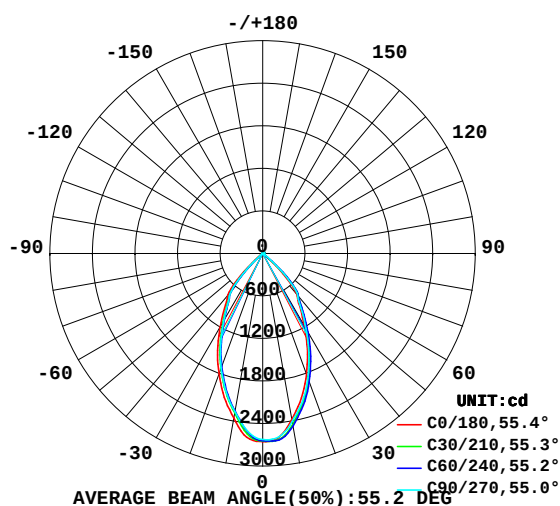


## LUMINAIRE PHOTOMETRIC TEST REPORT

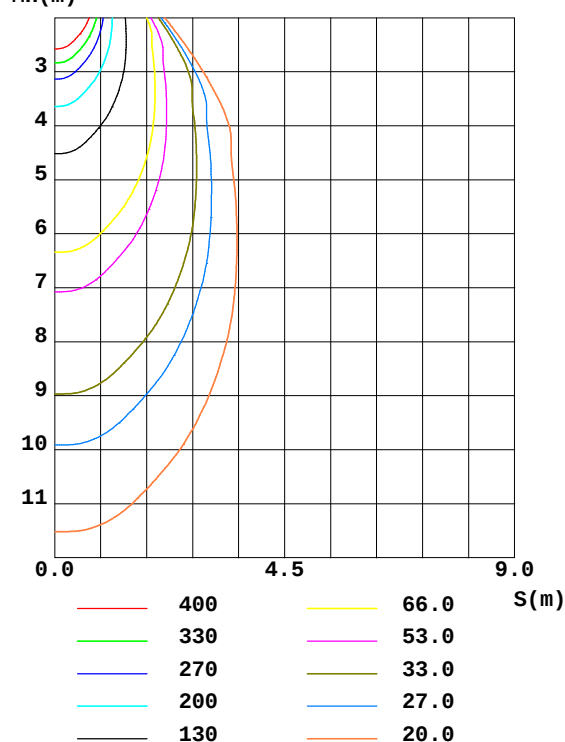
|                                                                   |           |  |
|-------------------------------------------------------------------|-----------|--|
| Test:U:220.6V I:0.0890A P:18.80W PF:0.9490 Lamp Flux:2519.83x1 lm |           |  |
| NAME: PSJU-DL-20W-COB                                             | TYPE: LED |  |
| MFR.:                                                             |           |  |
|                                                                   |           |  |

| DATA OF LAMP     |                 | PHOTOMETRIC DATA      |        |                    |           | Eff: 134.03 lm/W |
|------------------|-----------------|-----------------------|--------|--------------------|-----------|------------------|
| MODEL            | PSJU-DL-20W-COB | I <sub>max</sub> (cd) | 2654   | S/MH(C0/180)       | 0.82      |                  |
| NOMINAL POWER(W) | 20              | LOR(%)                | 100.0  | S/MH(C90/270)      | 0.85      |                  |
| RATED VOLTAGE(V) | 220.6           | TOTAL FLUX(lm)        | 2519.8 | η UP, DN(C0-180)   | 1.5, 48.7 |                  |
| NOMINAL FLUX(lm) | 2519.83         | CIE CLASS             | DIRECT | η UP, DN(C180-360) | 1.6, 48.2 |                  |
| LAMPS INSIDE     | 1               | η up(%)               | 3.1    | CIBSE SHR NOM      | 0.75      |                  |
| TEST VOLTAGE(V)  | 220.6           | η down(%)             | 96.9   | CIBSE SHR MAX      | 0.85      |                  |

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: DAMIN  
 Test Date: 2017-07-19

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.267  
 Humidity: 65.0%  
 Test Distance: 8.000m [K=0.7063]  
 Remarks:

## ZONAL FLUX DIAGRAM

## ZONAL FLUX DIAGRAM:

| $\gamma$ | C0                    | C45   | C90   | C135  | C180  | C225  | C270  | C315  | $\gamma$ | $\Phi$ zone | $\Phi$ total | %lum, lamp |
|----------|-----------------------|-------|-------|-------|-------|-------|-------|-------|----------|-------------|--------------|------------|
| 10       | 2376                  | 2459  | 2408  | 2251  | 2359  | 2270  | 2265  | 2406  | 0- 10    | 237.8       | 237.8        | 9.44,9.44  |
| 20       | 1811                  | 1906  | 1864  | 1694  | 1805  | 1710  | 1715  | 1883  | 10- 20   | 582.8       | 820.6        | 32.6,32.6  |
| 30       | 1174                  | 1262  | 1223  | 1081  | 1200  | 1105  | 1103  | 1258  | 20- 30   | 679.3       | 1500         | 59.5,59.5  |
| 40       | 747.2                 | 782.7 | 768.9 | 661.4 | 767.2 | 684.5 | 687.5 | 785.7 | 30- 40   | 578.5       | 2078         | 82.5,82.5  |
| 50       | 51.09                 | 151.5 | 145.9 | 36.74 | 96.31 | 38.95 | 41.02 | 162.1 | 40- 50   | 316.2       | 2395         | 95,95      |
| 60       | 14.21                 | 15.45 | 15.81 | 14.06 | 16.82 | 15.54 | 15.06 | 17.72 | 50- 60   | 25.95       | 2421         | 96.1,96.1  |
| 70       | 4.622                 | 7.482 | 7.410 | 4.364 | 7.140 | 6.256 | 6.446 | 9.763 | 60- 70   | 11.57       | 2432         | 96.5,96.5  |
| 80       | 2.642                 | 2.897 | 3.118 | 2.939 | 5.211 | 5.275 | 5.431 | 5.423 | 70- 80   | 5.078       | 2437         | 96.7,96.7  |
| 90       | 1.881                 | 1.953 | 2.107 | 2.406 | 4.680 | 4.911 | 5.045 | 4.955 | 80- 90   | 4.190       | 2441         | 96.9,96.9  |
| 100      | 3.435                 | 3.232 | 3.462 | 3.991 | 5.992 | 6.311 | 6.394 | 5.939 | 90-100   | 4.468       | 2446         | 97.1,97.1  |
| 110      | 5.943                 | 5.554 | 5.771 | 6.591 | 8.095 | 8.489 | 8.485 | 7.829 | 100-110  | 6.233       | 2452         | 97.3,97.3  |
| 120      | 9.671                 | 9.029 | 9.191 | 10.37 | 11.15 | 11.67 | 11.51 | 10.60 | 110-120  | 8.570       | 2461         | 97.7,97.7  |
| 130      | 14.51                 | 13.67 | 13.78 | 15.06 | 15.10 | 15.52 | 15.20 | 14.22 | 120-130  | 11.16       | 2472         | 98.1,98.1  |
| 140      | 19.34                 | 18.66 | 18.66 | 19.78 | 19.25 | 19.66 | 19.22 | 18.13 | 130-140  | 13.00       | 2485         | 98.6,98.6  |
| 150      | 23.40                 | 22.93 | 22.73 | 23.42 | 22.93 | 23.04 | 22.50 | 21.64 | 140-150  | 13.15       | 2498         | 99.1,99.1  |
| 160      | 27.02                 | 26.50 | 26.18 | 26.56 | 26.40 | 26.06 | 25.51 | 24.78 | 150-160  | 11.27       | 2509         | 99.6,99.6  |
| 170      | 30.16                 | 29.46 | 28.86 | 28.97 | 29.29 | 28.64 | 28.01 | 27.60 | 160-170  | 7.751       | 2517         | 99.9,99.9  |
| 180      | 31.52                 | 30.82 | 30.15 | 29.87 | 31.58 | 30.83 | 30.05 | 29.89 | 170-180  | 2.823       | 2520         | 100,100    |
| DEG      | LUMINOUS INTENSITY:cd |       |       |       |       |       |       |       |          | UNIT:lm     |              |            |

