voltage of the system in its designated orientation. The ambient temperature and relative humidity was measured at 25°C ± 1.2°C and 10-65% respectively at a position within 1.5m and at equal height of the DUT. Stabilization procedures to LM-79-19 were followed. The test distance was ≥ 5x the longest luminous dimension of the DUT.

ANSI/IES Technical Memorandums (TM) reported are not NVLAP accredited

**TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING**

**REPORT NO. 105724524CRT-005**

| Test Configuration | Tested Model No.                        | Pass/Fail/NA |
|--------------------|---|--------------|
| 1                  | Model #3200 Grand Bavarian Lamp Type II | NA           |

**PHOTOMETRIC AND ELECTRICAL MEASUREMENTS**

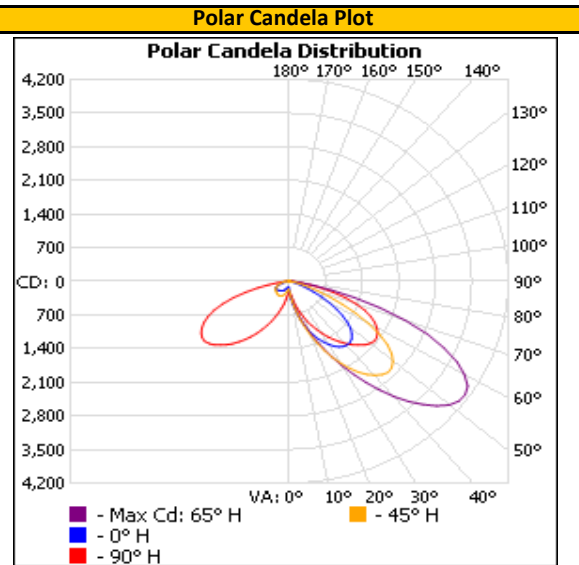
| Base Orientation | Input Voltage (Vac) | Input Current (mA) | Input Power (W) | Input Power Factor ( ) |
|------------------|---------------------|--------------------|-----------------|------------------------|
| Down             | 120.1               | 893.4              | 107.2           | 0.999                  |

| Light Output (lm) | Efficacy (lm/W) |
|-------------------|-----------------|
| 5820.4            | 54.3            |

**LUMINOUS INTENSITY SUMMARY (candela)**

| Vertical Angle (°) | Horizontal |      |      |      |      |
|--------------------|------------|------|------|------|------|
|                    | 0          | 30   | 45   | 65   | 90   |
| 0                  | 213        | 213  | 213  | 213  | 213  |
| 5                  | 362        | 353  | 339  | 305  | 257  |
| 10                 | 576        | 566  | 546  | 489  | 393  |
| 15                 | 828        | 842  | 835  | 771  | 577  |
| 20                 | 1086       | 1155 | 1190 | 1120 | 785  |
| 25                 | 1321       | 1475 | 1586 | 1538 | 1010 |
| 30                 | 1515       | 1757 | 1962 | 2027 | 1244 |
| 35                 | 1664       | 1977 | 2302 | 2570 | 1473 |
| 40                 | 1725       | 2107 | 2545 | 3130 | 1691 |
| 45                 | 1691       | 2125 | 2679 | 3621 | 1872 |
| 50                 | 1538       | 1992 | 2594 | 4002 | 2011 |
| 55                 | 1247       | 1678 | 2295 | 4115 | 2042 |
| 60                 | 882        | 1210 | 1753 | 3875 | 1940 |
| 65                 | 510        | 711  | 1115 | 3266 | 1719 |
| 70                 | 248        | 345  | 590  | 2362 | 1359 |
| 75                 | 107        | 147  | 264  | 1282 | 872  |
| 80                 | 57         | 70   | 112  | 465  | 406  |
| 85                 | 39         | 42   | 57   | 126  | 152  |
| 90                 | 29         | 28   | 36   | 49   | 62   |
| 95                 | 22         | 19   | 25   | 29   | 33   |
| 100                | 18         | 14   | 18   | 21   | 21   |
| 105                | 15         | 11   | 14   | 16   | 15   |
| 110                | 13         | 10   | 12   | 14   | 12   |
| 115                | 12         | 9    | 11   | 12   | 11   |
| 120                | 11         | 9    | 11   | 11   | 10   |
| 125                | 11         | 9    | 10   | 11   | 10   |
| 130                | 10         | 9    | 9    | 10   | 9    |
| 135                | 8          | 8    | 8    | 8    | 8    |
| 140                | 6          | 6    | 6    | 6    | 7    |
| 145                | 4          | 4    | 4    | 4    | 5    |
| 150                | 2          | 2    | 2    | 2    | 2    |
| 155                | 0          | 0    | 0    | 0    | 1    |
| 160                | 0          | 0    | 0    | 0    | 0    |
| 165                | 0          | 0    | 0    | 0    | 0    |
| 170                | 0          | 0    | 0    | 0    | 0    |
| 175                | 0          | 0    | 0    | 0    | 0    |
| 180                | 0          | 0    | 0    | 0    | 0    |

