



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

Photometric Indoor Test Report

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

Prepared For
Elemental LED Inc, DBA Diode LED
Wes Buck
Suite 211, 1195 Park Ave.
Emeryville, CA 94608
United States

Catalog Number
CASCADE™ 12V Light Bar DI-0222
Project Number
10461972
Test Number
748173

Test Date

2014-09-17

Prepared By

Handwritten signature of Javier Caban in black ink.

Javier Caban, Technician

Approved By

Handwritten signature of Eric M. Gaudreau in black ink.

Eric Gaudreau, Engineering Project Handler

The results contained in this report pertain only to the tested sample.
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Luminaire Description: Grey aluminum housing, no enclosure
Catalog Number: CASCADE™ 12V Light Bar DI-0222
Lamp: 30 white LEDs
Mounting: Surface
Ballast/Driver: One Meanwell LPV-60-12

Luminaire

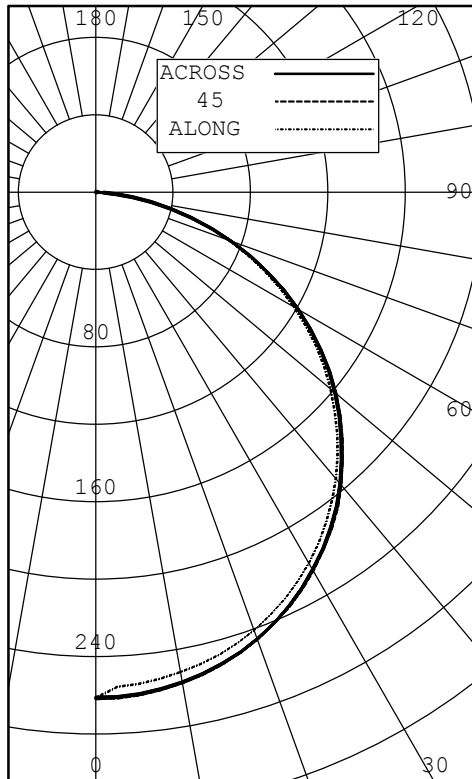


Test Conditions

| | |
|-------------------|-----------|
| Test Temperature: | 24.8 °C |
| Voltage: | 120.0 VAC |
| Current: | 0.1554 A |
| Power: | 8.910 W |
| Power Factor: | 0.478 |
| Frequency: | 60 Hz |
| Current THD: | 175 % |



INTENSITY (CANDLEPOWER) SUMMARY OUTPUT LUMENS



| ANGLE | ALONG | 22.5 | 45 | 67.5 | ACROSS | OUTPUT LUMENS |
|-------|-------|------|-----|------|--------|---------------|
| 0 | 261 | 261 | 261 | 261 | 261 | |
| 5 | 255 | 264 | 261 | 261 | 260 | 25 |
| 10 | 252 | 261 | 258 | 258 | 257 | |
| 15 | 247 | 256 | 253 | 253 | 252 | 71 |
| 20 | 241 | 249 | 246 | 246 | 245 | |
| 25 | 232 | 239 | 237 | 237 | 236 | 109 |
| 30 | 221 | 228 | 226 | 225 | 225 | |
| 35 | 208 | 215 | 212 | 212 | 212 | 133 |
| 40 | 193 | 200 | 197 | 197 | 197 | |
| 45 | 176 | 183 | 180 | 180 | 180 | 139 |
| 50 | 158 | 164 | 162 | 162 | 162 | |
| 55 | 139 | 144 | 142 | 142 | 142 | 127 |
| 60 | 118 | 122 | 121 | 121 | 121 | |
| 65 | 96 | 100 | 98 | 98 | 98 | 97 |
| 70 | 73 | 76 | 75 | 75 | 75 | |
| 75 | 50 | 51 | 51 | 51 | 52 | 54 |
| 80 | 27 | 28 | 28 | 29 | 29 | |
| 85 | 9 | 10 | 10 | 10 | 10 | 12 |
| 90 | 0 | 0 | 0 | 0 | 0 | |

ZONAL LUMENS AND PERCENTAGES

| ZONE | LUMENS | % LUMINAIRE |
|--------|--------|-------------|
| 0-30 | 205 | 26.78 |
| 0-40 | 338 | 44.07 |
| 0-60 | 603 | 78.70 |
| 0-90 | 767 | 100.00 |
| 40-90 | 429 | 55.93 |
| 60-90 | 163 | 21.30 |
| 90-180 | 0 | 0.00 |
| 0-180 | 767 | 100.00 |

EFFICACY (LUMENS PER WATT): 86.1

*** THIS IS AN ABSOLUTE TEST ***

LUMINOUS LENGTH: 23.130 INS
 WIDTH: 0.500 INS

LUMINANCE SUMMARY CD./SQ.M.