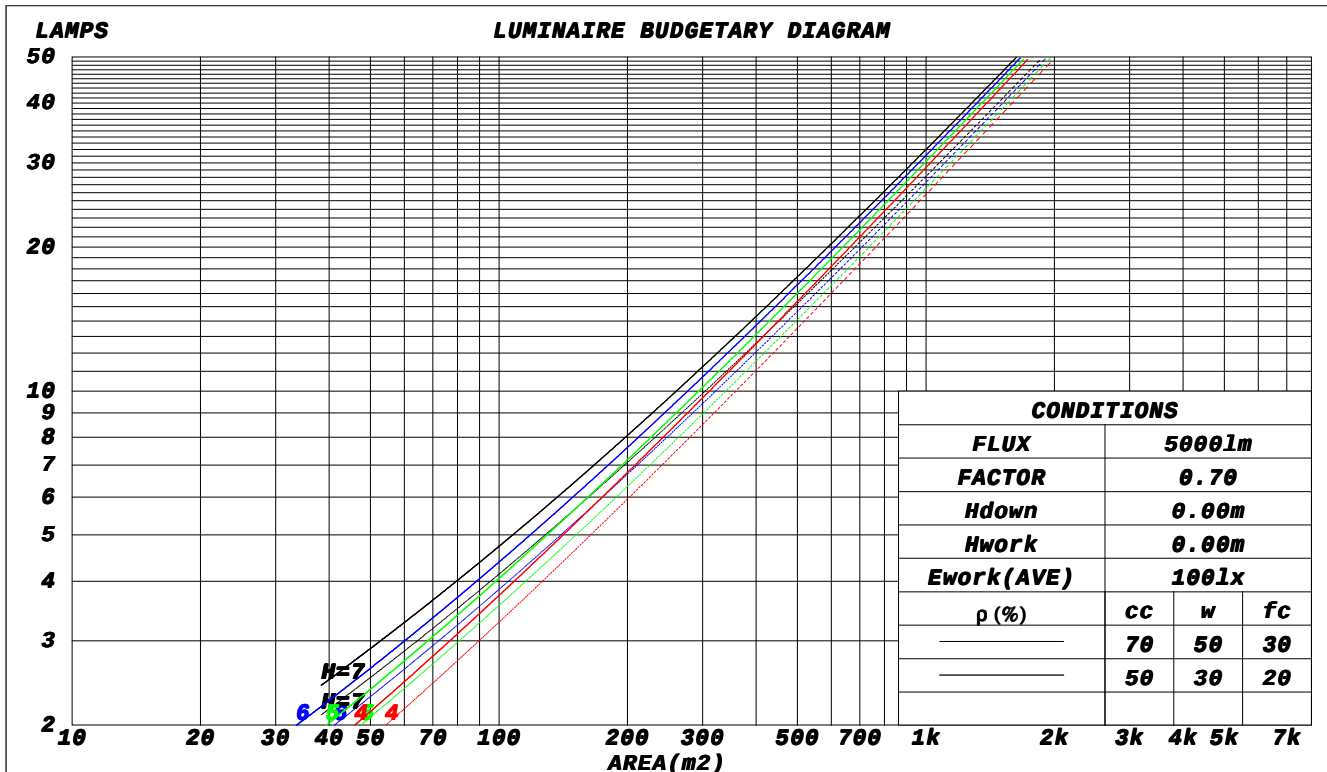
C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-07-19

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE G0-2000B\_V1 SYSTEM V2.0.267  
 Humidity:65.0%  
 Test Distance:8.000m [K=0.7063]  
 Remarks:

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

|                                                                   |          |  |
|-------------------------------------------------------------------|----------|--|
| Test:U:220.6V I:0.0890A P:18.80W PF:0.9490 Lamp Flux:2519.83x1 lm |          |  |
| NAME: PSJU-DL-20W-COB                                             | TYPE:LED |  |
| MFR.:                                                             |          |  |
|                                                                   |          |  |

| $\rho_{CC}$ | 80%                                                        |      |      | 70%  |      |      | 50%  |      |      | 30%  |      |      | 10% |     |     | 0   |
|-------------|------------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|
| $\rho_W$    | 50%                                                        | 30%  | 10%  | 50%  | 30%  | 10%  | 50%  | 30%  | 10%  | 50%  | 30%  | 10%  | 50% | 30% | 10% | 0   |
| $\rho_{fc}$ | 20%                                                        |      |      | 20%  |      |      | 20%  |      |      | 20%  |      |      | 20% |     |     | 0   |
| RCR         | RCR:Room Cavity Ratio      Coefficients of Utilization(CU) |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |
| 0.0         | 1.18                                                       | 1.18 | 1.18 | 1.15 | 1.15 | 1.15 | 1.09 | 1.09 | 1.09 | 1.04 | 1.04 | 1.04 | .99 | .99 | .99 | .97 |
| 1.0         | 1.09                                                       | 1.07 | 1.04 | 1.07 | 1.04 | 1.02 | 1.02 | 1.00 | .99  | .98  | .96  | .95  | .94 | .93 | .92 | .90 |
| 2.0         | 1.01                                                       | .97  | .93  | .99  | .95  | .92  | .95  | .92  | .89  | .92  | .89  | .87  | .89 | .86 | .85 | .83 |
| 3.0         | .93                                                        | .88  | .84  | .92  | .87  | .83  | .89  | .85  | .81  | .86  | .82  | .80  | .83 | .80 | .78 | .76 |
| 4.0         | .87                                                        | .81  | .76  | .85  | .80  | .76  | .83  | .78  | .74  | .80  | .76  | .73  | .78 | .75 | .72 | .70 |
| 5.0         | .81                                                        | .74  | .70  | .79  | .74  | .69  | .77  | .72  | .68  | .75  | .71  | .67  | .73 | .70 | .67 | .65 |
| 6.0         | .75                                                        | .69  | .64  | .74  | .68  | .64  | .72  | .67  | .63  | .70  | .66  | .62  | .69 | .65 | .62 | .60 |
| 7.0         | .70                                                        | .64  | .59  | .69  | .63  | .59  | .68  | .62  | .58  | .66  | .61  | .58  | .65 | .60 | .57 | .56 |
| 8.0         | .66                                                        | .59  | .55  | .65  | .59  | .55  | .63  | .58  | .54  | .62  | .57  | .54  | .61 | .57 | .53 | .52 |
| 9.0         | .62                                                        | .55  | .51  | .61  | .55  | .51  | .60  | .54  | .51  | .59  | .54  | .50  | .57 | .53 | .50 | .48 |
| 10.0        | .58                                                        | .52  | .48  | .57  | .51  | .48  | .56  | .51  | .47  | .55  | .50  | .47  | .54 | .50 | .47 | .45 |



C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: DAMIN  
 Test Date: 2017-07-19