Full luminous intensity matrix found in .IES file



**REPORT NO. 105724524CRT-005**

**ORIENTATION AND ALIGNMENT OF DUT**

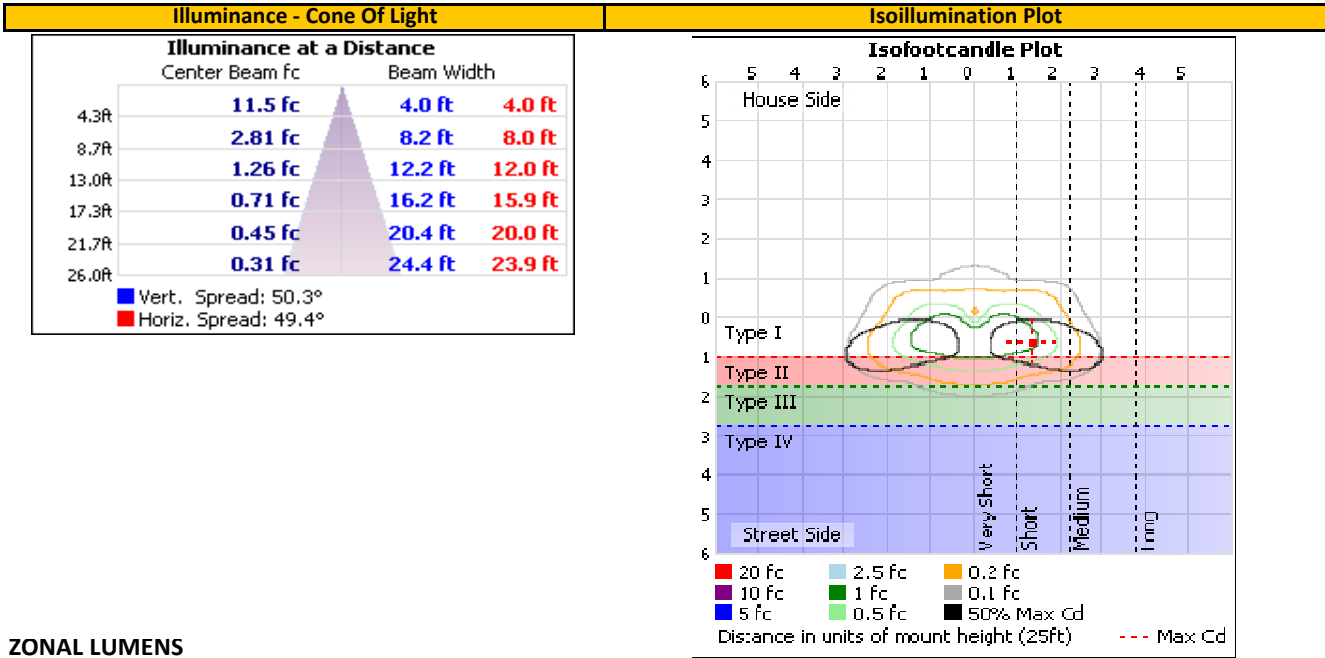
| Luminous Opening |            |             |
|------------------|------------|-------------|
| Length (ft)      | Width (ft) | Height (ft) |
| 1.15             | 1.15       | 1.02        |
| 0°-180° H        | 90°-270° H | 0°-180° V   |

| Test Distance (ft) |
|--------------------|
| 29.2               |

**PHOTOMETRIC CENTER OF DUT**



**ILLUMINANCE SUMMARY**



**ZONAL LUMENS**

**Zonal Lumen Summary**

| Zone (°) | Lumens  | Luminaire |
|----------|---------|-----------|
| 0-30     | 623.3   | 10.7%     |
| 0-40     | 1,450.4 | 24.9%     |
| 0-60     | 4,029.7 | 69.2%     |
| 60-90    | 1,700.7 | 29.2%     |
| 70-100   | 664.0   | 11.4%     |
| 90-120   | 70.6    | 1.2%      |
| 0-90     | 5,730.5 | 98.5%     |
| 90-180   | 89.9    | 1.5%      |
| 0-180    | 5,820.4 | 100.0%    |

| Zone (°) | Lumens | Total | Zone (°) | Lumens | Total |
|----------|--------|-------|----------|--------|-------|
| 0-10     | 28.1   | 0.5%  | 90-100   | 40.1   | 0.7%  |
| 10-20    | 159.1  | 2.7%  | 100-110  | 18.6   | 0.3%  |
| 20-30    | 436.1  | 7.5%  | 110-120  | 11.9   | 0.2%  |
| 30-40    | 827.1  | 14.2% | 120-130  | 9.4    | 0.2%  |
| 40-50    | 1212.4 | 20.8% | 130-140  | 6.5    | 0.1%  |
| 50-60    | 1366.9 | 23.5% | 140-150  | 2.9    | 0.0%  |
| 60-70    | 1076.8 | 18.5% | 150-160  | 0.5    | 0.0%  |
| 70-80    | 501.8  | 8.6%  | 160-170  | 0.0    | 0.0%  |
| 80-90    | 122.1  | 2.1%  | 170-180  | 0.0    | 0.0%  |

**LUM. CLASSIFICATION SYSTEM (LCS)**

| CS Zone           | Lumens          | % Lamp | % Lum |
|-------------------|-----------------|--------|-------|
| FL (0-30)         | 471.7           | N.A.   | 8.1   |
| FM (30-60)        | 2699.5          | N.A.   | 46.4  |
| FH (60-80)        | 1110.9          | N.A.   | 19.1  |
| FVH (80-90)       | 56.4            | N.A.   | 1.0   |
| BL (0-30)         | 150.4           | N.A.   | 2.6   |
| BM (30-60)        | 706.4           | N.A.   | 12.1  |
| BH (60-80)        | 468.2           | N.A.   | 8.0   |
| BVH (80-90)       | 65.7            | N.A.   | 1.1   |
| UL (90-100)       | 40.1            | N.A.   | 0.7   |
| UH (100-180)      | 49.8            | N.A.   | 0.9   |
| Total             | 5819.1          | N.A.   | 100.0 |
| <b>BUG Rating</b> | <b>B1-U2-G1</b> |        |       |

**TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING**

**REPORT NO. 105724524CRT-005**

| Test Configuration | Tested Model No.                         | Pass/Fail/NA |
|--------------------|--|--------------|
| 2                  | Model #3200 Grand Bavarian Lamp Type III | NA           |

