



UL Verification Services Inc.
7036 Snowdrift Road
Allentown, PA 18106
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Indoor Distribution Test Report

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

Prepared For
Picasso Lighting Industries

46 Sellers St
Kearny, NJ 07032-4216

Catalog Number
STR-LED-109-4'-28W-30K-SM-D10-UE

Order Number
11532175
Test Number
11532175.11

Test Date

2016-11-21

Prepared By

Derek Smarr, 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 enamel aluminum housing, frosted plastic lens enclosure
Lamp: 96 white LEDs
Mounting: Surface mount
Ballast/Driver: Philips XI054C150V054BST1

Luminaire



Luminaire Characteristics

Luminous Length: 47.88 in.
Luminous Width: 1.750 in.
Luminous Height: 1.38 in.

Summary of Results

Total Luminaire Output: 2839 Lumens
Luminaire Efficacy: 118.5 lm/w
Maximum Candela: 672 Candela

Test Conditions

Test Temperature: 24.9 °C
Voltage: 120.1 VAC
Current: 0.2018 A
Power: 23.95 W
Power Factor: 0.989
Frequency: 60 Hz
Current THD: 12.7 %

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



Distribution - Goniophotometer

Distribution Test Conditions

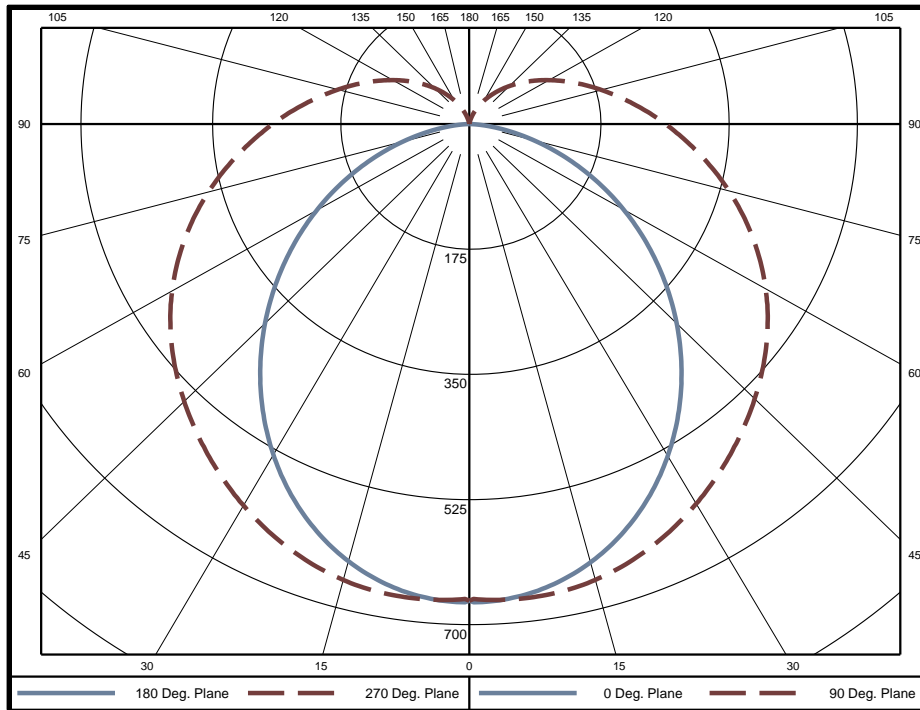
| Temperature | Voltage | Current | Power | Power Factor | Frequency | Current THD |
|-------------|-----------|----------|---------|--------------|-----------|-------------|
| 24.9 °C | 120.1 VAC | 0.2018 A | 23.95 W | 0.989 | 60 Hz | 12.7 % |

Summary of Results

Spacing Criteria
 0-180: 1.19
 90-270: 1.19

Total Lumen Output: 2839 Lumens
Luminaire Efficacy: 118.5 lm/w
Maximum Candela: 672 Candela