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.267  
 Humidity: 65.0%  
 Test Distance: 8.000m [K=0.7063]  
 Remarks:

**WEC AND CCEC**

|                                                                   |  |  |  |  |  |           |  |  |  |  |  |
|-------------------------------------------------------------------|--|--|--|--|--|-----------|--|--|--|--|--|
| Test:U:220.6V I:0.0890A P:18.80W PF:0.9490 Lamp Flux:2519.83x1 lm |  |  |  |  |  |           |  |  |  |  |  |
| NAME: PSJU-DL-20W-COB                                             |  |  |  |  |  | TYPE: LED |  |  |  |  |  |
| MFR.:                                                             |  |  |  |  |  |           |  |  |  |  |  |
|                                                                   |  |  |  |  |  |           |  |  |  |  |  |

| $\rho_{CC}$ | 80%                   |      |      | 70%  |      |      | 50%                             |      |      | 30%  |      |      | 10%  |      |      | 0 |  |
|-------------|-----------------------|------|------|------|------|------|---------------------------------|------|------|------|------|------|------|------|------|---|--|
| $\rho_W$    | 50%                   | 30%  | 10%  | 50%  | 30%  | 10%  | 50%                             | 30%  | 10%  | 50%  | 30%  | 10%  | 50%  | 30%  | 10%  | 0 |  |
| $\rho_{fc}$ | 20%                   |      |      | 20%  |      |      | 20%                             |      |      | 20%  |      |      | 20%  |      |      | 0 |  |
| RCR         | RCR:Room Cavity Ratio |      |      |      |      |      | Wall Exitance Coefficients(WEC) |      |      |      |      |      |      |      |      |   |  |
| 0.0         |                       |      |      |      |      |      |                                 |      |      |      |      |      |      |      |      |   |  |
| 1.0         | .191                  | .109 | .034 | .183 | .105 | .033 | .169                            | .097 | .031 | .156 | .090 | .029 | .143 | .083 | .027 |   |  |
| 2.0         | .183                  | .101 | .031 | .177 | .097 | .030 | .164                            | .091 | .028 | .153 | .086 | .027 | .143 | .081 | .025 |   |  |
| 3.0         | .175                  | .093 | .028 | .169 | .091 | .027 | .159                            | .086 | .026 | .149 | .081 | .025 | .139 | .077 | .024 |   |  |
| 4.0         | .167                  | .087 | .025 | .162 | .085 | .025 | .152                            | .081 | .024 | .144 | .077 | .023 | .135 | .074 | .022 |   |  |
| 5.0         | .159                  | .081 | .023 | .155 | .079 | .023 | .146                            | .076 | .022 | .138 | .073 | .022 | .131 | .070 | .021 |   |  |
| 6.0         | .152                  | .076 | .022 | .148 | .075 | .021 | .140                            | .072 | .021 | .133 | .069 | .020 | .127 | .067 | .020 |   |  |
| 7.0         | .145                  | .071 | .020 | .141 | .070 | .020 | .134                            | .068 | .020 | .128 | .066 | .019 | .122 | .064 | .019 |   |  |
| 8.0         | .138                  | .067 | .019 | .135 | .066 | .019 | .129                            | .064 | .018 | .123 | .062 | .018 | .118 | .061 | .018 |   |  |
| 9.0         | .132                  | .064 | .018 | .129 | .063 | .018 | .124                            | .061 | .017 | .119 | .059 | .017 | .114 | .058 | .017 |   |  |
| 10.0        | .126                  | .061 | .017 | .124 | .060 | .017 | .119                            | .058 | .016 | .114 | .057 | .016 | .110 | .055 | .016 |   |  |

| $\rho_{CC}$ | 80%                   |      |      | 70%  |      |      | 50%                                        |      |      | 30%  |      |      | 10%  |      |      | 0 |
|-------------|-----------------------|------|------|------|------|------|--------------------------------------------|------|------|------|------|------|------|------|------|---|
| $\rho_W$    | 50%                   | 30%  | 10%  | 50%  | 30%  | 10%  | 50%                                        | 30%  | 10%  | 50%  | 30%  | 10%  | 50%  | 30%  | 10%  | 0 |
| $\rho_{fc}$ | 20%                   |      |      | 20%  |      |      | 20%                                        |      |      | 20%  |      |      | 20%  |      |      | 0 |
| RCR         | RCR:Room Cavity Ratio |      |      |      |      |      | Ceiling Cavity Exitance Coefficients(CCEC) |      |      |      |      |      |      |      |      |   |
| 0.0         | .214                  | .214 | .214 | .183 | .183 | .183 | .125                                       | .125 | .125 | .072 | .072 | .072 | .023 | .023 | .023 |   |
| 1.0         | .196                  | .181 | .168 | .168 | .155 | .144 | .115                                       | .107 | .100 | .066 | .062 | .058 | .021 | .020 | .019 |   |
| 2.0         | .182                  | .157 | .135 | .156 | .135 | .117 | .107                                       | .093 | .082 | .062 | .054 | .048 | .020 | .018 | .016 |   |
| 3.0         | .170                  | .138 | .112 | .146 | .119 | .097 | .100                                       | .083 | .068 | .058 | .048 | .040 | .019 | .016 | .013 |   |
| 4.0         | .161                  | .123 | .095 | .138 | .107 | .082 | .095                                       | .074 | .058 | .055 | .044 | .034 | .018 | .014 | .011 |   |
| 5.0         | .153                  | .112 | .082 | .131 | .097 | .071 | .090                                       | .068 | .050 | .052 | .040 | .030 | .017 | .013 | .010 |   |
| 6.0         | .146                  | .103 | .073 | .125 | .089 | .063 | .086                                       | .063 | .045 | .050 | .037 | .027 | .016 | .012 | .009 |   |
| 7.0         | .139                  | .096 | .065 | .120 | .083 | .057 | .083                                       | .058 | .040 | .048 | .034 | .024 | .016 | .011 | .008 |   |
| 8.0         | .134                  | .090 | .059 | .115 | .078 | .052 | .080                                       | .055 | .037 | .046 | .032 | .022 | .015 | .011 | .007 |   |
| 9.0         | .129                  | .085 | .055 | .111 | .073 | .048 | .077                                       | .052 | .034 | .045 | .030 | .020 | .015 | .010 | .007 |   |
| 10.0        | .124                  | .080 | .051 | .107 | .070 | .045 | .074                                       | .049 | .032 | .043 | .029 | .019 | .014 | .010 | .006 |   |

**C Range: 0 - 360DEG**  
**C Interval: 30.0DEG**  
**Test Speed: HIGH**  
**Temperature: 25.3DEG**  
**Operators: DAMIN**  
**Test Date: 2017-07-19**

**$\gamma$  Range: 0 - 180DEG**  
 **$\gamma$  Interval: 1.0DEG**  
**Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.267**  
**Humidity: 65.0%**  
**Test Distance: 8.000m [K=0.7063]**  
**Remarks:**