**PHOTOMETRIC AND ELECTRICAL MEASUREMENTS**

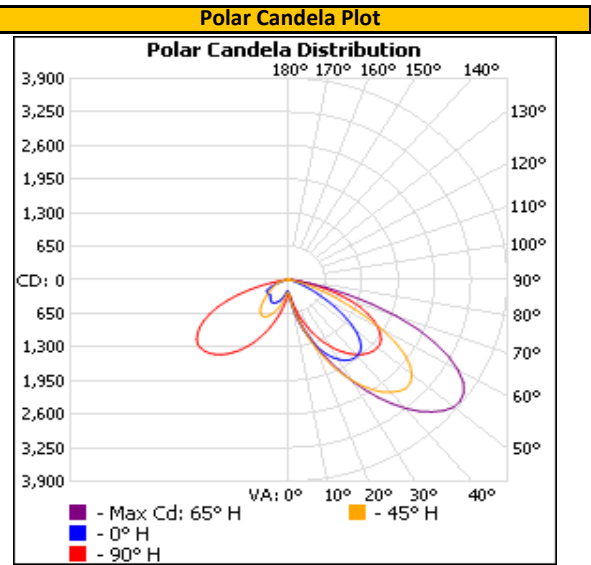
| Base Orientation | Input Voltage (Vac) | Input Current (mA) | Input Power (W) | Input Power Factor ( ) |
|------------------|---------------------|--------------------|-----------------|------------------------|
| Down             | 120.03              | 893.5              | 107.2           | 0.999                  |

| Light Output (lm) | Efficacy (lm/W) |
|-------------------|-----------------|
| 6366.9            | 59.4            |

**LUMINOUS INTENSITY SUMMARY (candela)**

| Vertical Angle (°) | Horizontal |      |      |      |      |
|--------------------|------------|------|------|------|------|
|                    | 0          | 30   | 45   | 65   | 90   |
| 0                  | 271        | 271  | 271  | 271  | 271  |
| 5                  | 436        | 424  | 408  | 376  | 325  |
| 10                 | 696        | 677  | 653  | 595  | 500  |
| 15                 | 1002       | 995  | 987  | 921  | 727  |
| 20                 | 1309       | 1360 | 1392 | 1309 | 977  |
| 25                 | 1582       | 1724 | 1836 | 1758 | 1236 |
| 30                 | 1774       | 2038 | 2239 | 2260 | 1486 |
| 35                 | 1888       | 2273 | 2591 | 2776 | 1706 |
| 40                 | 1907       | 2412 | 2834 | 3249 | 1888 |
| 45                 | 1825       | 2414 | 2962 | 3612 | 2005 |
| 50                 | 1580       | 2223 | 2866 | 3835 | 2054 |
| 55                 | 1189       | 1804 | 2530 | 3809 | 2007 |
| 60                 | 761        | 1232 | 1923 | 3482 | 1837 |
| 65                 | 419        | 687  | 1211 | 2871 | 1556 |
| 70                 | 205        | 325  | 648  | 2037 | 1172 |
| 75                 | 100        | 142  | 289  | 1086 | 715  |
| 80                 | 60         | 69   | 120  | 395  | 326  |
| 85                 | 43         | 43   | 60   | 115  | 126  |
| 90                 | 32         | 29   | 38   | 52   | 59   |
| 95                 | 25         | 21   | 27   | 33   | 35   |
| 100                | 21         | 15   | 21   | 24   | 23   |
| 105                | 18         | 13   | 17   | 19   | 17   |
| 110                | 16         | 11   | 15   | 17   | 14   |
| 115                | 15         | 11   | 14   | 15   | 13   |
| 120                | 14         | 11   | 14   | 14   | 13   |
| 125                | 14         | 11   | 13   | 14   | 12   |
| 130                | 12         | 11   | 12   | 13   | 12   |
| 135                | 10         | 10   | 11   | 11   | 11   |
| 140                | 8          | 8    | 8    | 8    | 9    |
| 145                | 5          | 5    | 5    | 5    | 6    |
| 150                | 2          | 3    | 3    | 2    | 3    |
| 155                | 1          | 1    | 0    | 0    | 1    |
| 160                | 0          | 0    | 0    | 0    | 0    |
| 165                | 0          | 0    | 0    | 0    | 0    |
| 170                | 0          | 0    | 0    | 0    | 0    |
| 175                | 0          | 0    | 0    | 0    | 0    |
| 180                | 0          | 0    | 0    | 0    | 0    |

Full luminous intensity matrix found in .IES file





**REPORT NO. 105724524CRT-005**

**ORIENTATION AND ALIGNMENT OF DUT**

| Luminous Opening |            |             |
|------------------|------------|-------------|
| Length (ft)      | Width (ft) | Height (ft) |
| 1.15             | 1.15       | 1.02        |
| 0°-180° H        | 90°-270° H | 0°-180° V   |

