



Job Name/Title: \_\_\_\_\_ Catalog Number \_\_\_\_\_  
Contractor: \_\_\_\_\_ Notes: \_\_\_\_\_

## High Efficiency LED Flat Panels - 1' x 4', 2' x 2' and 2' x 4'



### A Contemporary Solution with Edge-to-Edge, Evenly Diffused, Glare-Free Light

Available in 3500K (neutral white), 4000K (cool white) and 5000K (daylight) correlated color temperatures, our High Efficiency LED Flat Panels cast the right light in any commercial setting. Designed for drop-in ceilings, pendant mount or surface mount installations, the slim profile fixtures are available in 1' x 4', 2' x 2' or 2' x 4' sizes and can save up to 50% of energy usage compared to traditional fluorescent fixtures. Standard 0-10V dimming capability allows greater energy-savings and optional emergency backup available for 90 minutes of uninterrupted service during a power loss.

### FEATURES

- Edge lit design with superior light uniformity and color consistency
- Standard 0-10 V dimming\*
- White frame, fits standard T-bar drop ceilings
- Mitsubishi PMMA light guide eliminates premature yellowing
- IC rated for direct contact with insulation
- Damp location rated
- Includes 2 power quick connects

### APPLICATIONS

- Ideal for use in schools, commercial office building, and hospitals
- Surface mount with optional frame kits





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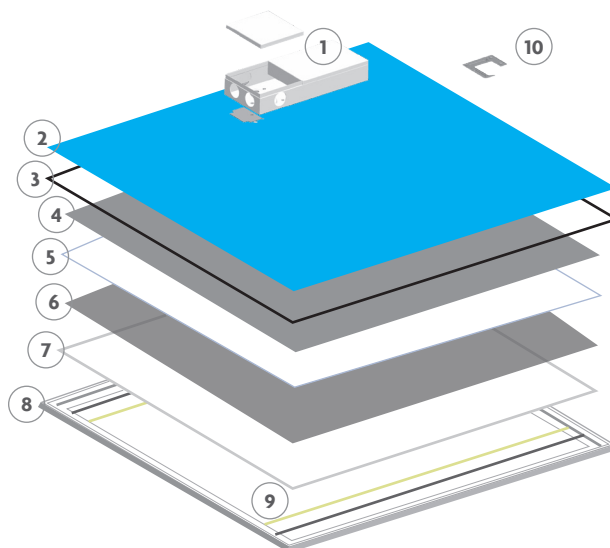
## High Efficiency LED Flat Panels - 1' x 4', 2' x 2' and 2' x 4'

### GENERAL SPECIFICATIONS

**Universal Input Voltage:** 120-277V +/-10%, 60Hz  
**Power Factor:** >0.95, THD <15%  
**Functional Life (L70):** 50,000 hours  
**Dimming:** 100% to 10%  
**Color:** Temperature CCT uniformity SDCM <4  
**CRI:** >80  
**Ambient Operating Temp:** -10°F to 110°F

### PANEL CONSTRUCTION

1. LED Driver
2. Steel backing cover
3. Gasket
4. EVA foam
5. Reflective film 0.3mm
6. PMMA light guide 3mm Mitsubishi
7. Diffuser 1.2mm
8. Steel frame
9. LED/PCB 190Lm/watt chip
10. Safety clips (x4)



### ITEM SPECIFICATIONS / ORDER INFO

| Catalog Number            | Order Code | UPC          | CCT   | Amperage |      | Watts | Lumens | Fluorescent Equiv. | Case Qty | DLC ID       |
|---------------------------|------------|--------------|-------|----------|------|-------|--------|--------------------|----------|--------------|
|                           |            |              |       | 120V     | 277V |       |        |                    |          |              |
| <b>F-L14/30/835/D/HE2</b> | 74232      | 751338019621 | 3500K | 0.27     | 0.12 | 30W   | 3,750  | 2xFO32             | 4        | PLA983QR5JW6 |
| <b>F-L14/30/840/D/HE2</b> | 74233      | 751338019638 | 4000K | 0.27     | 0.12 | 30W   | 3,750  | 2xFO32             | 4        | PLVLPFT5I2A5 |
| <b>F-L14/30/850/D/HE2</b> | 74234      | 751338019645 | 5000K | 0.27     | 0.12 | 30W   | 3,750  | 2xFO32             | 4        | PLYVVC8LPNYP |
| <b>F-L22/30/835/D/HE2</b> | 74236      | 751338019652 | 3500K | 0.27     | 0.12 | 30W   | 3,750  | 2xFO32             | 4        | PLEFMWX5S60P |
| <b>F-L22/30/840/D/HE2</b> | 74237      | 751338019669 | 4000K | 0.27     | 0.12 | 30W   | 3,750  | 2xFO32             | 4        | PLP2810ZPFLK |
| <b>F-L22/30/850/D/HE2</b> | 74238      | 751338019676 | 5000K | 0.27     | 0.12 | 30W   | 3,750  | 2xFO32             | 4        | PLJVJ2NF6HFH |
| <b>F-L22/40/835/D/HE2</b> | 74239      | 751338019799 | 3500K | 0.36     | 0.16 | 40W   | 5,000  | 3xFO32             | 4        | PLZECWTKTN2W |
| <b>F-L22/40/840/D/HE2</b> | 74240      | 751338019805 | 4000K | 0.36     | 0.16 | 40W   | 5,000  | 3xFO32             | 4        | PLTOKLKPBBAF |
| <b>F-L22/40/850/D/HE2</b> | 74241      | 751338019812 | 5000K | 0.36     | 0.16 | 40W   | 5,000  | 3xFO32             | 4        | PLSSIG4G6EJE |
| <b>F-L24/40/835/D/HE2</b> | 74243      | 751338019683 | 3500K | 0.36     | 0.16 | 40W   | 5,000  | 3xFO32             | 2        | PLVJIBUGYRYV |
| <b>F-L24/40/840/D/HE2</b> | 74244      | 751338019690 | 4000K | 0.36     | 0.16 | 40W   | 5,000  | 3xFO32             | 2        | PLOP4ZIH6O3F |
| <b>F-L24/40/850/D/HE2</b> | 74245      | 751338019713 | 5000K | 0.36     | 0.16 | 40W   | 5,000  | 3xFO32             | 2        | PL0CMSQJH2LY |
| <b>F-L24/50/835/D/HE2</b> | 74246      | 751338019836 | 3500K | 0.45     | 0.20 | 50W   | 6,250  | 4xFO32             | 2        | PL9IQ78UMQ45 |
| <b>F-L24/50/840/D/HE2</b> | 74247      | 751338019843 | 4000K | 0.45     | 0.20 | 50W   | 6,250  | 4xFO32             | 2        | PLN21QXWERRT |
| <b>F-L24/50/850/D/HE2</b> | 74248      | 751338019850 | 5000K | 0.45     | 0.20 | 50W   | 6,250  | 4xFO32             | 2        | PL0D7QX068OB |