### Uncorrected UGR Table

|                                                                   |                         |             |             |             |             |                       |             |             |             |             |
|-------------------------------------------------------------------|-------------------------|-------------|-------------|-------------|-------------|-----------------------|-------------|-------------|-------------|-------------|
| Test:U:220.6V I:0.0890A P:18.80W PF:0.9490 Lamp Flux:2519.83x1 lm |                         |             |             |             |             |                       |             |             |             |             |
| NAME: PSJU-DL-20W-COB                                             |                         |             |             |             | TYPE: LED   |                       |             |             |             |             |
| MFR.:                                                             |                         |             |             |             |             |                       |             |             |             |             |
|                                                                   |                         |             |             |             |             |                       |             |             |             |             |
| <b>ceiling/cavity</b>                                             | <b>0.7</b>              | <b>0.7</b>  | <b>0.5</b>  | <b>0.5</b>  | <b>0.3</b>  | <b>0.7</b>            | <b>0.7</b>  | <b>0.5</b>  | <b>0.5</b>  | <b>0.3</b>  |
| <b>walls</b>                                                      | <b>0.5</b>              | <b>0.3</b>  | <b>0.5</b>  | <b>0.3</b>  | <b>0.3</b>  | <b>0.5</b>            | <b>0.3</b>  | <b>0.5</b>  | <b>0.3</b>  | <b>0.3</b>  |
| <b>working plane</b>                                              | <b>0.2</b>              | <b>0.2</b>  | <b>0.2</b>  | <b>0.2</b>  | <b>0.2</b>  | <b>0.2</b>            | <b>0.2</b>  | <b>0.2</b>  | <b>0.2</b>  | <b>0.2</b>  |
| <b>Room dimensions</b>                                            | <b>Viewed crosswise</b> |             |             |             |             | <b>Viewed endwise</b> |             |             |             |             |
| <b>x = 2H y = 2H</b>                                              | <b>18.7</b>             | <b>19.7</b> | <b>19.0</b> | <b>19.9</b> | <b>20.2</b> | <b>19.1</b>           | <b>20.1</b> | <b>19.4</b> | <b>20.3</b> | <b>20.6</b> |
| <b>3H</b>                                                         | <b>18.5</b>             | <b>19.5</b> | <b>18.8</b> | <b>19.7</b> | <b>20.0</b> | <b>18.9</b>           | <b>19.8</b> | <b>19.2</b> | <b>20.1</b> | <b>20.4</b> |
| <b>4H</b>                                                         | <b>18.4</b>             | <b>19.3</b> | <b>18.8</b> | <b>19.6</b> | <b>19.9</b> | <b>18.8</b>           | <b>19.7</b> | <b>19.2</b> | <b>20.0</b> | <b>20.3</b> |
| <b>6H</b>                                                         | <b>18.3</b>             | <b>19.2</b> | <b>18.7</b> | <b>19.5</b> | <b>19.8</b> | <b>18.7</b>           | <b>19.6</b> | <b>19.1</b> | <b>19.8</b> | <b>20.2</b> |
| <b>8H</b>                                                         | <b>18.3</b>             | <b>19.1</b> | <b>18.7</b> | <b>19.4</b> | <b>19.7</b> | <b>18.7</b>           | <b>19.5</b> | <b>19.1</b> | <b>19.8</b> | <b>20.1</b> |
| <b>12H</b>                                                        | <b>18.3</b>             | <b>19.0</b> | <b>18.6</b> | <b>19.3</b> | <b>19.7</b> | <b>18.7</b>           | <b>19.4</b> | <b>19.0</b> | <b>19.7</b> | <b>20.1</b> |
| <b>4H 2H</b>                                                      | <b>18.4</b>             | <b>19.3</b> | <b>18.8</b> | <b>19.6</b> | <b>19.9</b> | <b>18.8</b>           | <b>19.7</b> | <b>19.2</b> | <b>20.0</b> | <b>20.3</b> |
| <b>3H</b>                                                         | <b>18.3</b>             | <b>19.0</b> | <b>18.6</b> | <b>19.3</b> | <b>19.7</b> | <b>18.6</b>           | <b>19.4</b> | <b>19.0</b> | <b>19.7</b> | <b>20.1</b> |
| <b>4H</b>                                                         | <b>18.2</b>             | <b>18.8</b> | <b>18.6</b> | <b>19.2</b> | <b>19.6</b> | <b>18.6</b>           | <b>19.2</b> | <b>19.0</b> | <b>19.6</b> | <b>20.0</b> |
| <b>6H</b>                                                         | <b>18.1</b>             | <b>18.6</b> | <b>18.5</b> | <b>19.0</b> | <b>19.4</b> | <b>18.5</b>           | <b>19.0</b> | <b>18.9</b> | <b>19.4</b> | <b>19.8</b> |
| <b>8H</b>                                                         | <b>18.0</b>             | <b>18.6</b> | <b>18.5</b> | <b>19.0</b> | <b>19.4</b> | <b>18.4</b>           | <b>18.9</b> | <b>18.9</b> | <b>19.4</b> | <b>19.8</b> |
| <b>12H</b>                                                        | <b>18.0</b>             | <b>18.5</b> | <b>18.4</b> | <b>18.9</b> | <b>19.3</b> | <b>18.4</b>           | <b>18.9</b> | <b>18.8</b> | <b>19.3</b> | <b>19.7</b> |
| <b>8H 4H</b>                                                      | <b>18.0</b>             | <b>18.5</b> | <b>18.5</b> | <b>19.0</b> | <b>19.4</b> | <b>18.4</b>           | <b>18.9</b> | <b>18.8</b> | <b>19.3</b> | <b>19.8</b> |
| <b>6H</b>                                                         | <b>17.9</b>             | <b>18.4</b> | <b>18.4</b> | <b>18.8</b> | <b>19.3</b> | <b>18.3</b>           | <b>18.7</b> | <b>18.8</b> | <b>19.2</b> | <b>19.7</b> |
| <b>8H</b>                                                         | <b>17.9</b>             | <b>18.2</b> | <b>18.4</b> | <b>18.7</b> | <b>19.2</b> | <b>18.3</b>           | <b>18.6</b> | <b>18.8</b> | <b>19.1</b> | <b>19.6</b> |
| <b>12H</b>                                                        | <b>17.8</b>             | <b>18.1</b> | <b>18.3</b> | <b>18.6</b> | <b>19.2</b> | <b>18.2</b>           | <b>18.5</b> | <b>18.7</b> | <b>19.0</b> | <b>19.6</b> |
| <b>12H 4H</b>                                                     | <b>18.0</b>             | <b>18.4</b> | <b>18.4</b> | <b>18.9</b> | <b>19.3</b> | <b>18.3</b>           | <b>18.8</b> | <b>18.8</b> | <b>19.3</b> | <b>19.7</b> |
| <b>6H</b>                                                         | <b>17.9</b>             | <b>18.2</b> | <b>18.4</b> | <b>18.7</b> | <b>19.2</b> | <b>18.2</b>           | <b>18.6</b> | <b>18.7</b> | <b>19.1</b> | <b>19.6</b> |
| <b>8H</b>                                                         | <b>17.8</b>             | <b>18.1</b> | <b>18.3</b> | <b>18.6</b> | <b>19.2</b> | <b>18.2</b>           | <b>18.5</b> | <b>18.7</b> | <b>19.0</b> | <b>19.6</b> |
| <b>Variations with the observer position at spacings:</b>         |                         |             |             |             |             |                       |             |             |             |             |
| <b>S = 1.0H</b>                                                   | <b>+ 3.2 / -14.0</b>    |             |             |             |             | <b>+ 3.2 / -13.1</b>  |             |             |             |             |
| <b>1.5H</b>                                                       | <b>+ 3.4 / -13.9</b>    |             |             |             |             | <b>+ 3.0 / -13.6</b>  |             |             |             |             |
| <b>2.0H</b>                                                       | <b>+ 7.2 / -10.1</b>    |             |             |             |             | <b>+ 7.3 / -10.6</b>  |             |             |             |             |

CIE Pub.117 Corrected 2520 lm Total Lamp Luminous Flux. (8log(F/F0) = 3.2)