S/MH: 1.3
 SC: 1.3

| ANGLE | ALONG | 45 | ACROSS |
|-------|-------|-------|--------|
| 45 | 33444 | 34266 | 34180 |
| 55 | 32467 | 33330 | 33283 |
| 65 | 30412 | 31283 | 31293 |
| 75 | 25736 | 26337 | 26796 |
| 85 | 14224 | 15186 | 15745 |

TESTED IN ACCORDANCE WITH IES PROCEDURES.



INTENSITY (CANDLEPOWER) DATA
 IN 2.5 DEGREE STEPS

| ANGLE | PLANE | | | | | | OUTPUT LUMENS |
|-------|-------|------|-----|------|--------|---------|------------------|
| | ALONG | 22.5 | 45 | 67.5 | ACROSS | AVERAGE | |
| 0.0 | 261 | 261 | 261 | 261 | 261 | 261 | |
| 2.5 | 256 | 265 | 262 | 261 | 261 | 262 | |
| 5.0 | 255 | 264 | 261 | 261 | 260 | 261 | 25 |
| 7.5 | 254 | 263 | 260 | 259 | 259 | 260 | |
| 10.0 | 252 | 261 | 258 | 258 | 257 | 258 | |
| 12.5 | 250 | 259 | 256 | 255 | 255 | 256 | |
| 15.0 | 247 | 256 | 253 | 253 | 252 | 253 | 71 |
| 17.5 | 244 | 253 | 250 | 250 | 249 | 250 | |
| 20.0 | 241 | 249 | 246 | 246 | 245 | 246 | |
| 22.5 | 236 | 244 | 241 | 241 | 241 | 241 | |
| 25.0 | 232 | 239 | 237 | 237 | 236 | 237 | 109 |
| 27.5 | 226 | 234 | 231 | 231 | 231 | 231 | |
| 30.0 | 221 | 228 | 226 | 225 | 225 | 225 | |
| 32.5 | 215 | 222 | 219 | 219 | 219 | 219 | |
| 35.0 | 208 | 215 | 212 | 212 | 212 | 212 | 133 |
| 37.5 | 201 | 208 | 205 | 205 | 205 | 205 | |
| 40.0 | 193 | 200 | 197 | 197 | 197 | 197 | |
| 42.5 | 185 | 191 | 189 | 189 | 188 | 189 | |
| 45.0 | 176 | 183 | 180 | 180 | 180 | 180 | 139 |
| 47.5 | 168 | 173 | 171 | 171 | 171 | 171 | |
| 50.0 | 158 | 164 | 162 | 162 | 162 | 162 | |
| 52.5 | 149 | 154 | 152 | 152 | 152 | 152 | |
| 55.0 | 139 | 144 | 142 | 142 | 142 | 142 | 127 |
| 57.5 | 129 | 133 | 132 | 132 | 131 | 132 | |
| 60.0 | 118 | 122 | 121 | 121 | 121 | 121 | |
| 62.5 | 107 | 111 | 110 | 110 | 110 | 110 | |
| 65.0 | 96 | 100 | 98 | 98 | 98 | 98 | 97 |
| 67.5 | 85 | 88 | 87 | 87 | 87 | 87 | |
| 70.0 | 73 | 76 | 75 | 75 | 75 | 75 | |
| 72.5 | 62 | 64 | 63 | 63 | 63 | 63 | |
| 75.0 | 50 | 51 | 51 | 51 | 52 | 51 | 54 |
| 77.5 | 38 | 39 | 39 | 40 | 40 | 39 | |
| 80.0 | 27 | 28 | 28 | 29 | 29 | 28 | |
| 82.5 | 17 | 18 | 18 | 19 | 19 | 18 | |
| 85.0 | 9 | 10 | 10 | 10 | 10 | 10 | 12 |
| 87.5 | 3 | 3 | 4 | 4 | 5 | 4 | |
| 90.0 | 0 | 0 | 0 | 0 | 0 | 0 | |