Polar Plot



Zonal Lumen Summary

| Zone | Lumens | % of Luminaire | Zone | Lumens | % of Luminaire | Zone | Lumens | % of Luminaire |
|-------|--------|----------------|---------|--------|----------------|---------|--------|----------------|
| 0-5 | 16.0 | 0.6% | 60-65 | 168.1 | 5.9% | 120-125 | 28.0 | 1.0% |
| 5-10 | 47.6 | 1.7% | 65-70 | 155.5 | 5.5% | 125-130 | 22.2 | 0.8% |
| 10-15 | 77.9 | 2.7% | 70-75 | 140.9 | 5.0% | 130-135 | 17.0 | 0.6% |
| 15-20 | 105.7 | 3.7% | 75-80 | 125.2 | 4.4% | 135-140 | 12.6 | 0.4% |
| 20-25 | 130.2 | 4.6% | 80-85 | 109.4 | 3.9% | 140-145 | 8.8 | 0.3% |
| 25-30 | 150.7 | 5.3% | 85-90 | 94.5 | 3.3% | 145-150 | 5.8 | 0.2% |
| 30-35 | 166.7 | 5.9% | 90-95 | 81.8 | 2.9% | 150-155 | 3.5 | 0.1% |
| 35-40 | 178.0 | 6.3% | 95-100 | 70.3 | 2.5% | 155-160 | 1.8 | 0.1% |
| 40-45 | 184.5 | 6.5% | 100-105 | 59.9 | 2.1% | 160-165 | 0.7 | 0.0% |
| 45-50 | 186.6 | 6.6% | 105-110 | 50.5 | 1.8% | 165-170 | 0.1 | 0.0% |
| 50-55 | 184.2 | 6.5% | 110-115 | 42.2 | 1.5% | 170-175 | 0.0 | 0.0% |
| 55-60 | 177.9 | 6.3% | 115-120 | 34.7 | 1.2% | 175-180 | 0 | 0.0% |

| Zone | Lumens | % of Luminaire |
|--------|--------|----------------|
| 0-40 | 873 | 30.7% |
| 0-60 | 1606 | 56.6% |
| 0-90 | 2400 | 84.5% |
| 90-180 | 440 | 15.5% |