### OPTIONAL ITEMS

| Catalog Number              | Order Code | UPC                                    |
|-----------------------------|------------|----------------------------------------|
| <b>Frames</b>               |            |                                        |
| <b>F-L14-FRAME</b>          | 72980      | 751338031890                           |
| <b>F-L22-FRAME</b>          | 72981      | 751338031906                           |
| <b>F-L24-FRAME</b>          | 72982      | 751338031913                           |
| <b>Pendant Mount Cable</b>  |            |                                        |
| <b>F-LED-2X2 CABLE SET</b>  | 72714      | For use with 2x2, Case Qty: 50         |
| <b>F-LED-2X4 CABLE SET</b>  | 72716      | For use with 1x4 and 2x4, Case Qty: 50 |
| <b>Emergency LED Driver</b> |            |                                        |
| <b>BEL5/120-277V-92</b>     | 70585      | 751338020177                           |



### NOMENCLATURE

Example: **F-L14/30/835/D/HE2**

**F**=Fixture / **L14**=LED 1' X 4' PANEL / **835**=3500K / **D**=Dimmable / **HE2**=2<sup>nd</sup> Gen High Efficiency

\*Dimming with standard 0-10V dimmer, such as Leviton IP710, DS710 or Lutron DVSTV. Specifications are subject to change without prior notice.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Fixture may not be compatible with all dimmers.

**WARNING:** Some products included in this specification sheet may be subject to the warning requirements of California's Proposition 65. Please refer to your product packaging for more information.

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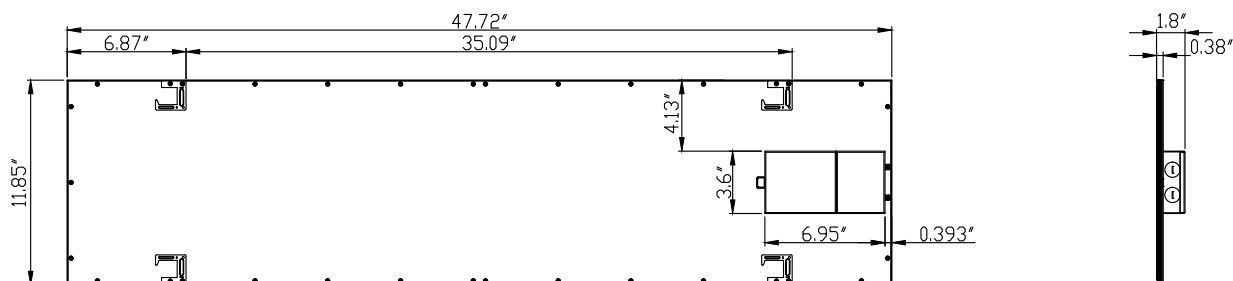
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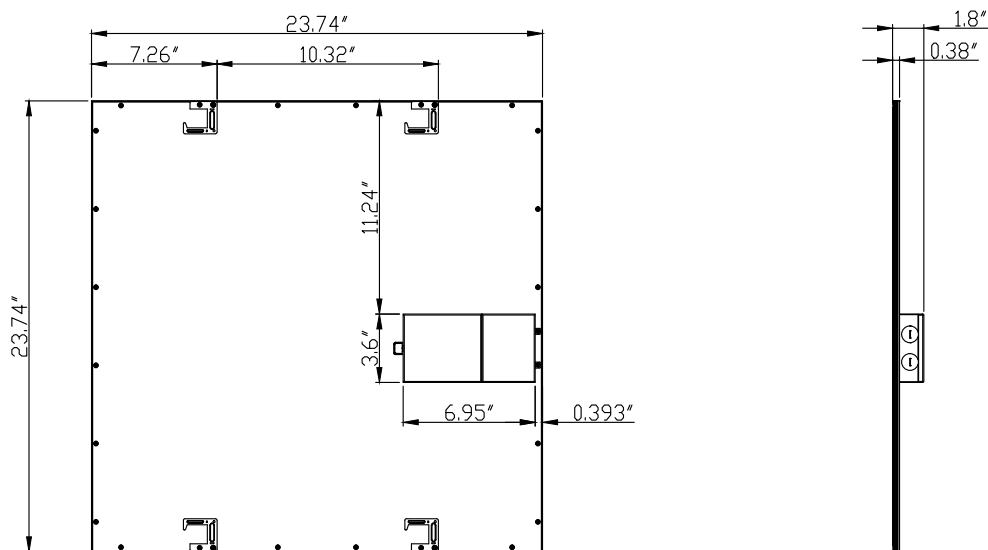
## High Efficiency LED Flat Panels - 1' x 4', 2' x 2' and 2' x 4'