**C Range: 0 - 360DEG**  
**C Interval: 30.0DEG**  
**Test Speed: HIGH**  
**Temperature: 25.3DEG**  
**Operators: DAMIN**  
**Test Date: 2017-07-19**

**γ Range: 0 - 180DEG**  
**γ Interval: 1.0DEG**  
**Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.267**  
**Humidity: 65.0%**  
**Test Distance: 8.000m [K=0.7063]**  
**Remarks:**

### UTILIZATION FACTORS TABLE

|                                                                   |           |  |
|-------------------------------------------------------------------|-----------|--|
| Test:U:220.6V I:0.0890A P:18.80W PF:0.9490 Lamp Flux:2519.83x1 lm |           |  |
| NAME: PSJU-DL-20W-COB                                             | TYPE: LED |  |
| MFR.:                                                             |           |  |
|                                                                   |           |  |

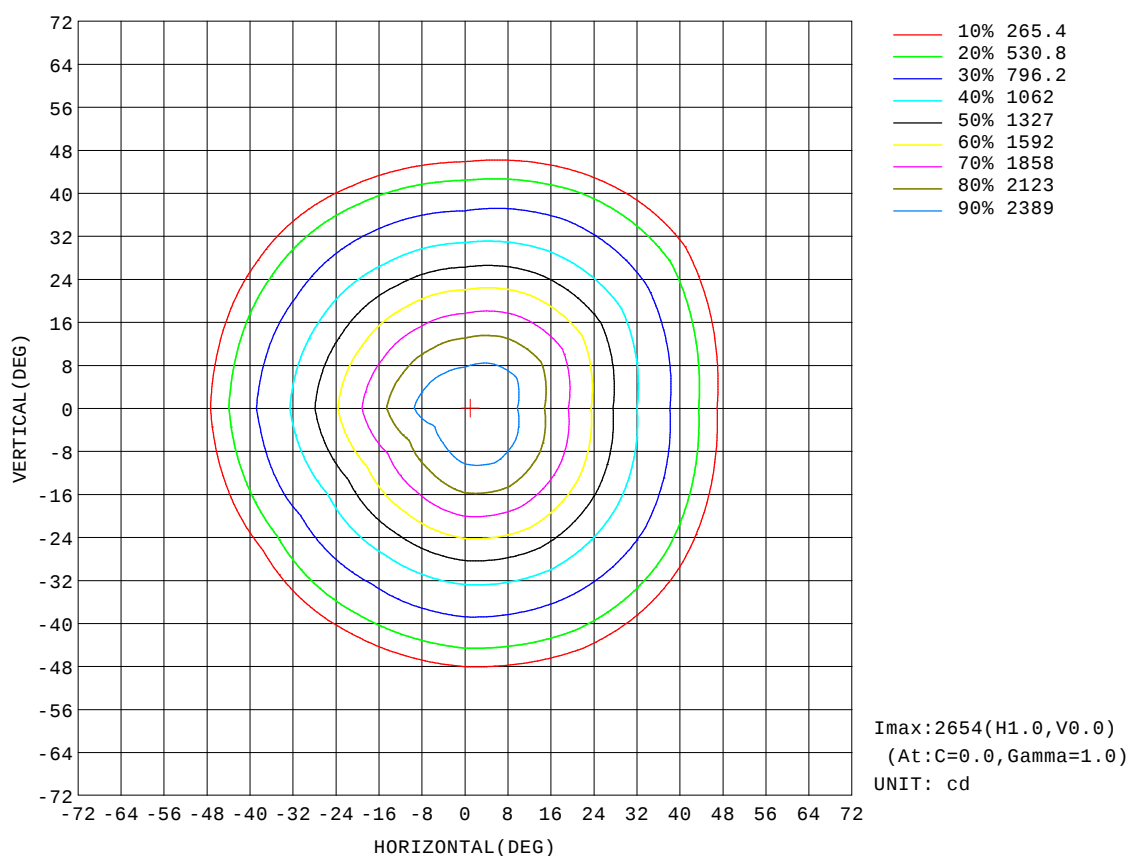
| REFLECTANCE                      |                                                     |     |           |     |     |     |     |               |     |        |
|----------------------------------|-----------------------------------------------------|-----|-----------|-----|-----|-----|-----|---------------|-----|--------|
| Ceiling                          | 0.8                                                 | 0.8 | 0.8       | 0.7 | 0.7 | 0.7 | 0.5 | 0.5           | 0.5 | 0      |
| Walls                            | 0.7                                                 | 0.5 | 0.3       | 0.7 | 0.5 | 0.3 | 0.7 | 0.5           | 0.3 | 0      |
| Working plane                    | 0.2                                                 | 0.2 | 0.2       | 0.2 | 0.2 | 0.2 | 0.2 | 0.2           | 0.2 | 0      |
| ROOM INDEX                       | UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$ |     |           |     |     |     |     |               |     |        |
| $k = 0.60$                       | 81                                                  | 73  | 69        | 80  | 73  | 69  | 79  | 72            | 68  | 64     |
| 0.80                             | 89                                                  | 82  | 78        | 88  | 82  | 77  | 87  | 81            | 77  | 72     |
| 1.00                             | 95                                                  | 88  | 84        | 93  | 87  | 83  | 91  | 87            | 83  | 78     |
| 1.25                             | 99                                                  | 93  | 89        | 98  | 93  | 89  | 96  | 91            | 88  | 83     |
| 1.50                             | 102                                                 | 97  | 93        | 101 | 96  | 92  | 98  | 94            | 91  | 86     |
| 2.00                             | 106                                                 | 101 | 97        | 104 | 100 | 97  | 101 | 97            | 95  | 88     |
| 2.50                             | 108                                                 | 103 | 100       | 106 | 102 | 99  | 102 | 99            | 97  | 90     |
| 3.00                             | 110                                                 | 106 | 103       | 108 | 104 | 101 | 104 | 101           | 99  | 91     |
| 4.00                             | 112                                                 | 109 | 106       | 109 | 107 | 104 | 105 | 103           | 101 | 93     |
| 5.00                             | 113                                                 | 110 | 108       | 111 | 108 | 106 | 106 | 104           | 103 | 94     |
| ROOM INDEX                       | UF(total)                                           |     |           |     |     |     |     |               |     | Direct |
| According to DIN EN 13032-2 2004 |                                                     |     | Suspended |     |     |     |     | SHRNOM = 1.25 |     |        |

**C Range: 0 - 360DEG**  
**C Interval: 30.0DEG**  
**Test Speed: HIGH**  
**Temperature: 25.3DEG**  
**Operators: DAMIN**  
**Test Date: 2017-07-19**

**$\gamma$  Range: 0 - 180DEG**  
 **$\gamma$  Interval: 1.0DEG**  
**Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.267**  
**Humidity: 65.0%**  
**Test Distance: 8.000m [K=0.7063]**  
**Remarks:**

## ISOCANDELA DIAGRAM

|                                                                   |           |  |
|-------------------------------------------------------------------|-----------|--|
| Test:U:220.6V I:0.0890A P:18.80W PF:0.9490 Lamp Flux:2519.83x1 lm |           |  |
| NAME: PSJU-DL-20W-COB                                             | TYPE: LED |  |
| MFR.:                                                             |           |  |
|                                                                   |           |  |