Candela Tabulation
Horizontal 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 | 666.4 | 666.4 | 666.4 | 666.4 | 666.4 | 666.4 | 666.4 | 666.4 | 666.4 | 666.4 | 666.4 | 666.4 | 666.4 | 666.4 | 666.4 | 666.4 |
| 5 | 664.8 | 669.9 | 670.5 | 669.2 | 667.1 | 669.2 | 670.5 | 669.9 | 664.8 | 669.9 | 670.5 | 669.2 | 667.1 | 669.2 | 670.5 | 669.9 |
| 10 | 653.0 | 659.4 | 664.0 | 666.8 | 666.0 | 666.8 | 664.0 | 659.4 | 653.0 | 659.4 | 664.0 | 666.8 | 666.0 | 666.8 | 664.0 | 659.4 |
| 15 | 632.9 | 642.0 | 652.1 | 659.8 | 659.8 | 659.8 | 652.1 | 642.0 | 632.9 | 642.0 | 652.1 | 659.8 | 659.8 | 659.8 | 652.1 | 642.0 |
| 20 | 605.7 | 618.0 | 635.2 | 648.1 | 648.3 | 648.1 | 635.2 | 618.0 | 605.7 | 618.0 | 635.2 | 648.1 | 648.3 | 648.1 | 635.2 | 618.0 |
| 25 | 572.1 | 588.2 | 613.5 | 632.0 | 632.7 | 632.0 | 613.5 | 588.2 | 572.1 | 588.2 | 613.5 | 632.0 | 632.7 | 632.0 | 613.5 | 588.2 |
| 30 | 532.4 | 553.7 | 587.4 | 611.9 | 613.7 | 611.9 | 587.4 | 553.7 | 532.4 | 553.7 | 587.4 | 611.9 | 613.7 | 611.9 | 587.4 | 553.7 |
| 35 | 488.7 | 515.0 | 557.4 | 588.7 | 592.6 | 588.7 | 557.4 | 515.0 | 488.7 | 515.0 | 557.4 | 588.7 | 592.6 | 588.7 | 557.4 | 515.0 |
| 40 | 441.1 | 472.9 | 524.2 | 563.1 | 569.9 | 563.1 | 524.2 | 472.9 | 441.1 | 472.9 | 524.2 | 563.1 | 569.9 | 563.1 | 524.2 | 472.9 |
| 45 | 391.6 | 428.7 | 488.9 | 535.5 | 546.1 | 535.5 | 488.9 | 428.7 | 391.6 | 428.7 | 488.9 | 535.5 | 546.1 | 535.5 | 488.9 | 428.7 |
| 50 | 340.4 | 383.2 | 452.1 | 506.3 | 521.0 | 506.3 | 452.1 | 383.2 | 340.4 | 383.2 | 452.1 | 506.3 | 521.0 | 506.3 | 452.1 | 383.2 |
| 55 | 289.1 | 337.0 | 414.3 | 475.5 | 493.6 | 475.5 | 414.3 | 337.0 | 289.1 | 337.0 | 414.3 | 475.5 | 493.6 | 475.5 | 414.3 | 337.0 |
| 60 | 237.4 | 291.5 | 376.3 | 443.2 | 464.2 | 443.2 | 376.3 | 291.5 | 237.4 | 291.5 | 376.3 | 443.2 | 464.2 | 443.2 | 376.3 | 291.5 |
| 65 | 186.7 | 247.4 | 339.1 | 409.8 | 432.4 | 409.8 | 339.1 | 247.4 | 186.7 | 247.4 | 339.1 | 409.8 | 432.4 | 409.8 | 339.1 | 247.4 |
| 70 | 137.6 | 205.5 | 303.4 | 375.6 | 399.3 | 375.6 | 303.4 | 205.5 | 137.6 | 205.5 | 303.4 | 375.6 | 399.3 | 375.6 | 303.4 | 205.5 |
| 75 | 91.2 | 167.1 | 269.3 | 341.3 | 365.2 | 341.3 | 269.3 | 167.1 | 91.2 | 167.1 | 269.3 | 341.3 | 365.2 | 341.3 | 269.3 | 167.1 |
| 80 | 50.3 | 133.2 | 237.0 | 307.5 | 330.7 | 307.5 | 237.0 | 133.2 | 50.3 | 133.2 | 237.0 | 307.5 | 330.7 | 307.5 | 237.0 | 133.2 |
| 85 | 17.5 | 104.6 | 207.5 | 275.4 | 297.5 | 275.4 | 207.5 | 104.6 | 17.5 | 104.6 | 207.5 | 275.4 | 297.5 | 275.4 | 207.5 | 104.6 |
| 90 | 0.0 | 81.9 | 180.8 | 245.3 | 266.3 | 245.3 | 180.8 | 81.9 | 0.0 | 81.9 | 180.8 | 245.3 | 266.3 | 245.3 | 180.8 | 81.9 |
| 95 | 0.0 | 63.7 | 156.2 | 217.2 | 236.6 | 217.2 | 156.2 | 63.7 | 0.0 | 63.7 | 156.2 | 217.2 | 236.6 | 217.2 | 156.2 | 63.7 |
| 100 | 0.0 | 50.3 | 134.5 | 191.3 | 209.5 | 191.3 | 134.5 | 50.3 | 0.0 | 50.3 | 134.5 | 191.3 | 209.5 | 191.3 | 134.5 | 50.3 |
| 105 | 0.0 | 40.1 | 115.4 | 167.8 | 185.0 | 167.8 | 115.4 | 40.1 | 0.0 | 40.1 | 115.4 | 167.8 | 185.0 | 167.8 | 115.4 | 40.1 |
| 110 | 0.0 | 32.4 | 98.6 | 146.3 | 162.7 | 146.3 | 98.6 | 32.4 | 0.0 | 32.4 | 98.6 | 146.3 | 162.7 | 146.3 | 98.6 | 32.4 |
| 115 | 0.0 | 26.3 | 83.9 | 127.1 | 141.9 | 127.1 | 83.9 | 26.3 | 0.0 | 26.3 | 83.9 | 127.1 | 141.9 | 127.1 | 83.9 | 26.3 |
| 120 | 0.0 | 21.2 | 70.9 | 109.5 | 122.9 | 109.5 | 70.9 | 21.2 | 0.0 | 21.2 | 70.9 | 109.5 | 122.9 | 109.5 | 70.9 | 21.2 |
| 125 | 0.0 | 16.9 | 59.3 | 93.3 | 105.4 | 93.3 | 59.3 | 16.9 | 0.0 | 16.9 | 59.3 | 93.3 | 105.4 | 93.3 | 59.3 | 16.9 |
| 130 | 0.0 | 13.1 | 49.1 | 78.6 | 89.1 | 78.6 | 49.1 | 13.1 | 0.0 | 13.1 | 49.1 | 78.6 | 89.1 | 78.6 | 49.1 | 13.1 |
| 135 | 0.0 | 9.5 | 39.8 | 64.9 | 74.3 | 64.9 | 39.8 | 9.5 | 0.0 | 9.5 | 39.8 | 64.9 | 74.3 | 64.9 | 39.8 | 9.5 |
| 140 | 0.0 | 6.1 | 31.3 | 52.4 | 60.3 | 52.4 | 31.3 | 6.1 | 0.0 | 6.1 | 31.3 | 52.4 | 60.3 | 52.4 | 31.3 | 6.1 |
| 145 | 0.0 | 3.3 | 23.6 | 40.8 | 47.3 | 40.8 | 23.6 | 3.3 | 0.0 | 3.3 | 23.6 | 40.8 | 47.3 | 40.8 | 23.6 | 3.3 |
| 150 | 0.0 | 1.1 | 16.6 | 30.3 | 35.3 | 30.3 | 16.6 | 1.1 | 0.0 | 1.1 | 16.6 | 30.3 | 35.3 | 30.3 | 16.6 | 1.1 |
| 155 | 0.0 | 0.2 | 10.4 | 20.6 | 24.6 | 20.6 | 10.4 | 0.2 | 0.0 | 0.2 | 10.4 | 20.6 | 24.6 | 20.6 | 10.4 | 0.2 |
| 160 | 0.0 | 0.0 | 4.5 | 12.0 | 15.0 | 12.0 | 4.5 | 0.0 | 0.0 | 0.0 | 4.5 | 12.0 | 15.0 | 12.0 | 4.5 | 0.0 |
| 165 | 0.0 | 0.0 | 0.7 | 4.7 | 6.6 | 4.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.7 | 4.7 | 6.6 | 4.7 | 0.7 | 0.0 |
| 170 | 0.0 | 0.0 | 0.0 | 0.6 | 1.1 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 1.1 | 0.6 | 0.0 | 0.0 |
| 175 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Average Luminance (cd/m²)
Horizontal Angle (Degrees)