### PRODUCT DIMENSIONS / LINE DRAWINGS

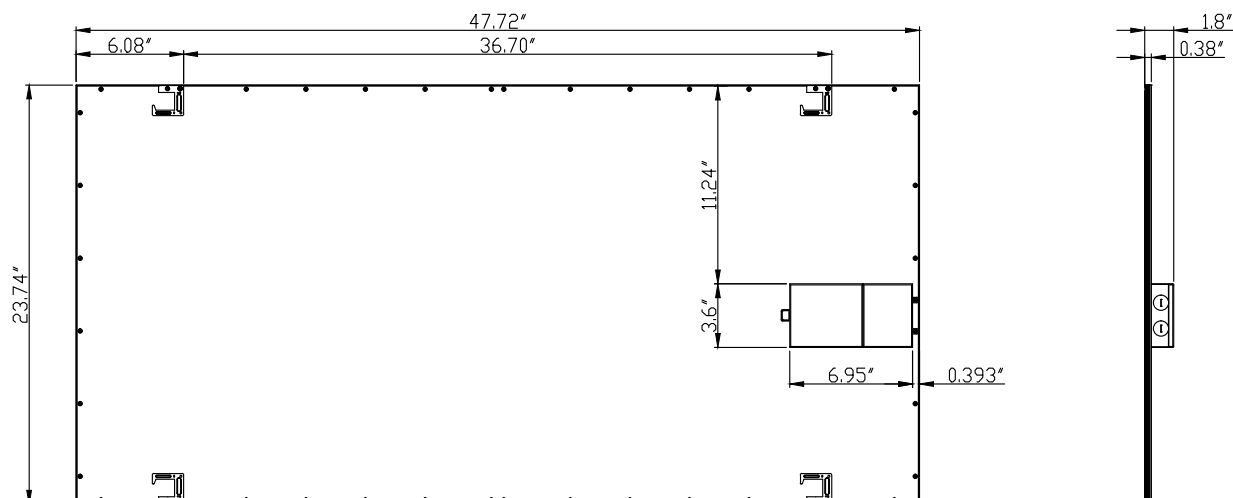
**1' X 4'**



**2' X 2'**



**2' X 4'**



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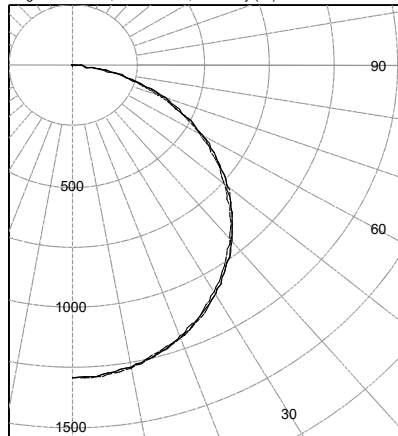


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## High Efficiency LED Flat Panels - 1' x 4', 2' x 2' and 2' x 4'

### 1' X 4' 30W FLAT PANEL

Legend: C0-Solid, C45-Dashed, C90-Grey (cd)



| AVERAGE LUMINANCE (cd / m <sup>2</sup> ) |      |      |      |
|------------------------------------------|------|------|------|
| Gamma                                    | C0   | C45  | C90  |
| 45.0                                     | 4251 | 4245 | 4180 |
| 55.0                                     | 4086 | 4090 | 4014 |
| 65.0                                     | 3836 | 3802 | 3730 |
| 75.0                                     | 3389 | 3296 | 3220 |
| 85.0                                     | 2662 | 2516 | 2363 |

#### INTENSITY SUMMARY (cd)

| Gamma | C-Plane |       |      |       |      | Flux (lm) |
|-------|---------|-------|------|-------|------|-----------|
|       | C0      | C22.5 | C45  | C67.5 | C90  |           |
| 0.0   | 1295    | 1295  | 1295 | 1295  | 1295 |           |
| 5.0   | 1285    | 1292  | 1291 | 1290  | 1284 | 122       |
| 10.0  | 1267    | 1273  | 1273 | 1271  | 1265 |           |
| 15.0  | 1237    | 1245  | 1243 | 1241  | 1236 | 350       |
| 20.0  | 1200    | 1205  | 1202 | 1200  | 1194 |           |
| 25.0  | 1149    | 1155  | 1152 | 1150  | 1142 | 530       |
| 30.0  | 1090    | 1095  | 1091 | 1088  | 1081 |           |
| 35.0  | 1022    | 1026  | 1022 | 1017  | 1010 | 638       |
| 40.0  | 946     | 948   | 944  | 939   | 934  |           |
| 45.0  | 862     | 863   | 861  | 853   | 847  | 662       |
| 50.0  | 770     | 772   | 771  | 761   | 757  |           |
| 55.0  | 672     | 675   | 672  | 663   | 660  | 598       |
| 60.0  | 571     | 574   | 569  | 560   | 558  |           |
| 65.0  | 465     | 467   | 461  | 453   | 452  | 455       |
| 70.0  | 357     | 358   | 351  | 345   | 345  |           |
| 75.0  | 251     | 250   | 245  | 240   | 239  | 260       |
| 80.0  | 153     | 151   | 147  | 143   | 141  |           |
| 85.0  | 67      | 65    | 63   | 60    | 59   | 72        |
| 90.0  | 0       | 0     | 0    | 1     | 1    |           |

#### ZONAL FLUX AND PERCENTAGES

| Zone   | Flux (lm) | % Lamp | % Luminaire |
|--------|-----------|--------|-------------|
| 0-30   | 1003      | N / A  | 27.2        |
| 0-40   | 1641      | N / A  | 44.5        |
| 0-60   | 2901      | N / A  | 78.7        |
| 0-90   | 3687      | N / A  | 100.0       |
| 40-90  | 2046      | N / A  | 55.5        |
| 60-90  | 786       | N / A  | 21.3        |
| 90-180 | 0         | N / A  | 0.0         |
| 0-180  | 3687      | N / A  | 100.0       |