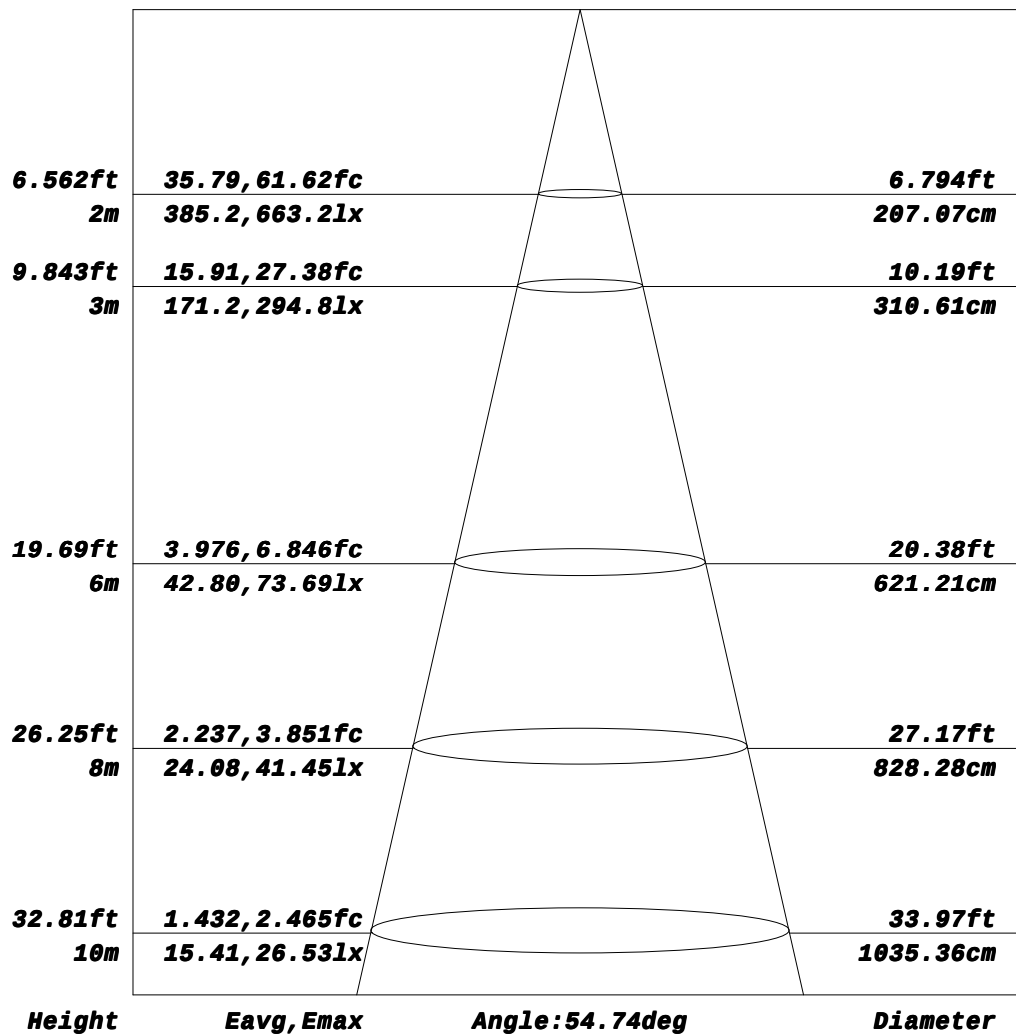
C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: DAMIN  
Test Date: 2017-07-19

γ Range: 0 - 180DEG  
γ Interval: 1.0DEG  
Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.267  
Humidity: 65.0%  
Test Distance: 8.000m [K=0.7063]  
Remarks:

### AAI Figure

|                                                                   |           |  |
|-------------------------------------------------------------------|-----------|--|
| Test:U:220.6V I:0.0890A P:18.80W PF:0.9490 Lamp Flux:2519.83x1 lm |           |  |
| NAME: PSJU-DL-20W-COB                                             | TYPE: LED |  |
| MFR.:                                                             |           |  |
|                                                                   |           |  |

Flux out:1369 lm



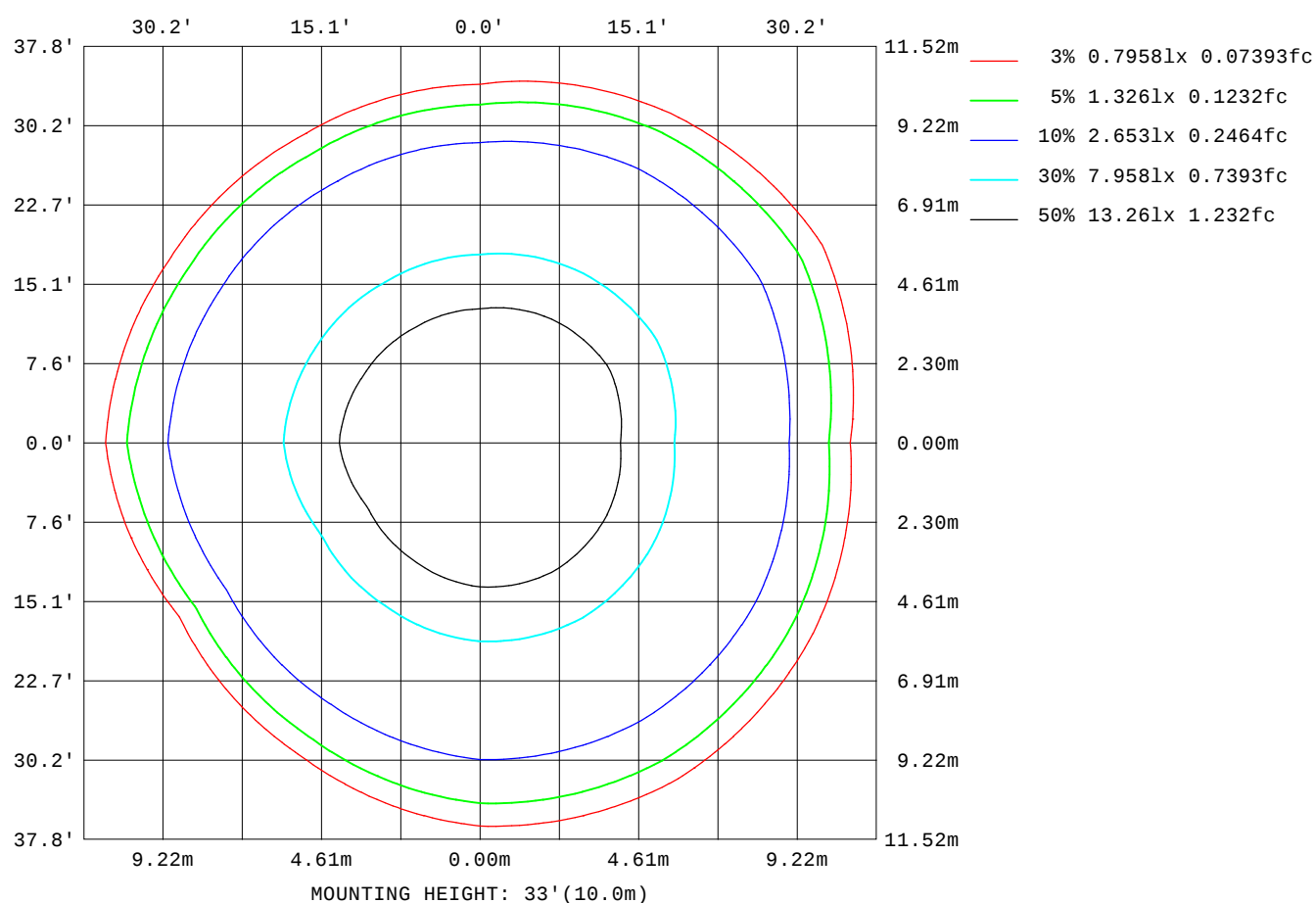
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: DAMIN  
Test Date: 2017-07-19

