



UL Verification Services Inc.
7036 Snowdrift Road
Allentown, PA 18106
610-774-1300



Photometric Test Report

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

Prepared For
Auroralight Inc

Stacia Elmore
2742 Loker Ave W
#100
Carlsbad, CA 92010-6619
United States

Catalog Number
HSL16/HSL20-LM-6-M-30 (6W, 30° MEDIUM OPTIC, 3000K)

Order Number
13931356
Test Number
13931356.06A

Revision of Test Number 13931356.06 on:

2021-08-04
Test Date

2021-07-28

Prepared By

Josh Mitchell, Technician

Approved By

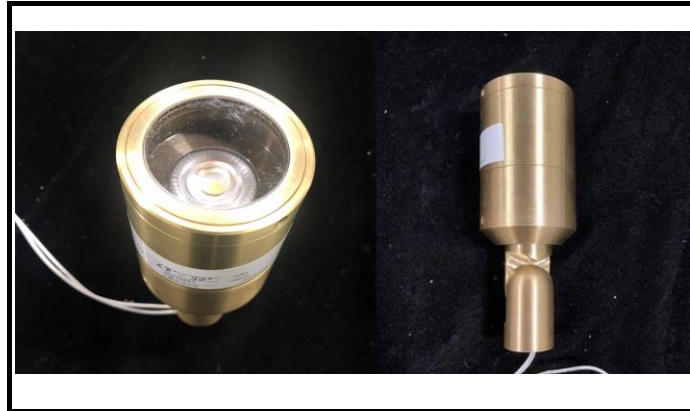
Alexa Lambert, Project Handler

The results contained in this report pertain only to the tested sample.
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Luminaire Description: Cylindrical brass body with adjustable knuckle
Lamp: One white LED
Mounting: Flood
Ballast/Driver: Integral

Luminaire



Luminaire Characteristics

Luminous Diameter: 1.88 in.

Summary of Results

Roadway Classification: Type V, Very Short
Cutoff Classification: Full Cutoff
BUG Rating: B1 U0 G0

Test Conditions

Test Temperature: 24.8 °C
Voltage: 12.00 VAC
Current: 0.5259 A
Power: 5.547 W
Power Factor: 0.889
Frequency: 60 Hz
Current THD: 45.1 %

Tested in 30 planes left side, 30 planes right side, left and right averaged
Vertical test increments are 2.5 degrees
Test distance exceeds five times the greatest luminous opening of luminaire

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 | 12.00 VAC | 0.5259 A | 5.547 W | 0.889 | 60 Hz | 45.1 % |

Summary of Results

Spacing Criteria

0-180: 0.48
90-270: 0.48

Total Lumen Output:

394.7 Lumens

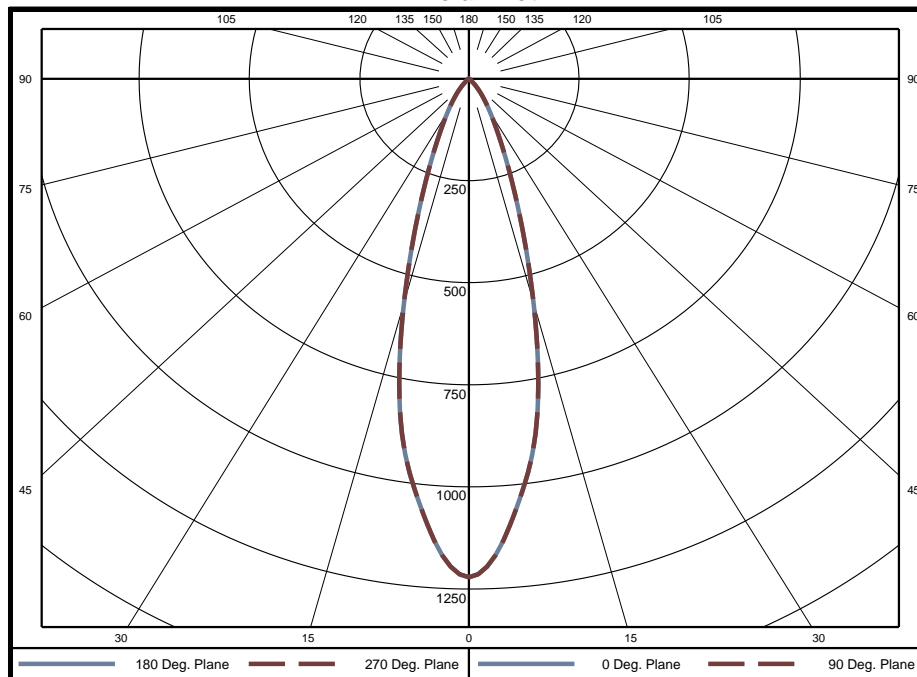
Luminaire Efficacy:

71.2 lm/w

Maximum Candela:

1221 Candela

Polar Plot



Zonal Lumen Summary

| Zone | Lumens | % of Luminaire | Zone | Lumens | % of Luminaire | Zone | Lumens | % of Luminaire |
|-------|--------|----------------|---------|--------|----------------|---------|--------|----------------|
| 0-5 | 27.58 | 7.0% | 60-65 | 0.44 | 0.1% | 120-125 | 0 | 0.0% |
| 5-10 | 70.27 | 17.8% | 65-70 | 0.37 | 0.1% | 125-130 | 0 | 0.0% |
| 10-15 | 85.94 | 21.8% | 70-75 | 0.29 | 0.1% | 130-135 | 0 | 0.0% |
| 15-20 | 71.78 | 18.2% | 75-80 | 0.18 | 0.0% | 135-140 | 0 | 0.0% |
| 20-25 | 50.47 | 12.8% | 80-85 | 0.08 | 0.0% | 140-145 | 0 | 0.0% |
| 25-30 | 34.38 | 8.7% | 85-90 | 0.02 | 0.0% | 145-150 | 0 | 0.0% |
| 30-35 | 23.47 | 5.9% | 90-95 | 0 | 0.0% | 150-155 | 0 | 0.0% |
| 35-40 | 15.28 | 3.9% | 95-100 | 0 | 0.0% | 155-160 | 0 | 0.0% |
| 40-45 | 8.49 | 2.2% | 100-105 | 0 | 0.0% | 160-165 | 0 | 0.0% |
| 45-50 | 3.57 | 0.9% | 105-110 | 0 | 0.0% | 165-170 | 0 | 0.0% |
| 50-55 | 1.35 | 0.3% | 110-115 | 0 | 0.0% | 170-175 | 0 | 0.0% |
| 55-60 | 0.73 | 0.2% | 115-120 | 0 | 0.0% | 175-180 | 0 | 0.0% |

| Zone | Lumens | % of Luminaire |
|--------|--------|----------------|
| 0-40 | 379 | 96.1% |
| 0-60 | 393 | 99.6% |
| 0-90 | 395 | 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 | 1221 | 1221 | 1221 | 1221 | 1221 | 1221 | 1221 | 1221 | 1221 | 1221 | 1221 | 1221 | 1221 | 1221 | 1221 |
| | 5 | 1095 | 1095 | 1095 | 1095 | 1095 | 1095 | 1095 | 1095 | 1095 | 1095 | 1095 | 1095 | 1095 | 1095 | 1095 |
| | 10 | 883 | 883 | 883 | 883 | 883 | 883 | 883 | 883 | 883 | 883 | 883 | 883 | 883 | 883 | 883 |
| | 15 | 578 | 578 | 578 | 578 | 578 | 578 | 578 | 578 | 578 | 578 | 578 | 578 | 578 | 578 | 578 |
| | 20 | 323 | 323 | 323 | 323 | 323 | 323 | 323 | 323 | 323 | 323 | 323 | 323 | 323 | 323 | 323 |
| | 25 | 178 | 178 | 178 | 178 | 178 | 178 | 178 | 178 | 178 | 178 | 178 | 178 | 178 | 178 | 178 |
| | 30 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 |
| | 35 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 | 61 |
| | 40 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 |
| | 45 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| | 50 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | 55 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | 60 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 65 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 70 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 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/m²)

Horizontal Angle (Degrees)

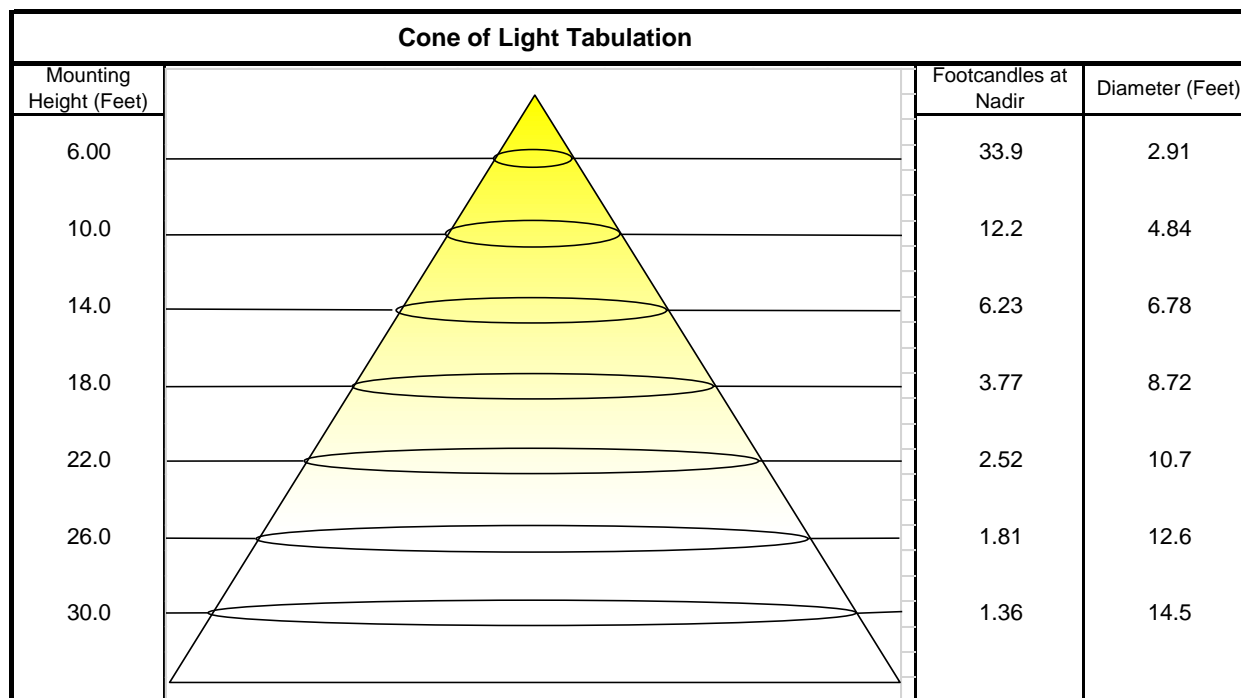
| Vertical Angle (Degrees) | 0 | 45 | 90 |
|--------------------------|----|--------|--------|
| | 0 | 681900 | 681900 |
| | 45 | 11050 | 11050 |
| | 55 | 2059 | 2059 |
| | 65 | 1042 | 1042 |
| | 75 | 945 | 945 |
| | 85 | 621 | 621 |