Total Light Output = 3,687 lm

Spacing Criterion: 0-180 1.3  
 Spacing Criterion: 90-270 1.2

#### Coefficients Of Utilization - Zonal Cavity Method Effective Floor Cavity Reflectance 0.20

| RC<br>RW | 80  |     |     |     | 70  |     |     |     | 50  |     |     | 30  |     |     | 10  |     |     | 0   |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|          | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 0   |
| 0        | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1        | 109 | 104 | 100 | 96  | 106 | 102 | 98  | 94  | 97  | 94  | 91  | 93  | 91  | 88  | 90  | 88  | 86  | 84  |
| 2        | 99  | 90  | 84  | 78  | 96  | 88  | 82  | 77  | 85  | 80  | 75  | 82  | 77  | 73  | 79  | 75  | 72  | 69  |
| 3        | 90  | 79  | 71  | 64  | 87  | 78  | 70  | 64  | 75  | 68  | 63  | 72  | 66  | 62  | 69  | 65  | 61  | 58  |
| 4        | 82  | 70  | 61  | 55  | 80  | 69  | 61  | 54  | 66  | 59  | 53  | 64  | 58  | 53  | 62  | 56  | 52  | 50  |
| 5        | 76  | 63  | 54  | 47  | 74  | 62  | 53  | 47  | 59  | 52  | 46  | 57  | 51  | 46  | 56  | 50  | 45  | 43  |
| 6        | 70  | 56  | 47  | 41  | 68  | 55  | 47  | 41  | 54  | 46  | 40  | 52  | 45  | 40  | 50  | 44  | 40  | 38  |
| 7        | 65  | 51  | 42  | 36  | 63  | 50  | 42  | 36  | 49  | 41  | 36  | 47  | 41  | 35  | 46  | 40  | 35  | 33  |
| 8        | 60  | 47  | 38  | 32  | 59  | 46  | 38  | 32  | 45  | 37  | 32  | 43  | 37  | 32  | 42  | 36  | 31  | 30  |
| 9        | 56  | 43  | 35  | 29  | 55  | 42  | 34  | 29  | 41  | 34  | 29  | 40  | 33  | 29  | 39  | 33  | 28  | 27  |
| 10       | 53  | 39  | 32  | 26  | 51  | 39  | 31  | 26  | 38  | 31  | 26  | 37  | 31  | 26  | 36  | 30  | 26  | 24  |

For absolute test reports, CUs are expressed as a percentage of total lumen output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are lambertian reflectors. 2) Incident flux on each surface is uniformly distributed. 3) The room is spectrally neutral. When luminaires are not evenly distributed throughout the room, or do not exhibit lateral symmetry, CU values may differ from actual performance.

#### Circle of Light Plot

| Height(ft) | Illuminance at Nadir (fc) | Beam Width<br>(across 50% Nadir Illum) |        |
|------------|---------------------------|----------------------------------------|--------|
|            |                           | 0-180                                  | 90-270 |
| 6.0        | 36.0                      | 7.51                                   | 7.46   |
| 8.0        | 20.2                      | 10.01                                  | 9.94   |
| 10.0       | 12.9                      | 12.52                                  | 12.43  |
| 12.0       | 9.0                       | 15.02                                  | 14.91  |
| 14.0       | 6.6                       | 17.53                                  | 17.40  |
| 16.0       | 5.1                       | 20.03                                  | 19.88  |

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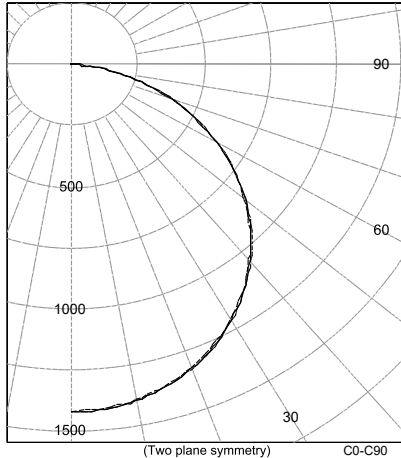


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## High Efficiency LED Flat Panels - 1' x 4', 2' x 2' and 2' x 4'

### 2' X 2' 30W FLAT PANEL

Legend: C0-Solid, C45-Dashed, C90-Grey (cd)



AVERAGE LUMINANCE (cd / m<sup>2</sup>)

| Gamma | C0   | C45  | C90  |
|-------|------|------|------|
| 45.0  | 4531 | 4511 | 4549 |
| 55.0  | 4354 | 4348 | 4374 |
| 65.0  | 4051 | 4058 | 4078 |
| 75.0  | 3489 | 3531 | 3565 |
| 85.0  | 2507 | 2662 | 2746 |

INTENSITY SUMMARY (cd)

| Gamma | C-Plane |       |      |       |      | Flux (lm) |
|-------|---------|-------|------|-------|------|-----------|
|       | C0      | C22.5 | C45  | C67.5 | C90  |           |
| 0.0   | 1421    | 1421  | 1421 | 1421  | 1421 |           |
| 5.0   | 1417    | 1415  | 1413 | 1415  | 1417 | 134       |
| 10.0  | 1399    | 1396  | 1394 | 1396  | 1398 |           |
| 15.0  | 1367    | 1365  | 1363 | 1365  | 1368 | 385       |
| 20.0  | 1325    | 1322  | 1320 | 1322  | 1326 |           |
| 25.0  | 1271    | 1268  | 1266 | 1268  | 1273 | 585       |
| 30.0  | 1206    | 1203  | 1201 | 1204  | 1209 |           |
| 35.0  | 1132    | 1128  | 1127 | 1130  | 1135 | 707       |
| 40.0  | 1048    | 1044  | 1043 | 1046  | 1051 |           |
| 45.0  | 955     | 952   | 951  | 954   | 959  | 735       |
| 50.0  | 854     | 852   | 851  | 854   | 857  |           |
| 55.0  | 745     | 744   | 743  | 746   | 748  | 665       |
| 60.0  | 630     | 630   | 630  | 632   | 633  |           |
| 65.0  | 510     | 511   | 511  | 513   | 514  | 506       |
| 70.0  | 388     | 389   | 391  | 393   | 393  |           |
| 75.0  | 269     | 271   | 272  | 275   | 275  | 289       |
| 80.0  | 159     | 161   | 163  | 165   | 166  |           |
| 85.0  | 65      | 67    | 69   | 71    | 71   | 79        |
| 90.0  | 0       | 0     | 1    | 1     | 1    |           |

ZONAL FLUX AND PERCENTAGES

| Zone   | Flux (lm) | % Lamp | % Luminaire |
|--------|-----------|--------|-------------|
| 0-30   | 1104      | N / A  | 27.0        |
| 0-40   | 1811      | N / A  | 44.3        |
| 0-60   | 3211      | N / A  | 78.6        |
| 0-90   | 4085      | N / A  | 100.0       |
| 40-90  | 2274      | N / A  | 55.7        |
| 60-90  | 874       | N / A  | 21.4        |
| 90-180 | 0         | N / A  | 0.0         |
| 0-180  | 4085      | N / A  | 100.0       |