γ Range: 0 - 180DEG  
γ Interval: 1.0DEG  
Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.267  
Humidity: 65.0%  
Test Distance: 8.000m [K=0.7063]  
Remarks:

## ISOLUX DIAGRAM

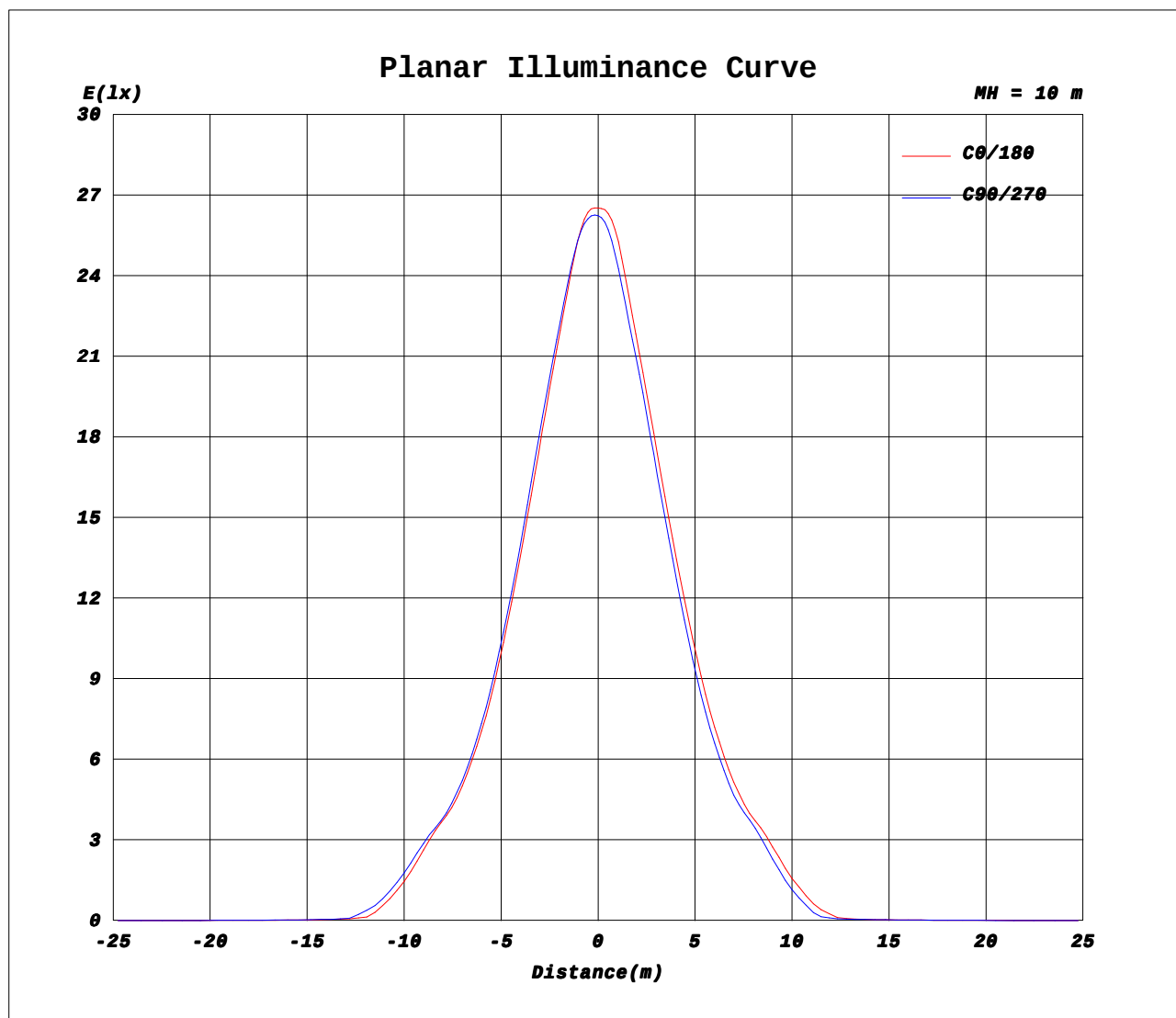
|                                                                   |           |  |
|-------------------------------------------------------------------|-----------|--|
| Test:U:220.6V I:0.0890A P:18.80W PF:0.9490 Lamp Flux:2519.83x1 lm |           |  |
| NAME: PSJU-DL-20W-COB                                             | TYPE: LED |  |
| MFR.:                                                             |           |  |
|                                                                   |           |  |



**C Range: 0 - 360DEG**  
**C Interval: 30.0DEG**  
**Test Speed: HIGH**  
**Temperature: 25.3DEG**  
**Operators: DAMIN**  
**Test Date: 2017-07-19**

**γ Range: 0 - 180DEG**  
**γ Interval: 1.0DEG**  
**Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.267**  
**Humidity: 65.0%**  
**Test Distance: 8.000m [K=0.7063]**  
**Remarks:**

## Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: DAMIN  
Test Date: 2017-07-19

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.267  
Humidity: 65.0%  
Test Distance: 8.000m [K=0.7063]  
Remarks:

### LUMINOUS DISTRIBUTION INTENSITY DATA

|                                                                   |  |  |  |  |  |           |  |  |  |  |  |
|-------------------------------------------------------------------|--|--|--|--|--|-----------|--|--|--|--|--|
| Test:U:220.6V I:0.0890A P:18.80W PF:0.9490 Lamp Flux:2519.83x1 lm |  |  |  |  |  |           |  |  |  |  |  |
| NAME: PSJU-DL-20W-COB                                             |  |  |  |  |  | TYPE: LED |  |  |  |  |  |
| MFR.:                                                             |  |  |  |  |  |           |  |  |  |  |  |
|                                                                   |  |  |  |  |  |           |  |  |  |  |  |