COEFFICIENTS OF UTILIZATION

ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE = .20

| CC WALL | 90 | | | | 80 | | | | 70 | | | | 50 | | | | 30 | | | | 10 | | | | 0 | |
|------------|----|-------|------|------|-----|-------|------|------|-----|-------|------|------|-----|-------|------|------|-------|-------|------|-------|------|-------|------|------|-----|------|
| | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 | |
| RCR | 0 | 1.221 | .221 | .221 | .22 | 1.191 | .191 | .191 | .19 | 1.161 | .161 | .161 | .16 | 1.111 | .111 | .111 | .11 | 1.061 | .061 | .061 | .06 | 1.021 | .021 | .021 | .02 | 1.00 |
| | 1 | 1.121 | .071 | .030 | .99 | 1.101 | .051 | .010 | .98 | 1.071 | .030 | .990 | .96 | 0.990 | .960 | .93 | 0.950 | .920 | .90 | 0.910 | .890 | .87 | 0.85 | | | |
| | 2 | 1.030 | .950 | .880 | .82 | 1.000 | .930 | .870 | .81 | 0.980 | .910 | .850 | .80 | 0.870 | .820 | .78 | 0.840 | .800 | .76 | 0.810 | .780 | .75 | 0.73 | | | |
| | 3 | 0.940 | .830 | .750 | .69 | 0.920 | .820 | .740 | .68 | 0.890 | .800 | .730 | .67 | 0.770 | .710 | .66 | 0.750 | .700 | .65 | 0.720 | .680 | .64 | 0.62 | | | |
| | 4 | 0.870 | .740 | .650 | .59 | 0.850 | .730 | .650 | .59 | 0.820 | .720 | .640 | .58 | 0.690 | .630 | .57 | 0.670 | .610 | .57 | 0.650 | .600 | .56 | 0.54 | | | |
| | 5 | 0.800 | .670 | .570 | .50 | 0.780 | .650 | .570 | .50 | 0.750 | .640 | .560 | .50 | 0.620 | .550 | .49 | 0.600 | .540 | .49 | 0.580 | .530 | .48 | 0.46 | | | |
| | 6 | 0.740 | .590 | .500 | .44 | 0.720 | .580 | .500 | .44 | 0.700 | .570 | .490 | .43 | 0.560 | .480 | .43 | 0.540 | .470 | .43 | 0.530 | .470 | .42 | 0.40 | | | |
| | 7 | 0.670 | .530 | .440 | .38 | 0.660 | .520 | .440 | .38 | 0.640 | .510 | .430 | .37 | 0.500 | .420 | .37 | 0.480 | .420 | .37 | 0.470 | .410 | .36 | 0.35 | | | |
| | 8 | 0.620 | .480 | .390 | .33 | 0.610 | .470 | .390 | .33 | 0.590 | .470 | .390 | .33 | 0.450 | .380 | .33 | 0.440 | .370 | .32 | 0.430 | .370 | .32 | 0.30 | | | |
| | 9 | 0.580 | .440 | .350 | .29 | 0.560 | .430 | .350 | .29 | 0.550 | .420 | .350 | .29 | 0.410 | .340 | .29 | 0.400 | .330 | .29 | 0.390 | .330 | .28 | 0.27 | | | |
| | 10 | 0.530 | .400 | .310 | .26 | 0.520 | .390 | .310 | .26 | 0.510 | .390 | .310 | .26 | 0.380 | .300 | .26 | 0.370 | .300 | .25 | 0.360 | .300 | .25 | 0.23 | | | |

THE ABOVE COEFFICIENTS HAVE BEEN CALCULATED BASED ON LUMINAIRE LUMENS
 BECAUSE IN AN ABSOLUTE TEST THE BARE LAMP LUMENS ARE UNKNOWN.
 LIGHTING DESIGN CALCULATIONS MADE USING THESE COEFFICIENTS SHOULD
 THEREFORE USE THE LUMINAIRE LUMENS IN THE CALCULATION FORMULA

LABORATORY RESULTS MAY NOT BE REPRESENTATIVE OF FIELD PERFORMANCE.
 BALLAST AND FIELD FACTORS HAVE NOT BEEN APPLIED.

TEST DISTANCE EXCEEDS FIVE TIMES THE GREATEST
 LUMINOUS OPENING OF LUMINAIRE.



Cone of Light

Cone Of Light Tabulation

| Mounting Height (Feet) | Footcandles at Nadir | Diameter (Feet) |
|------------------------|----------------------|-----------------|
| 4.00 | 16.4 | 5.11 |
| 6.00 | 7.29 | 7.67 |
| 8.00 | 4.10 | 10.2 |
| 10.0 | 2.63 | 12.8 |
| 12.0 | 1.82 | 15.3 |
| 14.0 | 1.34 | 17.9 |
| 16.0 | 1.03 | 20.4 |

Cone of Light Plot