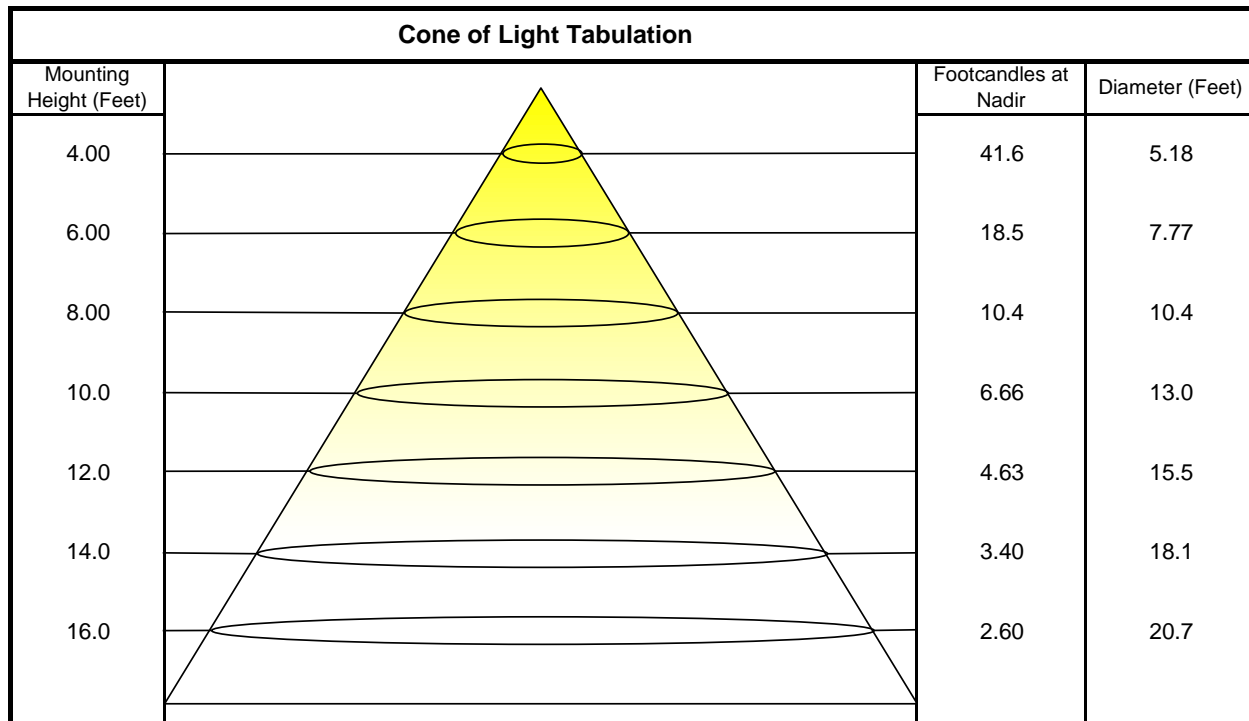
| | 0 | 45 | 90 |
|----|-------|-------|-------|
| 0 | 12330 | 12330 | 12330 |
| 45 | 9960 | 8118 | 8001 |
| 55 | 8956 | 7332 | 7502 |
| 65 | 7699 | 6642 | 7051 |
| 75 | 5888 | 6113 | 6638 |
| 85 | 2792 | 5810 | 6327 |