Total Light Output = 4,085 lm

Spacing Criterion: 0-180 1.3  
 Spacing Criterion: 90-270 1.3

Coefficients Of Utilization - Zonal Cavity Method  
 Effective Floor Cavity Reflectance 0.20

| RC | 80  |     |     |     | 70  |     |     |     | 50  |     |     | 30  |     |     | 10  |     |     | 0   |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|    | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 0   |
| 0  | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1  | 109 | 104 | 99  | 96  | 106 | 102 | 98  | 94  | 97  | 94  | 91  | 93  | 91  | 88  | 90  | 88  | 86  | 84  |
| 2  | 99  | 90  | 83  | 78  | 96  | 88  | 82  | 77  | 85  | 80  | 75  | 82  | 77  | 73  | 79  | 75  | 72  | 69  |
| 3  | 90  | 79  | 71  | 64  | 87  | 78  | 70  | 64  | 75  | 68  | 63  | 72  | 66  | 62  | 69  | 65  | 61  | 58  |
| 4  | 82  | 70  | 61  | 54  | 80  | 69  | 60  | 54  | 66  | 59  | 53  | 64  | 58  | 53  | 62  | 56  | 52  | 50  |
| 5  | 76  | 63  | 54  | 47  | 73  | 61  | 53  | 47  | 59  | 52  | 46  | 57  | 51  | 46  | 55  | 50  | 45  | 43  |
| 6  | 70  | 56  | 47  | 41  | 68  | 55  | 47  | 41  | 54  | 46  | 40  | 52  | 45  | 40  | 50  | 44  | 40  | 37  |
| 7  | 65  | 51  | 42  | 36  | 63  | 50  | 42  | 36  | 49  | 41  | 36  | 47  | 40  | 35  | 46  | 40  | 35  | 33  |
| 8  | 60  | 47  | 38  | 32  | 59  | 46  | 38  | 32  | 45  | 37  | 32  | 43  | 37  | 32  | 42  | 36  | 31  | 29  |
| 9  | 56  | 43  | 34  | 29  | 55  | 42  | 34  | 29  | 41  | 34  | 29  | 40  | 33  | 28  | 39  | 33  | 28  | 26  |
| 10 | 53  | 39  | 31  | 26  | 51  | 39  | 31  | 26  | 38  | 31  | 26  | 37  | 30  | 26  | 36  | 30  | 26  | 24  |

For absolute test reports, CUs are expressed as a percentage of total lumen output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are lambertian reflectors. 2) Incident flux on each surface is uniformly distributed. 3) The room is spectrally neutral. When luminaires are not evenly distributed throughout the room, or do not exhibit lateral symmetry, CU values may differ from actual performance.

Circle of Light Plot

| Height(ft) | Illuminance at Nadir (fc) | Beam Width<br>(across 50% Nadir Illum) |        |
|------------|---------------------------|----------------------------------------|--------|
|            |                           | 0-180                                  | 90-270 |
| 6.0        | 39.5                      | 7.57                                   | 7.58   |
| 8.0        | 22.2                      | 10.09                                  | 10.11  |
| 10.0       | 14.2                      | 12.61                                  | 12.64  |
| 12.0       | 9.9                       | 15.14                                  | 15.16  |
| 14.0       | 7.3                       | 17.66                                  | 17.69  |
| 16.0       | 5.6                       | 20.18                                  | 20.22  |

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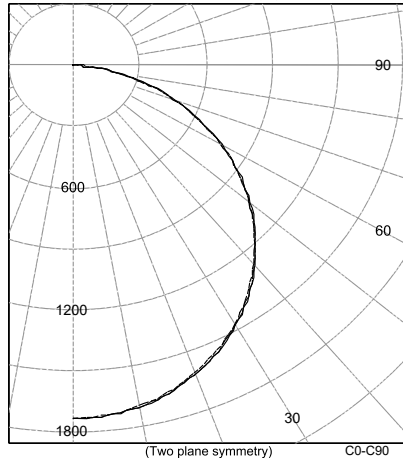


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## High Efficiency LED Flat Panels - 1' x 4', 2' x 2' and 2' x 4'

### 2' X 2' 40W FLAT PANEL

Legend: C0-Solid, C45-Dashed, C90-Grey (cd)



AVERAGE LUMINANCE (cd / m<sup>2</sup>)

| Gamma | C0   | C45  | C90  |
|-------|------|------|------|
| 45.0  | 5543 | 5497 | 5523 |
| 55.0  | 5336 | 5300 | 5307 |
| 65.0  | 4989 | 4956 | 4942 |
| 75.0  | 4391 | 4333 | 4271 |
| 85.0  | 3367 | 3283 | 3122 |

INTENSITY SUMMARY (cd)

| Gamma | C-Plane |       |      |       |      | Flux (lm) |
|-------|---------|-------|------|-------|------|-----------|
|       | C0      | C22.5 | C45  | C67.5 | C90  |           |
| 0.0   | 1734    | 1734  | 1734 | 1734  | 1734 | 164       |
| 5.0   | 1729    | 1726  | 1723 | 1726  | 1728 |           |
| 10.0  | 1706    | 1703  | 1700 | 1703  | 1705 |           |
| 15.0  | 1669    | 1665  | 1662 | 1664  | 1667 |           |
| 20.0  | 1618    | 1613  | 1609 | 1612  | 1615 | 470       |
| 25.0  | 1552    | 1547  | 1543 | 1545  | 1549 |           |
| 30.0  | 1474    | 1468  | 1464 | 1466  | 1470 |           |
| 35.0  | 1383    | 1377  | 1373 | 1375  | 1380 |           |
| 40.0  | 1281    | 1275  | 1271 | 1272  | 1277 | 861       |
| 45.0  | 1169    | 1163  | 1159 | 1160  | 1164 |           |
| 50.0  | 1045    | 1041  | 1037 | 1038  | 1040 |           |
| 55.0  | 912     | 910   | 906  | 906   | 907  |           |
| 60.0  | 773     | 772   | 768  | 767   | 768  | 896       |
| 65.0  | 629     | 627   | 624  | 623   | 623  |           |
| 70.0  | 482     | 481   | 478  | 475   | 475  |           |
| 75.0  | 339     | 338   | 334  | 331   | 330  |           |
| 80.0  | 205     | 204   | 201  | 197   | 195  | 354       |
| 85.0  | 87      | 87    | 85   | 82    | 81   |           |
| 90.0  | 1       | 1     | 1    | 1     | 1    |           |