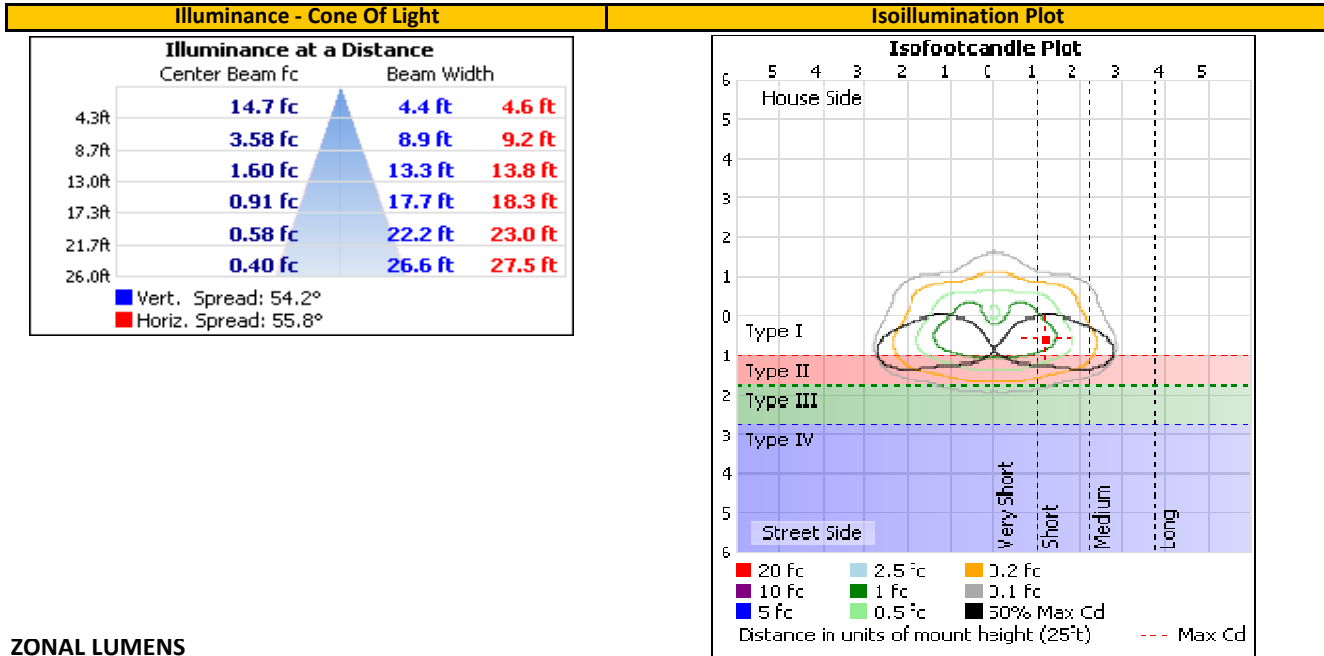
| Test Distance (ft) |
|--------------------|
| 29.2               |

**PHOTOMETRIC CENTER OF DUT**



**REPORT NO. 105724524CRT-005**

**ILLUMINANCE SUMMARY**



**ZONAL LUMENS**

**Zonal Lumen Summary**

| Zone (°) | Lumens  | Luminaire |
|----------|---------|-----------|
| 0-30     | 813.0   | 12.8%     |
| 0-40     | 1,839.1 | 28.9%     |
| 0-60     | 4,662.4 | 73.2%     |
| 60-90    | 1,602.3 | 25.2%     |
| 70-100   | 606.7   | 9.5%      |
| 90-120   | 77.0    | 1.2%      |
| 0-90     | 6,264.7 | 98.4%     |
| 90-180   | 102.2   | 1.6%      |
| 0-180    | 6,366.9 | 100.0%    |

| Zone (°) | Lumens | Total | Zone (°) | Lumens | Total |
|----------|--------|-------|----------|--------|-------|
| 0-10     | 36.5   | 0.6%  | 90-100   | 41.5   | 0.7%  |
| 10-20    | 209.6  | 3.3%  | 100-110  | 21.0   | 0.3%  |
| 20-30    | 566.8  | 8.9%  | 110-120  | 14.5   | 0.2%  |
| 30-40    | 1026.2 | 16.1% | 120-130  | 12.0   | 0.2%  |
| 40-50    | 1393.0 | 21.9% | 130-140  | 8.5    | 0.1%  |
| 50-60    | 1430.3 | 22.5% | 140-150  | 3.9    | 0.1%  |
| 60-70    | 1037.0 | 16.3% | 150-160  | 0.7    | 0.0%  |
| 70-80    | 453.3  | 7.1%  | 160-170  | 0.0    | 0.0%  |
| 80-90    | 111.9  | 1.8%  | 170-180  | 0.0    | 0.0%  |

**LUM. CLASSIFICATION SYSTEM (LCS)**

| CS Zone           | Lumens          | % Lamp | % Lum |
|-------------------|-----------------|--------|-------|
| FL (0-30)         | 552.2           | N.A.   | 8.7   |
| FM (30-60)        | 2813.7          | N.A.   | 44.2  |
| FH (60-80)        | 1004.3          | N.A.   | 15.8  |
| FVH (80-90)       | 51.2            | N.A.   | 0.8   |
| BL (0-30)         | 259.2           | N.A.   | 4.1   |
| BM (30-60)        | 1035.4          | N.A.   | 16.3  |
| BH (60-80)        | 486.6           | N.A.   | 7.6   |
| BVH (80-90)       | 60.8            | N.A.   | 1.0   |
| UL (90-100)       | 41.5            | N.A.   | 0.7   |
| UH (100-180)      | 60.7            | N.A.   | 1.0   |
| <b>Total</b>      | 6365.6          | N.A.   | 100.0 |
| <b>BUG Rating</b> | <b>B2-U3-G1</b> |        |       |

**TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING**

**REPORT NO. 105724524CRT-005**

| Test Configuration | Tested Model No.                        | Pass/Fail/NA |
|--------------------|---|--------------|
| 3                  | Model #3200 Grand Bavarian Lamp Type IV | NA           |