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 | 3275 | 3275 | 3275 | 3275 | 3148 | 3148 | 3148 | 3148 | 2911 | 2911 | 2911 | 2693 | 2693 | 2693 | 2493 | 2493 | 2493 | 2400 |
| 1 | 2907 | 2739 | 2589 | 2454 | 2781 | 2630 | 2495 | 2372 | 2426 | 2316 | 2216 | 2239 | 2151 | 2069 | 2066 | 1997 | 1932 | 1838 |
| 2 | 2615 | 2347 | 2126 | 1940 | 2495 | 2254 | 2053 | 1882 | 2080 | 1914 | 1771 | 1919 | 1783 | 1665 | 1770 | 1661 | 1563 | 1474 |
| 3 | 2368 | 2039 | 1784 | 1582 | 2256 | 1959 | 1726 | 1539 | 1810 | 1615 | 1455 | 1671 | 1510 | 1374 | 1543 | 1410 | 1296 | 1211 |
| 4 | 2158 | 1793 | 1525 | 1321 | 2056 | 1725 | 1478 | 1288 | 1596 | 1387 | 1222 | 1476 | 1301 | 1158 | 1365 | 1218 | 1097 | 1017 |
| 5 | 1978 | 1593 | 1323 | 1125 | 1885 | 1534 | 1284 | 1098 | 1423 | 1209 | 1045 | 1319 | 1137 | 994 | 1223 | 1068 | 943 | 869 |
| 6 | 1822 | 1427 | 1162 | 972 | 1737 | 1376 | 1130 | 950 | 1280 | 1066 | 907 | 1190 | 1005 | 865 | 1105 | 947 | 823 | 753 |
| 7 | 1686 | 1289 | 1032 | 851 | 1609 | 1244 | 1004 | 833 | 1160 | 950 | 797 | 1081 | 898 | 761 | 1007 | 848 | 726 | 661 |
| 8 | 1566 | 1172 | 924 | 754 | 1496 | 1133 | 900 | 738 | 1059 | 854 | 707 | 989 | 809 | 677 | 924 | 765 | 647 | 586 |
| 9 | 1461 | 1072 | 834 | 673 | 1397 | 1038 | 814 | 660 | 972 | 773 | 634 | 911 | 734 | 608 | 852 | 696 | 582 | 525 |
| 10 | 1368 | 986 | 758 | 606 | 1310 | 956 | 740 | 595 | 898 | 705 | 572 | 843 | 671 | 550 | 791 | 638 | 527 | 473 |