ZONAL FLUX AND PERCENTAGES

| Zone   | Flux (lm) | % Lamp | % Luminaire |
|--------|-----------|--------|-------------|
| 0-30   | 1347      | N / A  | 27.0        |
| 0-40   | 2208      | N / A  | 44.3        |
| 0-60   | 3915      | N / A  | 78.5        |
| 0-90   | 4984      | N / A  | 100.0       |
| 40-90  | 2777      | N / A  | 55.7        |
| 60-90  | 1069      | N / A  | 21.5        |
| 90-180 | 0         | N / A  | 0.0         |
| 0-180  | 4984      | N / A  | 100.0       |

Total Light Output = 4,984 lm

Spacing Criterion: 0-180 1.3  
 Spacing Criterion: 90-270 1.3

Coefficients Of Utilization - Zonal Cavity Method  
 Effective Floor Cavity Reflectance 0.20

| RC<br>RW | 80  |     |     |     | 70  |     |     |     | 50  |     |     | 30  |     |     | 10  |     |     | 0   |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|          | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 0   |
| 0        | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1        | 109 | 104 | 99  | 96  | 106 | 102 | 98  | 94  | 97  | 94  | 91  | 93  | 91  | 88  | 90  | 88  | 86  | 83  |
| 2        | 99  | 90  | 83  | 78  | 96  | 88  | 82  | 77  | 85  | 80  | 75  | 82  | 77  | 73  | 79  | 75  | 72  | 69  |
| 3        | 90  | 79  | 71  | 64  | 87  | 78  | 70  | 64  | 75  | 68  | 63  | 72  | 66  | 62  | 69  | 65  | 60  | 58  |
| 4        | 82  | 70  | 61  | 54  | 80  | 69  | 60  | 54  | 66  | 59  | 53  | 64  | 58  | 53  | 62  | 56  | 52  | 50  |
| 5        | 76  | 63  | 54  | 47  | 73  | 61  | 53  | 47  | 59  | 52  | 46  | 57  | 51  | 46  | 55  | 50  | 45  | 43  |
| 6        | 70  | 56  | 47  | 41  | 68  | 55  | 47  | 41  | 54  | 46  | 40  | 52  | 45  | 40  | 50  | 44  | 40  | 37  |
| 7        | 65  | 51  | 42  | 36  | 63  | 50  | 42  | 36  | 49  | 41  | 36  | 47  | 40  | 35  | 46  | 40  | 35  | 33  |
| 8        | 60  | 47  | 38  | 32  | 59  | 46  | 38  | 32  | 44  | 37  | 32  | 43  | 36  | 32  | 42  | 36  | 31  | 29  |
| 9        | 56  | 43  | 34  | 29  | 55  | 42  | 34  | 29  | 41  | 34  | 29  | 40  | 33  | 28  | 39  | 33  | 28  | 26  |
| 10       | 53  | 39  | 31  | 26  | 51  | 39  | 31  | 26  | 38  | 31  | 26  | 37  | 30  | 26  | 36  | 30  | 26  | 24  |

For absolute test reports, CUs are expressed as a percentage of total lumen output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are lambertian reflectors. 2) Incident flux on each surface is uniformly distributed. 3) The room is spectrally neutral. When luminaires are not evenly distributed throughout the room, or do not exhibit lateral symmetry, CU values may differ from actual performance.

Circle of Light Plot

| Height(ft) | Illuminance at Nadir (fc) | Beam Width<br>(across 50% Nadir Illum) |        |
|------------|---------------------------|----------------------------------------|--------|
|            |                           | 0-180                                  | 90-270 |
| 6.0        | 48.2                      | 7.58                                   | 7.56   |
| 8.0        | 27.1                      | 10.10                                  | 10.08  |
| 10.0       | 17.3                      | 12.63                                  | 12.60  |
| 12.0       | 12.0                      | 15.16                                  | 15.12  |
| 14.0       | 8.8                       | 17.68                                  | 17.65  |
| 16.0       | 6.8                       | 20.21                                  | 20.17  |

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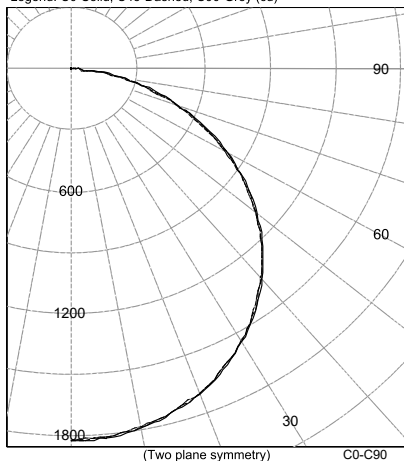


Job Name/Title: \_\_\_\_\_ Catalog Number \_\_\_\_\_  
 Contractor: \_\_\_\_\_ Notes: \_\_\_\_\_

## High Efficiency LED Flat Panels - 1' x 4', 2' x 2' and 2' x 4'

### 2' X 4' 40W FLAT PANEL

Legend: C0-Solid, C45-Dashed, C90-Grey (cd)



AVERAGE LUMINANCE (cd / m<sup>2</sup>)

| Gamma | C0   | C45  | C90  |
|-------|------|------|------|
| 45.0  | 2750 | 2732 | 2726 |
| 55.0  | 2655 | 2635 | 2617 |
| 65.0  | 2500 | 2467 | 2435 |
| 75.0  | 2201 | 2156 | 2112 |
| 85.0  | 1742 | 1670 | 1587 |