**PHOTOMETRIC AND ELECTRICAL MEASUREMENTS**

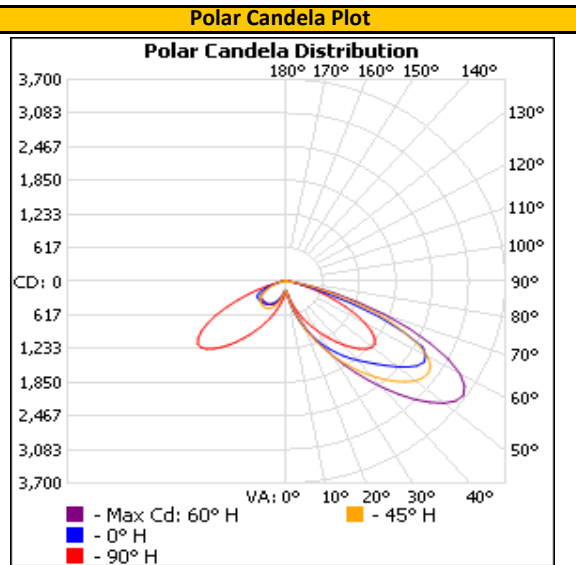
| Base Orientation | Input Voltage (Vac) | Input Current (mA) | Input Power (W) | Input Power Factor ( ) |
|------------------|---------------------|--------------------|-----------------|------------------------|
| Down             | 120.04              | 893.0              | 107.1           | 0.999                  |

| Light Output (lm) | Efficacy (lm/W) |
|-------------------|-----------------|
| 6302.6            | 58.8            |

**LUMINOUS INTENSITY SUMMARY (candela)**

| Vertical Angle (°) | Horizontal |      |      |      |      |
|--------------------|------------|------|------|------|------|
|                    | 0          | 30   | 45   | 65   | 90   |
| 0                  | 186        | 186  | 186  | 186  | 186  |
| 5                  | 282        | 276  | 265  | 248  | 218  |
| 10                 | 449        | 439  | 418  | 384  | 327  |
| 15                 | 665        | 655  | 633  | 591  | 473  |
| 20                 | 912        | 922  | 910  | 849  | 642  |
| 25                 | 1166       | 1215 | 1231 | 1167 | 834  |
| 30                 | 1414       | 1513 | 1572 | 1554 | 1047 |
| 35                 | 1661       | 1809 | 1921 | 2019 | 1278 |
| 40                 | 1890       | 2088 | 2265 | 2540 | 1526 |
| 45                 | 2140       | 2361 | 2589 | 3056 | 1749 |
| 50                 | 2432       | 2623 | 2837 | 3488 | 1882 |
| 55                 | 2697       | 2804 | 2931 | 3622 | 1821 |
| 60                 | 2717       | 2745 | 2757 | 3297 | 1538 |
| 65                 | 2171       | 2221 | 2194 | 2537 | 1112 |
| 70                 | 1168       | 1370 | 1476 | 1590 | 677  |
| 75                 | 428        | 615  | 718  | 744  | 347  |
| 80                 | 145        | 217  | 263  | 257  | 169  |
| 85                 | 63         | 77   | 92   | 88   | 94   |
| 90                 | 38         | 37   | 44   | 48   | 58   |
| 95                 | 27         | 23   | 28   | 32   | 36   |
| 100                | 21         | 16   | 20   | 23   | 22   |
| 105                | 17         | 12   | 16   | 18   | 15   |
| 110                | 14         | 11   | 13   | 14   | 12   |
| 115                | 12         | 10   | 12   | 12   | 10   |
| 120                | 11         | 9    | 11   | 11   | 10   |
| 125                | 10         | 9    | 10   | 10   | 9    |
| 130                | 9          | 8    | 9    | 9    | 9    |
| 135                | 7          | 7    | 7    | 8    | 8    |
| 140                | 5          | 5    | 5    | 6    | 6    |
| 145                | 3          | 3    | 3    | 4    | 4    |
| 150                | 1          | 2    | 2    | 2    | 2    |
| 155                | 0          | 0    | 0    | 0    | 1    |
| 160                | 0          | 0    | 0    | 0    | 0    |
| 165                | 0          | 0    | 0    | 0    | 0    |
| 170                | 0          | 0    | 0    | 0    | 0    |
| 175                | 0          | 0    | 0    | 0    | 0    |
| 180                | 0          | 0    | 0    | 0    | 0    |