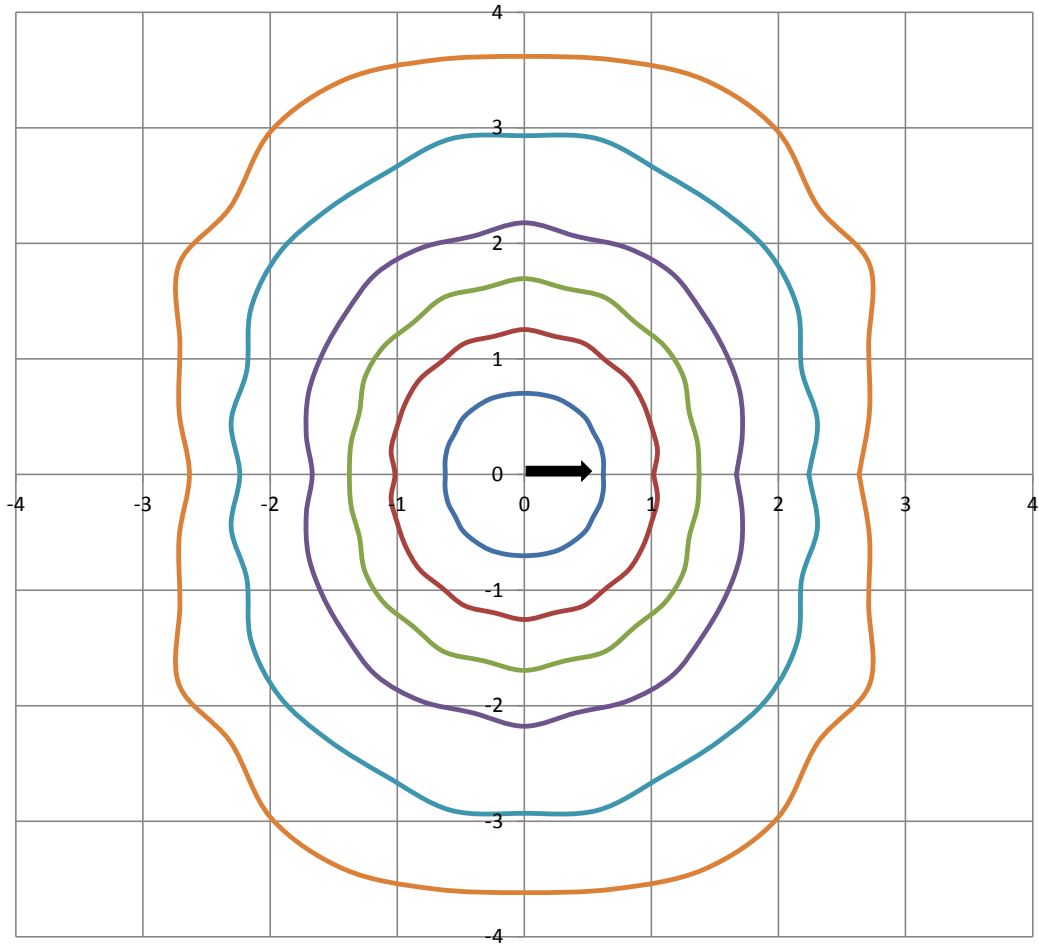
| Beam and Field Information | |
|----------------------------|---------------|
| CIE Type: | Semi-Direct |
| Center Beam Intensity: | 666.4 Candela |
| Central Cone Intensity: | 669 Candela |
| Beam Flux: | 1852.8 Lumens |
| Beam Angle (0-180): | 101.4 Degrees |
| Beam Angle (90-270): | 159.3 Degrees |
| Field Angle (0-180): | 155.8 Degrees |
| Field Angle (90-270): | 275.2 Degrees |





ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