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 | 470 | 470 | 470 | 470 | 459 | 459 | 459 | 459 | 439 | 439 | 439 | 420 | 420 | 420 | 403 | 403 | 403 | 395 |
| 1 | 452 | 442 | 434 | 426 | 442 | 434 | 426 | 420 | 418 | 412 | 407 | 404 | 399 | 395 | 390 | 387 | 383 | 377 |
| 2 | 434 | 418 | 404 | 393 | 426 | 411 | 399 | 389 | 399 | 389 | 380 | 387 | 379 | 372 | 377 | 370 | 365 | 359 |
| 3 | 417 | 396 | 380 | 367 | 410 | 391 | 376 | 364 | 381 | 368 | 358 | 372 | 361 | 353 | 363 | 355 | 347 | 342 |
| 4 | 401 | 377 | 359 | 345 | 395 | 372 | 356 | 343 | 364 | 350 | 339 | 357 | 345 | 335 | 350 | 340 | 332 | 326 |
| 5 | 386 | 359 | 340 | 326 | 380 | 356 | 338 | 325 | 349 | 334 | 322 | 343 | 330 | 320 | 337 | 326 | 317 | 312 |
| 6 | 372 | 343 | 324 | 310 | 367 | 340 | 322 | 309 | 335 | 319 | 307 | 330 | 316 | 305 | 325 | 313 | 303 | 299 |
| 7 | 359 | 329 | 310 | 296 | 354 | 327 | 308 | 295 | 322 | 306 | 294 | 318 | 303 | 293 | 314 | 301 | 291 | 287 |
| 8 | 346 | 316 | 297 | 284 | 342 | 314 | 296 | 283 | 310 | 294 | 282 | 306 | 291 | 281 | 303 | 290 | 280 | 275 |
| 9 | 334 | 304 | 285 | 272 | 331 | 302 | 284 | 272 | 299 | 282 | 271 | 295 | 281 | 270 | 292 | 279 | 269 | 265 |
| 10 | 323 | 292 | 274 | 262 | 320 | 291 | 273 | 261 | 288 | 272 | 261 | 285 | 271 | 260 | 283 | 269 | 259 | 255 |

| Beam and Field Information | |
|----------------------------|--------------|
| CIE Type: | Direct |
| Center Beam Intensity: | 1221 Candela |
| Central Cone Intensity: | 1173 Candela |
| Beam Flux: | 174.6 Lumens |
| Beam Angle (0-180): | 29.0 Degrees |
| Beam Angle (90-270): | 29.0 Degrees |
| Field Angle (0-180): | 56.8 Degrees |
| Field Angle (90-270): | 56.8 Degrees |





IES "BUG" Rating
(Back Light, Uplight, Glare)
Per IES TM-15-11



Luminaire Classification System (LCS)

| LCS | Zone | Lumens | Luminaire % |
|-------------------|-----------------|--------|-------------|
| FL | (0-30) | 170.0 | 43.1% |
| FM | (30-60) | 26.5 | 6.7% |
| FH | (60-80) | 0.6 | 0.2% |
| FVH | (80-90) | 0.1 | 0.0% |
| BL | (0-30) | 170.0 | 43.1% |
| BM | (30-60) | 26.5 | 6.7% |
| BH | (60-80) | 0.6 | 0.2% |
| BVH | (80-90) | 0.1 | 0.0% |
| UL | (90-100) | 0.0 | 0.0% |
| UH | (100-180) | 0.0 | 0.0% |
| Total | | 394.3 | 100.0% |
| BUG Rating | B1 U0 G0 | | |



Attachment A

Amended Report Documentation

[illegible]