Table--1

UNIT: cd

| γ (DEG) | C (DEG) |      |      |      |      |      |      |      |      |      |      |      |  |  |  |  |  |  |  |  |
|---------|---------|------|------|------|------|------|------|------|------|------|------|------|--|--|--|--|--|--|--|--|
|         | 0       | 30   | 60   | 90   | 120  | 150  | 180  | 210  | 240  | 270  | 300  | 330  |  |  |  |  |  |  |  |  |
| 0       | 2653    | 2647 | 2642 | 2624 | 2613 | 2618 | 2653 | 2647 | 2642 | 2624 | 2613 | 2618 |  |  |  |  |  |  |  |  |
| 5       | 2605    | 2635 | 2640 | 2598 | 2510 | 2464 | 2602 | 2550 | 2519 | 2511 | 2571 | 2613 |  |  |  |  |  |  |  |  |
| 10      | 2376    | 2447 | 2470 | 2408 | 2282 | 2220 | 2359 | 2282 | 2257 | 2265 | 2369 | 2443 |  |  |  |  |  |  |  |  |
| 15      | 2111    | 2188 | 2217 | 2165 | 2030 | 1954 | 2102 | 2022 | 1992 | 2010 | 2127 | 2202 |  |  |  |  |  |  |  |  |
| 20      | 1811    | 1888 | 1925 | 1864 | 1732 | 1657 | 1805 | 1728 | 1692 | 1715 | 1839 | 1927 |  |  |  |  |  |  |  |  |
| 25      | 1495    | 1574 | 1603 | 1543 | 1415 | 1345 | 1509 | 1427 | 1386 | 1406 | 1532 | 1621 |  |  |  |  |  |  |  |  |
| 30      | 1174    | 1248 | 1276 | 1223 | 1108 | 1053 | 1200 | 1125 | 1085 | 1103 | 1216 | 1300 |  |  |  |  |  |  |  |  |
| 35      | 913     | 971  | 989  | 948  | 853  | 824  | 937  | 870  | 845  | 850  | 947  | 1012 |  |  |  |  |  |  |  |  |
| 40      | 747     | 785  | 781  | 769  | 691  | 632  | 767  | 702  | 667  | 688  | 774  | 797  |  |  |  |  |  |  |  |  |
| 45      | 414     | 517  | 551  | 504  | 343  | 249  | 446  | 345  | 301  | 327  | 496  | 583  |  |  |  |  |  |  |  |  |
| 50      | 51.1    | 129  | 174  | 146  | 43.1 | 30.4 | 96.3 | 42.9 | 35.0 | 41.0 | 120  | 205  |  |  |  |  |  |  |  |  |
| 55      | 19.7    | 22.9 | 25.3 | 24.0 | 19.4 | 17.6 | 22.8 | 20.0 | 19.2 | 20.1 | 24.1 | 28.1 |  |  |  |  |  |  |  |  |
| 60      | 14.2    | 15.1 | 15.8 | 15.8 | 14.7 | 13.5 | 16.8 | 15.7 | 15.3 | 16.0 | 17.3 | 18.1 |  |  |  |  |  |  |  |  |
| 65      | 10.5    | 11.2 | 12.0 | 12.0 | 10.8 | 9.71 | 13.1 | 12.2 | 11.9 | 12.3 | 13.6 | 14.5 |  |  |  |  |  |  |  |  |
| 70      | 4.62    | 6.39 | 8.57 | 7.41 | 4.54 | 4.19 | 7.15 | 6.27 | 6.24 | 6.45 | 8.47 | 11.1 |  |  |  |  |  |  |  |  |
| 75      | 3.25    | 3.65 | 3.96 | 4.06 | 3.59 | 3.26 | 5.57 | 5.32 | 5.37 | 5.52 | 5.94 | 6.09 |  |  |  |  |  |  |  |  |
| 80      | 2.64    | 2.81 | 2.99 | 3.12 | 3.02 | 2.86 | 5.21 | 5.24 | 5.31 | 5.43 | 5.45 | 5.39 |  |  |  |  |  |  |  |  |
| 85      | 2.29    | 2.44 | 2.63 | 2.76 | 2.68 | 2.46 | 5.16 | 5.12 | 5.15 | 5.29 | 5.38 | 5.33 |  |  |  |  |  |  |  |  |
| 90      | 1.88    | 1.80 | 2.11 | 2.11 | 2.37 | 2.45 | 4.68 | 4.84 | 4.98 | 5.05 | 4.87 | 5.04 |  |  |  |  |  |  |  |  |
| 95      | 2.55    | 2.42 | 2.44 | 2.68 | 3.02 | 3.16 | 5.24 | 5.44 | 5.59 | 5.62 | 5.38 | 5.17 |  |  |  |  |  |  |  |  |
| 100     | 3.44    | 3.24 | 3.22 | 3.46 | 3.89 | 4.10 | 5.99 | 6.24 | 6.38 | 6.39 | 6.06 | 5.82 |  |  |  |  |  |  |  |  |
| 105     | 4.56    | 4.30 | 4.22 | 4.48 | 5.01 | 5.29 | 6.95 | 7.22 | 7.38 | 7.35 | 6.93 | 6.66 |  |  |  |  |  |  |  |  |
| 110     | 5.94    | 5.63 | 5.48 | 5.77 | 6.40 | 6.78 | 8.10 | 8.40 | 8.58 | 8.49 | 8.00 | 7.66 |  |  |  |  |  |  |  |  |
| 115     | 7.62    | 7.23 | 7.03 | 7.35 | 8.09 | 8.57 | 9.47 | 9.83 | 10.0 | 9.87 | 9.29 | 8.88 |  |  |  |  |  |  |  |  |
| 120     | 9.67    | 9.14 | 8.91 | 9.19 | 10.1 | 10.6 | 11.2 | 11.6 | 11.8 | 11.5 | 10.8 | 10.4 |  |  |  |  |  |  |  |  |
| 125     | 12.0    | 11.5 | 11.1 | 11.4 | 12.3 | 13.0 | 13.1 | 13.5 | 13.6 | 13.3 | 12.6 | 12.2 |  |  |  |  |  |  |  |  |
| 130     | 14.5    | 13.9 | 13.5 | 13.8 | 14.7 | 15.4 | 15.1 | 15.5 | 15.5 | 15.2 | 14.4 | 14.1 |  |  |  |  |  |  |  |  |
| 135     | 17.0    | 16.4 | 15.9 | 16.2 | 17.2 | 17.9 | 17.1 | 17.6 | 17.6 | 17.2 | 16.3 | 15.9 |  |  |  |  |  |  |  |  |
| 140     | 19.3    | 18.9 | 18.4 | 18.7 | 19.5 | 20.1 | 19.2 | 19.7 | 19.7 | 19.2 | 18.3 | 17.9 |  |  |  |  |  |  |  |  |
| 145     | 21.5    | 21.2 | 20.7 | 20.8 | 21.4 | 22.0 | 21.2 | 21.5 | 21.4 | 21.0 | 20.2 | 19.8 |  |  |  |  |  |  |  |  |
| 150     | 23.4    | 23.2 | 22.7 | 22.7 | 23.2 | 23.7 | 22.9 | 23.1 | 22.9 | 22.5 | 21.8 | 21.5 |  |  |  |  |  |  |  |  |
| 155     | 25.2    | 25.0 | 24.4 | 24.5 | 24.9 | 25.3 | 24.6 | 24.6 | 24.5 | 24.0 | 23.3 | 23.0 |  |  |  |  |  |  |  |  |
| 160     | 27.0    | 26.8 | 26.2 | 26.2 | 26.4 | 26.7 | 26.4 | 26.2 | 25.9 | 25.5 | 24.9 | 24.7 |  |  |  |  |  |  |  |  |
| 165     | 28.7    | 28.3 | 27.8 | 27.6 | 27.7 | 28.0 | 27.9 | 27.6 | 27.2 | 26.8 | 26.3 | 26.2 |  |  |  |  |  |  |  |  |
| 170     | 30.2    | 29.8 | 29.2 | 28.9 | 28.8 | 29.1 | 29.3 | 28.8 | 28.5 | 28.0 | 27.6 | 27.6 |  |  |  |  |  |  |  |  |
| 175     | 31.3    | 30.9 | 30.2 | 29.9 | 29.8 | 29.9 | 30.7 | 30.2 | 29.9 | 29.3 | 29.0 | 29.0 |  |  |  |  |  |  |  |  |
| 180     | 31.5    | 31.1 | 30.5 | 30.2 | 29.8 | 29.9 | 31.6 | 31.0 | 30.6 | 30.1 | 29.9 | 29.9 |  |  |  |  |  |  |  |  |

**C Range: 0 - 360DEG**  
**C Interval: 30.0DEG**  
**Test Speed: HIGH**  
**Temperature: 25.3DEG**  
**Operators: DAMIN**  
**Test Date: 2017-07-19**

**γ Range: 0 - 180DEG**  
**γ Interval: 1.0DEG**  
**Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.267**  
**Humidity: 65.0%**  
**Test Distance: 8.000m [K=0.7063]**  
**Remarks:**