INTENSITY SUMMARY (cd)

| Gamma | C-Plane |       |      |       |      | Flux (lm) |
|-------|---------|-------|------|-------|------|-----------|
|       | C0      | C22.5 | C45  | C67.5 | C90  |           |
| 0.0   | 1820    | 1820  | 1820 | 1820  | 1820 | 172       |
| 5.0   | 1816    | 1813  | 1812 | 1810  | 1810 |           |
| 10.0  | 1792    | 1789  | 1788 | 1785  | 1786 |           |
| 15.0  | 1753    | 1750  | 1748 | 1745  | 1746 |           |
| 20.0  | 1698    | 1695  | 1693 | 1689  | 1691 | 748       |
| 25.0  | 1630    | 1626  | 1623 | 1619  | 1622 |           |
| 30.0  | 1548    | 1544  | 1541 | 1536  | 1539 |           |
| 35.0  | 1454    | 1449  | 1445 | 1441  | 1443 |           |
| 40.0  | 1346    | 1342  | 1337 | 1333  | 1336 | 941       |
| 45.0  | 1228    | 1224  | 1219 | 1216  | 1217 |           |
| 50.0  | 1099    | 1096  | 1091 | 1088  | 1087 |           |
| 55.0  | 961     | 958   | 954  | 951   | 947  |           |
| 60.0  | 817     | 814   | 809  | 805   | 801  | 650       |
| 65.0  | 667     | 663   | 658  | 652   | 649  |           |
| 70.0  | 512     | 508   | 503  | 498   | 495  |           |
| 75.0  | 360     | 357   | 352  | 347   | 345  |           |
| 80.0  | 219     | 217   | 212  | 208   | 206  | 105       |
| 85.0  | 96      | 95    | 92   | 89    | 87   |           |
| 90.0  | 1       | 2     | 3    | 4     | 4    |           |

ZONAL FLUX AND PERCENTAGES

| Zone   | Flux (lm) | % Lamp | % Luminaire |
|--------|-----------|--------|-------------|
| 0-30   | 1414      | N / A  | 27.0        |
| 0-40   | 2318      | N / A  | 44.2        |
| 0-60   | 4112      | N / A  | 78.5        |
| 0-90   | 5240      | N / A  | 100.0       |
| 40-90  | 2922      | N / A  | 55.8        |
| 60-90  | 1128      | N / A  | 21.5        |
| 90-180 | 0         | N / A  | 0.0         |
| 0-180  | 5240      | N / A  | 100.0       |

Total Light Output = 5,240 lm

Spacing Criterion: 0-180 1.3  
 Spacing Criterion: 90-270 1.3

Coefficients Of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 0.20

| RC | 80  |     |     |     | 70  |     |     |     | 50  |     |     |     | 30  |     |     |     | 10  |     |     |     | 0   |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|    | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 0   |
| 0  | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | 100 | 100 | 100 |
| 1  | 109 | 104 | 99  | 96  | 106 | 101 | 98  | 94  | 97  | 94  | 91  | 93  | 91  | 88  | 90  | 88  | 86  | 83  | 83  | 83  | 83  |
| 2  | 99  | 90  | 83  | 78  | 96  | 88  | 82  | 77  | 85  | 79  | 75  | 82  | 77  | 73  | 78  | 75  | 71  | 69  | 69  | 69  | 69  |
| 3  | 90  | 79  | 71  | 64  | 87  | 78  | 70  | 64  | 75  | 68  | 63  | 72  | 66  | 61  | 69  | 64  | 60  | 58  | 58  | 58  | 58  |
| 4  | 82  | 70  | 61  | 54  | 80  | 69  | 60  | 54  | 66  | 59  | 53  | 64  | 58  | 53  | 62  | 56  | 52  | 50  | 50  | 50  | 50  |
| 5  | 76  | 63  | 53  | 47  | 73  | 61  | 53  | 46  | 59  | 52  | 46  | 57  | 51  | 45  | 55  | 50  | 45  | 43  | 43  | 43  | 43  |
| 6  | 70  | 56  | 47  | 41  | 68  | 55  | 47  | 41  | 53  | 46  | 40  | 52  | 45  | 40  | 50  | 44  | 39  | 37  | 37  | 37  | 37  |
| 7  | 65  | 51  | 42  | 36  | 63  | 50  | 42  | 36  | 49  | 41  | 36  | 47  | 40  | 35  | 46  | 40  | 35  | 33  | 33  | 33  | 33  |
| 8  | 60  | 46  | 38  | 32  | 59  | 46  | 38  | 32  | 44  | 37  | 32  | 43  | 36  | 32  | 42  | 36  | 31  | 29  | 29  | 29  | 29  |
| 9  | 56  | 43  | 34  | 29  | 55  | 42  | 34  | 29  | 41  | 34  | 29  | 40  | 33  | 28  | 39  | 33  | 28  | 26  | 26  | 26  | 26  |
| 10 | 53  | 39  | 31  | 26  | 51  | 39  | 31  | 26  | 38  | 31  | 26  | 37  | 30  | 26  | 36  | 30  | 26  | 24  | 24  | 24  | 24  |

For absolute test reports, CUs are expressed as a percentage of total lumen output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are lambertian reflectors. 2) Incident flux on each surface is uniformly distributed. 3) The room is spectrally neutral. When luminaires are not evenly distributed throughout the room, or do not exhibit lateral symmetry, CU values may differ from actual performance.

Circle of Light Plot

| Height(ft) | Illuminance at Nadir (fc) | Beam Width<br>(across 50% Nadir Illum) |        |
|------------|---------------------------|----------------------------------------|--------|
|            |                           | 0-180                                  | 90-270 |
| 6.0        | 50.6                      | 7.58                                   | 7.54   |
| 8.0        | 28.4                      | 10.11                                  | 10.06  |
| 10.0       | 18.2                      | 12.64                                  | 12.57  |
| 12.0       | 12.6                      | 15.16                                  | 15.08  |
| 14.0       | 9.3                       | 17.69                                  | 17.60  |
| 16.0       | 7.1                       | 20.22                                  | 20.11  |

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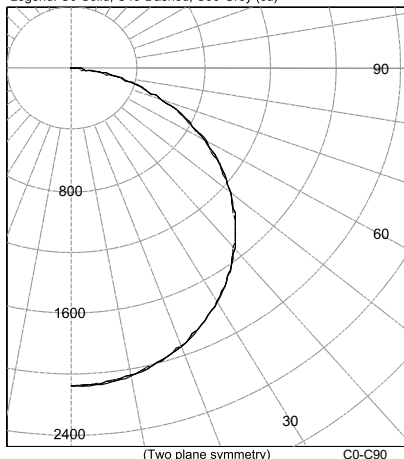


Job Name/Title: \_\_\_\_\_ Catalog Number \_\_\_\_\_  
 Contractor: \_\_\_\_\_ Notes: \_\_\_\_\_

## High Efficiency LED Flat Panels - 1' x 4', 2' x 2' and 2' x 4'

### 2' X 4' 50W FLAT PANEL

Legend: C0-Solid, C45-Dashed, C90-Grey (cd)