Full luminous intensity matrix found in .IES file



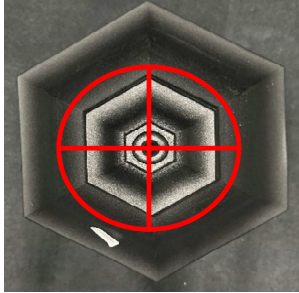
**REPORT NO. 105724524CRT-005**

**ORIENTATION AND ALIGNMENT OF DUT**

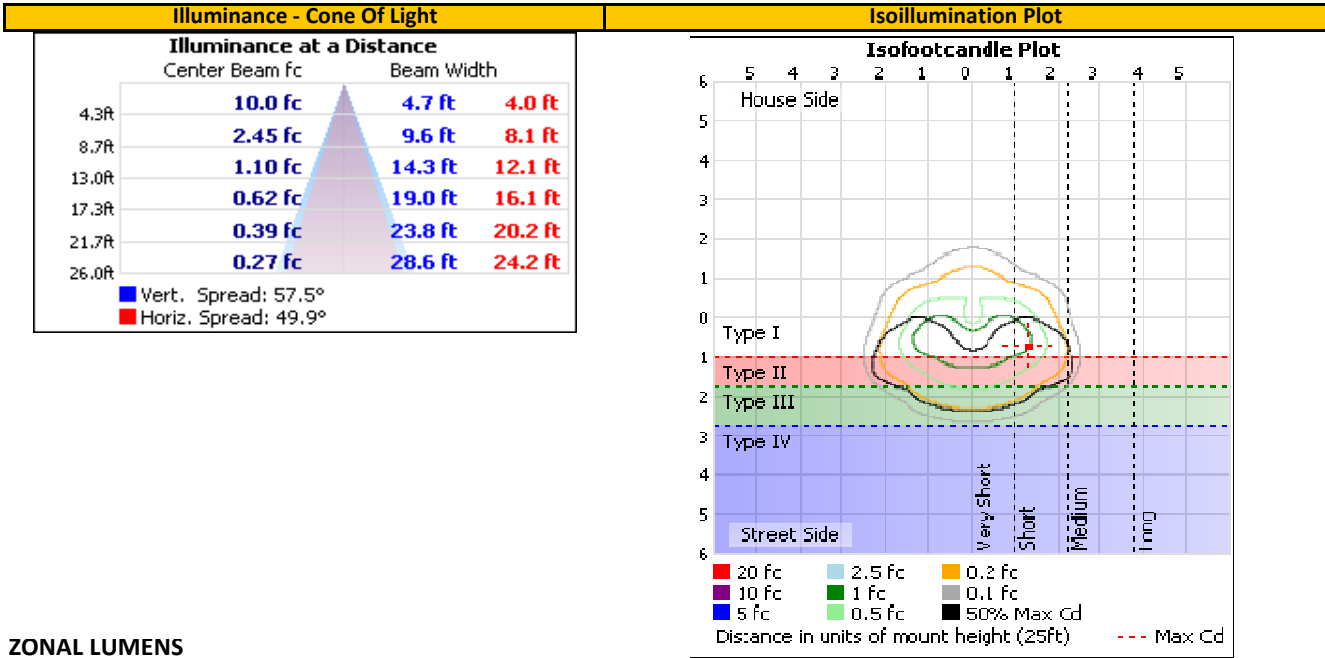
| Luminous Opening |            |             |
|------------------|------------|-------------|
| Length (ft)      | Width (ft) | Height (ft) |
| 1.15             | 1.15       | 1.02        |
| 0°-180° H        | 90°-270° H | 0°-180° V   |

| Test Distance (ft) |
|--------------------|
| 29.2               |

**PHOTOMETRIC CENTER OF DUT**



**ILLUMINANCE SUMMARY**



**ZONAL LUMENS**

**Zonal Lumen Summary**

| Zone (°) | Lumens  | Luminaire |
|----------|---------|-----------|
| 0-30     | 562.7   | 8.9%      |
| 0-40     | 1,352.6 | 21.5%     |
| 0-60     | 4,267.8 | 67.7%     |
| 60-90    | 1,938.8 | 30.8%     |
| 70-100   | 651.1   | 10.3%     |
| 90-120   | 76.9    | 1.2%      |
| 0-90     | 6,206.6 | 98.5%     |
| 90-180   | 96.0    | 1.5%      |
| 0-180    | 6,302.6 | 100.0%    |

| Zone (°) | Lumens | Total | Zone (°) | Lumens | Total |
|----------|--------|-------|----------|--------|-------|
| 0-10     | 24.6   | 0.4%  | 90-100   | 44.4   | 0.7%  |
| 10-20    | 141.1  | 2.2%  | 100-110  | 20.1   | 0.3%  |
| 20-30    | 397.1  | 6.3%  | 110-120  | 12.3   | 0.2%  |
| 30-40    | 789.9  | 12.5% | 120-130  | 9.3    | 0.1%  |
| 40-50    | 1273.7 | 20.2% | 130-140  | 6.4    | 0.1%  |
| 50-60    | 1641.4 | 26.0% | 140-150  | 2.9    | 0.0%  |
| 60-70    | 1332.1 | 21.1% | 150-160  | 0.5    | 0.0%  |
| 70-80    | 492.2  | 7.8%  | 160-170  | 0.0    | 0.0%  |
| 80-90    | 114.5  | 1.8%  | 170-180  | 0.0    | 0.0%  |

**LUM. CLASSIFICATION SYSTEM (LCS)**

| CS Zone           | Lumens          | % Lamp | % Lum |
|-------------------|-----------------|--------|-------|
| FL (0-30)         | 377.0           | N.A.   | 6.0   |
| FM (30-60)        | 2809.0          | N.A.   | 44.6  |
| FH (60-80)        | 1393.1          | N.A.   | 22.1  |
| FVH (80-90)       | 53.3            | N.A.   | 0.8   |
| BL (0-30)         | 184.6           | N.A.   | 2.9   |
| BM (30-60)        | 895.0           | N.A.   | 14.2  |
| BH (60-80)        | 431.9           | N.A.   | 6.9   |
| BVH (80-90)       | 61.2            | N.A.   | 1.0   |
| UL (90-100)       | 44.4            | N.A.   | 0.7   |
| UH (100-180)      | 51.5            | N.A.   | 0.8   |
| Total             | 6301.0          | N.A.   | 100.0 |
| <b>BUG Rating</b> | <b>B1-U3-G1</b> |        |       |

**TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING**

**REPORT NO. 105724524CRT-005**

| Test Configuration | Tested Model No.                       | Pass/Fail/NA |
|--------------------|--|--------------|
| 4                  | Model #3200 Grand Bavarian Lamp Type V | NA           |

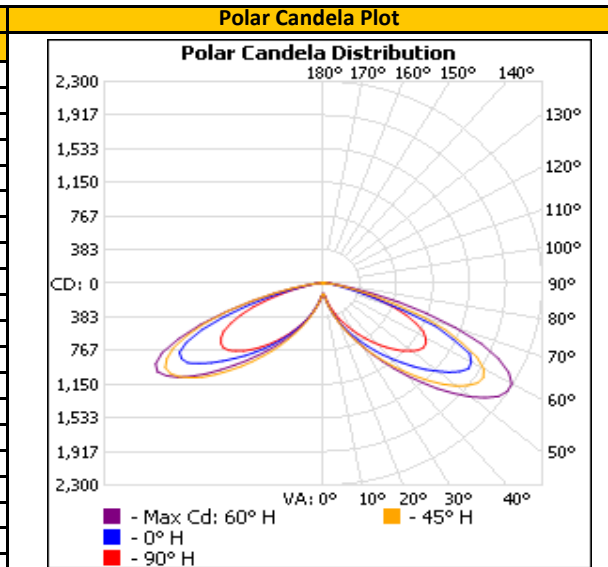
**PHOTOMETRIC AND ELECTRICAL MEASUREMENTS**

| Base Orientation | Input Voltage (Vac) | Input Current (mA) | Input Power (W) | Input Power Factor ( ) |
|------------------|---------------------|--------------------|-----------------|------------------------|
| Down             | 120.02              | 892.6              | 107.1           | 0.999                  |

| Light Output (lm) | Efficacy (lm/W) |
|-------------------|-----------------|
| 6288.4            | 58.7            |

**LUMINOUS INTENSITY SUMMARY (candela)**

| Vertical Angle (°) | Horizontal |      |      |      |      |
|--------------------|------------|------|------|------|------|
|                    | 0          | 30   | 45   | 65   | 90   |
| 0                  | 119        | 119  | 119  | 119  | 119  |
| 5                  | 149        | 151  | 147  | 141  | 132  |
| 10                 | 224        | 230  | 224  | 211  | 197  |
| 15                 | 328        | 336  | 330  | 317  | 279  |
| 20                 | 451        | 468  | 470  | 453  | 377  |
| 25                 | 592        | 629  | 641  | 620  | 489  |
| 30                 | 748        | 812  | 835  | 824  | 617  |
| 35                 | 930        | 1024 | 1053 | 1070 | 763  |
| 40                 | 1125       | 1275 | 1299 | 1360 | 914  |
| 45                 | 1339       | 1557 | 1570 | 1674 | 1065 |
| 50                 | 1553       | 1850 | 1816 | 1992 | 1197 |
| 55                 | 1751       | 2071 | 1977 | 2221 | 1280 |
| 60                 | 1794       | 2094 | 1945 | 2270 | 1241 |
| 65                 | 1501       | 1726 | 1607 | 2022 | 1072 |
| 70                 | 884        | 1090 | 1117 | 1475 | 783  |
| 75                 | 372        | 513  | 561  | 789  | 451  |
| 80                 | 161        | 209  | 234  | 313  | 221  |
| 85                 | 91         | 96   | 104  | 128  | 112  |
| 90                 | 59         | 55   | 59   | 72   | 65   |
| 95                 | 38         | 33   | 36   | 44   | 37   |
| 100                | 24         | 20   | 24   | 27   | 22   |
| 105                | 17         | 14   | 16   | 18   | 14   |
| 110                | 13         | 11   | 13   | 14   | 10   |
| 115                | 11         | 9    | 11   | 11   | 9    |
| 120                | 9          | 8    | 9    | 9    | 8    |
| 125                | 8          | 7    | 8    | 8    | 7    |
| 130                | 7          | 7    | 7    | 7    | 6    |
| 135                | 6          | 6    | 6    | 6    | 6    |
| 140                | 5          | 4    | 4    | 4    | 5    |
| 145                | 3          | 3    | 3    | 3    | 3    |
| 150                | 2          | 2    | 2    | 2    | 2    |
| 155                | 1          | 1    | 1    | 1    | 1    |
| 160                | 1          | 0    | 0    | 0    | 0    |
| 165                | 0          | 0    | 0    | 0    | 0    |
| 170                | 0          | 0    | 0    | 0    | 0    |
| 175                | 0          | 0    | 0    | 0    | 0    |
| 180                | 0          | 0    | 0    | 0    | 0    |



Full luminous intensity matrix found in .IES file

**REPORT NO. 105724524CRT-005**

**ORIENTATION AND ALIGNMENT OF DUT**

| Luminous Opening |            |             |
|------------------|------------|-------------|
| Length (ft)      | Width (ft) | Height (ft) |
| 1.15             | 1.15       | 1.02        |
| 0°-180° H        | 90°-270° H | 0°-180° V   |