AVERAGE LUMINANCE (cd / m<sup>2</sup>)

| Gamma | C0   | C45  | C90  |
|-------|------|------|------|
| 45.0  | 3133 | 3123 | 3125 |
| 55.0  | 3024 | 3017 | 3007 |
| 65.0  | 2838 | 2827 | 2814 |
| 75.0  | 2454 | 2469 | 2485 |
| 85.0  | 1810 | 1895 | 1954 |

INTENSITY SUMMARY (cd)

| Gamma | C-Plane |       |      |       |      | Flux (lm) |
|-------|---------|-------|------|-------|------|-----------|
|       | C0      | C22.5 | C45  | C67.5 | C90  |           |
| 0.0   | 2078    | 2078  | 2078 | 2078  | 2078 | 197       |
| 5.0   | 2073    | 2070  | 2068 | 2066  | 2066 |           |
| 10.0  | 2045    | 2042  | 2041 | 2038  | 2038 |           |
| 15.0  | 2000    | 1997  | 1995 | 1993  | 1994 | 563       |
| 20.0  | 1937    | 1934  | 1933 | 1930  | 1932 |           |
| 25.0  | 1858    | 1855  | 1854 | 1851  | 1854 |           |
| 30.0  | 1764    | 1761  | 1760 | 1757  | 1760 | 1033      |
| 35.0  | 1656    | 1653  | 1651 | 1649  | 1652 |           |
| 40.0  | 1534    | 1531  | 1529 | 1527  | 1530 |           |
| 45.0  | 1398    | 1396  | 1394 | 1393  | 1395 | 1076      |
| 50.0  | 1251    | 1250  | 1248 | 1248  | 1247 |           |
| 55.0  | 1095    | 1093  | 1092 | 1091  | 1089 |           |
| 60.0  | 930     | 929   | 927  | 925   | 923  | 745       |
| 65.0  | 757     | 755   | 754  | 752   | 751  |           |
| 70.0  | 578     | 577   | 577  | 576   | 576  |           |
| 75.0  | 401     | 401   | 403  | 405   | 406  | 428       |
| 80.0  | 238     | 240   | 243  | 246   | 247  |           |
| 85.0  | 100     | 101   | 104  | 106   | 107  |           |
| 90.0  | 1       | 2     | 3    | 3     | 3    | 119       |

ZONAL FLUX AND PERCENTAGES

| Zone   | Flux (lm) | % Lamp | % Luminaire |
|--------|-----------|--------|-------------|
| 0-30   | 1614      | N / A  | 26.9        |
| 0-40   | 2647      | N / A  | 44.2        |
| 0-60   | 4699      | N / A  | 78.4        |
| 0-90   | 5990      | N / A  | 100.0       |
| 40-90  | 3343      | N / A  | 55.8        |
| 60-90  | 1291      | N / A  | 21.6        |
| 90-180 | 0         | N / A  | 0.0         |
| 0-180  | 5990      | N / A  | 100.0       |

Total Light Output = 5,990 lm

Spacing Criterion: 0-180 1.3  
 Spacing Criterion: 90-270 1.3

Coefficients Of Utilization - Zonal Cavity Method  
 Effective Floor Cavity Reflectance 0.20

| RC<br>RW | 80  |     |     |     | 70  |     |     |     | 50  |     |     | 30  |     |     | 10  |     |     | 0   |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|          | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 0   |
| 0        | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1        | 109 | 104 | 99  | 96  | 106 | 101 | 98  | 94  | 97  | 94  | 91  | 93  | 91  | 88  | 90  | 88  | 86  | 83  |
| 2        | 99  | 90  | 83  | 78  | 96  | 88  | 82  | 77  | 85  | 79  | 75  | 82  | 77  | 73  | 78  | 75  | 71  | 69  |
| 3        | 90  | 79  | 71  | 64  | 87  | 78  | 70  | 64  | 75  | 68  | 63  | 72  | 66  | 61  | 69  | 64  | 60  | 58  |
| 4        | 82  | 70  | 61  | 54  | 80  | 69  | 60  | 54  | 66  | 59  | 53  | 64  | 58  | 52  | 62  | 56  | 52  | 50  |
| 5        | 76  | 63  | 53  | 47  | 73  | 61  | 53  | 46  | 59  | 52  | 46  | 57  | 51  | 45  | 55  | 50  | 45  | 43  |
| 6        | 70  | 56  | 47  | 41  | 68  | 55  | 47  | 41  | 53  | 46  | 40  | 52  | 45  | 40  | 50  | 44  | 39  | 37  |
| 7        | 65  | 51  | 42  | 36  | 63  | 50  | 42  | 36  | 49  | 41  | 36  | 47  | 40  | 35  | 46  | 40  | 35  | 33  |
| 8        | 60  | 46  | 38  | 32  | 59  | 46  | 38  | 32  | 44  | 37  | 32  | 43  | 36  | 31  | 42  | 36  | 31  | 29  |
| 9        | 56  | 43  | 34  | 29  | 55  | 42  | 34  | 29  | 41  | 34  | 29  | 40  | 33  | 28  | 39  | 33  | 28  | 26  |
| 10       | 53  | 39  | 31  | 26  | 51  | 39  | 31  | 26  | 38  | 31  | 26  | 37  | 30  | 26  | 36  | 30  | 26  | 24  |

For absolute test reports, CUs are expressed as a percentage of total lumen output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are lambertian reflectors. 2) Incident flux on each surface is uniformly distributed. 3) The room is spectrally neutral. When luminaires are not evenly distributed throughout the room, or do not exhibit lateral symmetry, CU values may differ from actual performance.

Circle of Light Plot

| Height(ft) | Illuminance at Nadir (fc) | Beam Width<br>(across 50% Nadir Illum) |        |
|------------|---------------------------|----------------------------------------|--------|
|            |                           | 0-180                                  | 90-270 |
| 6.0        | 57.7                      | 7.57                                   | 7.56   |
| 8.0        | 32.5                      | 10.10                                  | 10.08  |
| 10.0       | 20.8                      | 12.62                                  | 12.59  |
| 12.0       | 14.4                      | 15.15                                  | 15.11  |
| 14.0       | 10.6                      | 17.67                                  | 17.63  |
| 16.0       | 8.1                       | 20.19                                  | 20.15  |

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