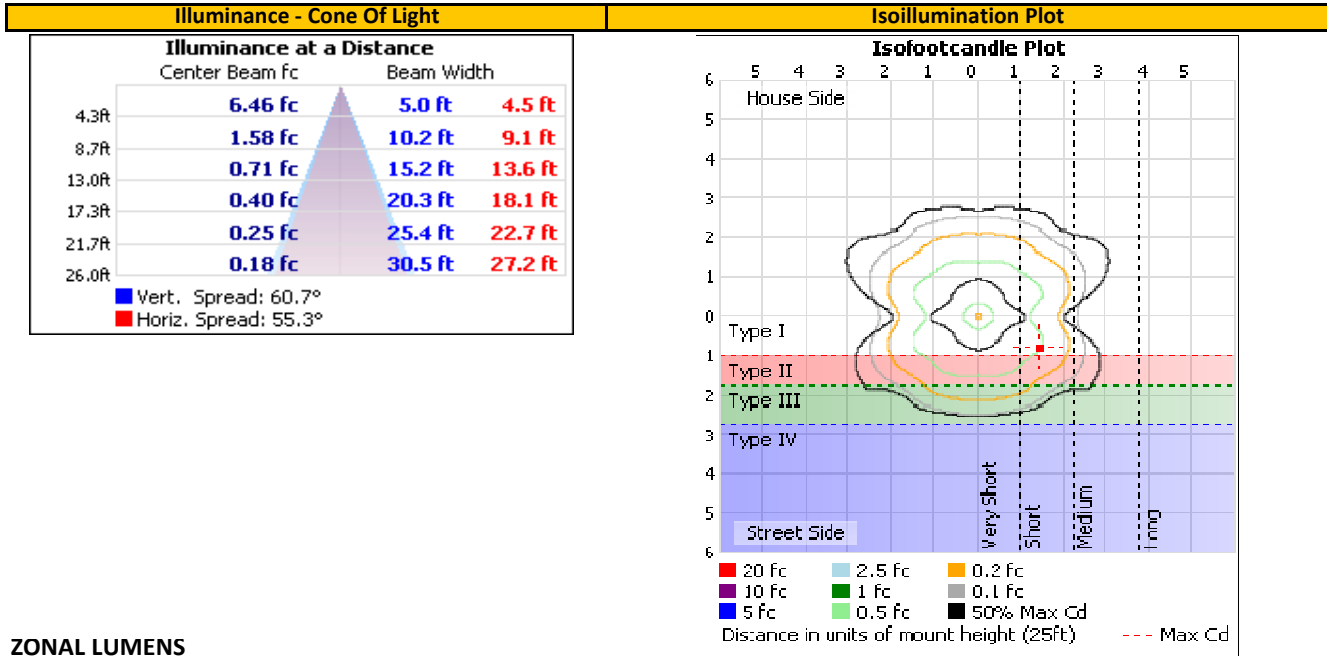
| Test Distance (ft) |
|--------------------|
| 29.2               |

**PHOTOMETRIC CENTER OF DUT**



**REPORT NO. 105724524CRT-005**

**ILLUMINANCE SUMMARY**



**ZONAL LUMENS**

**Zonal Lumen Summary**

| Zone (°) | Lumens  | Luminaire |
|----------|---------|-----------|
| 0-30     | 372.3   | 5.9%      |
| 0-40     | 966.1   | 15.4%     |
| 0-60     | 3,699.3 | 58.8%     |
| 60-90    | 2,498.1 | 39.7%     |
| 70-100   | 920.5   | 14.6%     |
| 90-120   | 76.4    | 1.2%      |
| 0-90     | 6,197.4 | 98.6%     |
| 90-180   | 91.0    | 1.4%      |
| 0-180    | 6,288.4 | 100.0%    |

| Zone (°) | Lumens | Total | Zone (°) | Lumens | Total |
|----------|--------|-------|----------|--------|-------|
| 0-10     | 15.3   | 0.2%  | 90-100   | 46.9   | 0.7%  |
| 10-20    | 89.1   | 1.4%  | 100-110  | 19.0   | 0.3%  |
| 20-30    | 267.9  | 4.3%  | 110-120  | 10.5   | 0.2%  |
| 30-40    | 593.8  | 9.4%  | 120-130  | 7.3    | 0.1%  |
| 40-50    | 1091.6 | 17.4% | 130-140  | 4.7    | 0.1%  |
| 50-60    | 1641.6 | 26.1% | 140-150  | 2.2    | 0.0%  |
| 60-70    | 1624.5 | 25.8% | 150-160  | 0.5    | 0.0%  |
| 70-80    | 720.9  | 11.5% | 160-170  | 0.0    | 0.0%  |
| 80-90    | 152.7  | 2.4%  | 170-180  | 0.0    | 0.0%  |

**LUM. CLASSIFICATION SYSTEM (LCS)**

| CS Zone           | Lumens          | % Lamp | % Lum |
|-------------------|-----------------|--------|-------|
| FL (0-30)         | 199.0           | N.A.   | 3.2   |
| FM (30-60)        | 1742.7          | N.A.   | 27.7  |
| FH (60-80)        | 1111.5          | N.A.   | 17.7  |
| FVH (80-90)       | 65.0            | N.A.   | 1.0   |
| BL (0-30)         | 172.5           | N.A.   | 2.7   |
| BM (30-60)        | 1582.9          | N.A.   | 25.2  |
| BH (60-80)        | 1234.6          | N.A.   | 19.6  |
| BVH (80-90)       | 87.7            | N.A.   | 1.4   |
| UL (90-100)       | 46.9            | N.A.   | 0.7   |
| UH (100-180)      | 44.1            | N.A.   | 0.7   |
| <b>Total</b>      | 6286.9          | N.A.   | 100.0 |
| <b>BUG Rating</b> | <b>B3-U2-G1</b> |        |       |



**EQUIPMENT LIST**

**REPORT NO. 105724524CRT-005**

| # | Equipment                         | Model No | Control No. | Last Cal  | Cal Due   |
|---|-----------------------------------|----------|-------------|-----------|-----------|
| 1 | LSI Type C Goniophotometer System | 6440     | ---         | 2/1/2024  | 5/1/2024  |
| 2 | Elgar AC Power Supply             | CW1251   | ---         | VBU       | VBU       |
| 3 | Yokogawa Power Analyzer           | WT210    | E464        | 6/21/2023 | 6/21/2024 |
| 4 | Traceable Hygrothermometer        | 4800     | L206        | 3/7/2023  | 3/7/2024  |
| 5 | Omega Thermometer                 | DPI8-C24 | M263        | 3/9/2023  | 3/9/2024  |
| 6 | Tape Measure                      | Crescent | ---         | 9/21/2021 | 9/21/2024 |

The AC power supplies used for testing have a crest factor capable of 0-3.5

**REVISION HISTORY**

| #   | Revision Date | Updated By | Reviewed By | Description of Change |
|-----|---------------|------------|-------------|-----------------------|
| --- | None          | ---        | ---         | ---                   |
| --- | ---           | ---        | ---         | ---                   |
| --- | ---           | ---        | ---         | ---                   |