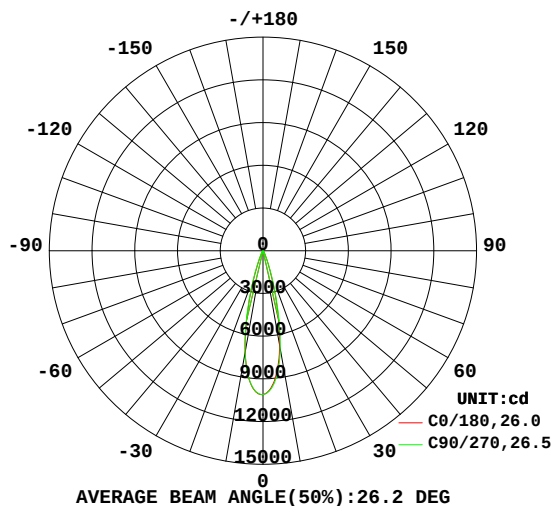


## LUMINAIRE PHOTOMETRIC TEST REPORT

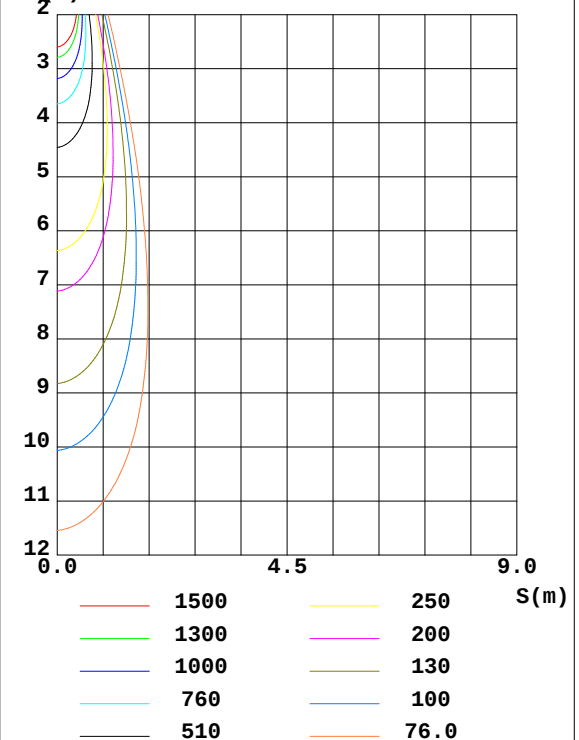
|                              |       |                  |
|------------------------------|-------|------------------|
| NAME: VM090                  | TYPE: | WEIGHT:1         |
| SPEC.:BR 3000K 28W 90CRI 24D | DIM.: | SERIAL No.:      |
| MFR.:                        | SUR.: | Shielding Angle: |

| DATA OF LAMP     |         | PHOTOMETRIC DATA Eff: 87.88 lm/W |        |                         |           |
|------------------|---------|----------------------------------|--------|-------------------------|-----------|
| MODEL            |         | Imax(cd)                         | 10110  | S/MH(C0/180)            | 0.43      |
| NOMINAL POWER(W) | 28      | LOR(%)                           | 85.7   | S/MH(C90/270)           | 0.44      |
| RATED VOLTAGE(V) | 230     | TOTAL FLUX(lm)                   | 2435.1 | $\eta$ UP, DN(C0-180)   | 1.0, 41.4 |
| NOMINAL FLUX(lm) | 2841.59 | CIE CLASS                        | DIRECT | $\eta$ UP, DN(C180-360) | 1.1, 42.2 |
| LAMPS INSIDE     | 1       | $\eta$ up(%)                     | 2.1    | CIBSE SHR NOM           | 0.00      |
| TEST VOLTAGE(V)  | 230     | $\eta$ down(%)                   | 83.6   | CIBSE SHR MAX           | 1.00      |

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: MEDIUM  
Temperature:28DEG  
Operators:LGL  
Test Date:2020-08-26

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE G0-2000B\_V1 SYSTEM V2.0.401  
Humidity:65.0%  
Test Distance:5.190m [K=1.0000]  
Remarks:

## ZONAL FLUX DIAGRAM

## ZONAL FLUX DIAGRAM:

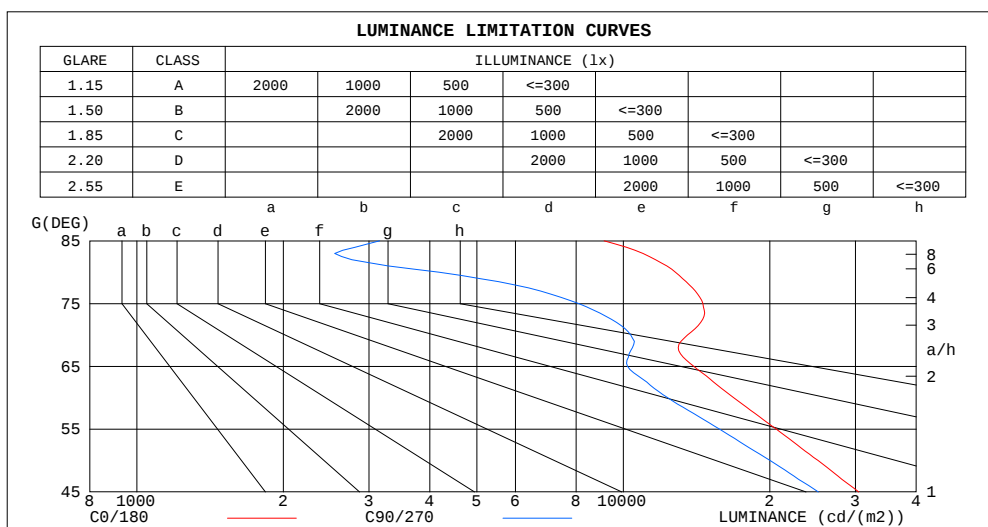
| $\gamma$ | C0                                       | C45    | C90    | C135   | C180   | C225   | C270   | C315   | $\gamma$ | $\Phi$ zone | $\Phi$ total | %lum, lamp |
|----------|------------------------------------------|--------|--------|--------|--------|--------|--------|--------|----------|-------------|--------------|------------|
| 10       | 677.2                                    | 680.0  | 698.5  | 716.8  | 721.7  | 730.0  | 726.6  | 701.7  | 0- 10    | 819.8       | 819.8        | 33.7, 28.9 |
| 20       | 137.3                                    | 139.1  | 147.1  | 146.8  | 150.8  | 162.6  | 165.2  | 151.6  | 10- 20   | 1046        | 1866         | 76.6, 65.7 |
| 30       | 26.65                                    | 25.79  | 24.82  | 23.24  | 23.18  | 25.88  | 27.20  | 26.64  | 20- 30   | 284.6       | 2150         | 88.3, 75.7 |
| 40       | 11.75                                    | 10.95  | 10.01  | 9.179  | 9.041  | 9.984  | 11.19  | 11.32  | 30- 40   | 99.29       | 2250         | 92.4, 79.2 |
| 50       | 6.553                                    | 5.952  | 5.237  | 4.608  | 4.514  | 5.110  | 5.873  | 6.147  | 40- 50   | 58.92       | 2309         | 94.8, 81.2 |
| 60       | 3.421                                    | 3.030  | 2.510  | 2.133  | 2.061  | 2.396  | 2.908  | 3.160  | 50- 60   | 35.32       | 2344         | 96.3, 82.5 |
| 70       | 1.882                                    | 1.741  | 1.442  | 1.162  | 1.034  | 1.232  | 1.600  | 1.793  | 60- 70   | 19.35       | 2363         | 97.1, 83.2 |
| 80       | 0.9015                                   | 0.6838 | 0.2953 | 0.1762 | 0.1246 | 0.1953 | 0.4046 | 0.7376 | 70- 80   | 10.26       | 2374         | 97.5, 83.5 |
| 90       | 0.0994                                   | 0.0879 | 0.0632 | 0.0639 | 0.0637 | 0.0592 | 0.0588 | 0.0801 | 80- 90   | 1.982       | 2376         | 97.6, 83.6 |
| 100      | 0.0740                                   | 0.0765 | 0.0835 | 0.0859 | 0.0919 | 0.0858 | 0.0813 | 0.0760 | 90-100   | 0.7822      | 2376         | 97.6, 83.6 |
| 110      | 0.1000                                   | 0.1054 | 0.1153 | 0.1193 | 0.1274 | 0.1190 | 0.1110 | 0.1030 | 100-110  | 1.012       | 2377         | 97.6, 83.7 |
| 120      | 0.1846                                   | 0.1979 | 0.2128 | 0.2136 | 0.2174 | 0.2078 | 0.1988 | 0.1886 | 110-120  | 1.445       | 2379         | 97.7, 83.7 |
| 130      | 0.6597                                   | 0.6879 | 0.7038 | 0.6751 | 0.6809 | 0.6699 | 0.6752 | 0.6777 | 120-130  | 3.410       | 2382         | 97.8, 83.8 |
| 140      | 1.849                                    | 1.875  | 1.876  | 1.833  | 1.841  | 1.818  | 1.829  | 1.853  | 130-140  | 9.287       | 2391         | 98.2, 84.2 |
| 150      | 3.144                                    | 3.146  | 3.141  | 3.114  | 3.147  | 3.115  | 3.118  | 3.136  | 140-150  | 15.65       | 2407         | 98.9, 84.7 |
| 160      | 3.643                                    | 3.570  | 3.540  | 3.565  | 3.674  | 3.649  | 3.632  | 3.627  | 150-160  | 15.99       | 2423         | 99.5, 85.3 |
| 170      | 2.857                                    | 2.780  | 2.753  | 2.794  | 2.955  | 2.947  | 2.939  | 2.904  | 160-170  | 9.556       | 2433         | 99.9, 85.6 |
| 180      | 2.139                                    | 2.233  | 2.187  | 2.224  | 2.142  | 2.235  | 2.191  | 2.228  | 170-180  | 2.425       | 2435         | 100, 85.7  |
| DEG      | LUMINOUS INTENSITY: $\times 10\text{cd}$ |        |        |        |        |        |        |        |          | UNIT: lm    |              |            |

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: MEDIUM  
 Temperature: 28DEG  
 Operators: LGL  
 Test Date: 2020-08-26

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.401  
 Humidity: 65.0%  
 Test Distance: 5.190m [K=1.0000]  
 Remarks:

## LUMINANCE LIMITATION CURVES

|                              |       |                  |
|------------------------------|-------|------------------|
| NAME: VM090                  | TYPE: | WEIGHT:1         |
| SPEC.:BR 3000K 28W 90CRI 24D | DIM.: | SERIAL No.:      |
| MFR.:                        | SUR.: | Shielding Angle: |



| LUMINANCE cd/(m2) |        |         |
|-------------------|--------|---------|
| G(DEG)            | C0/180 | C90/270 |
| 85                | 9130   | 3155    |
| 80                | 12793  | 4179    |
| 75                | 14577  | 8093    |
| 70                | 13556  | 10357   |
| 65                | 13956  | 10196   |
| 60                | 16861  | 12335   |
| 55                | 20622  | 15760   |
| 50                | 25121  | 20019   |
| 45                | 30472  | 25158   |

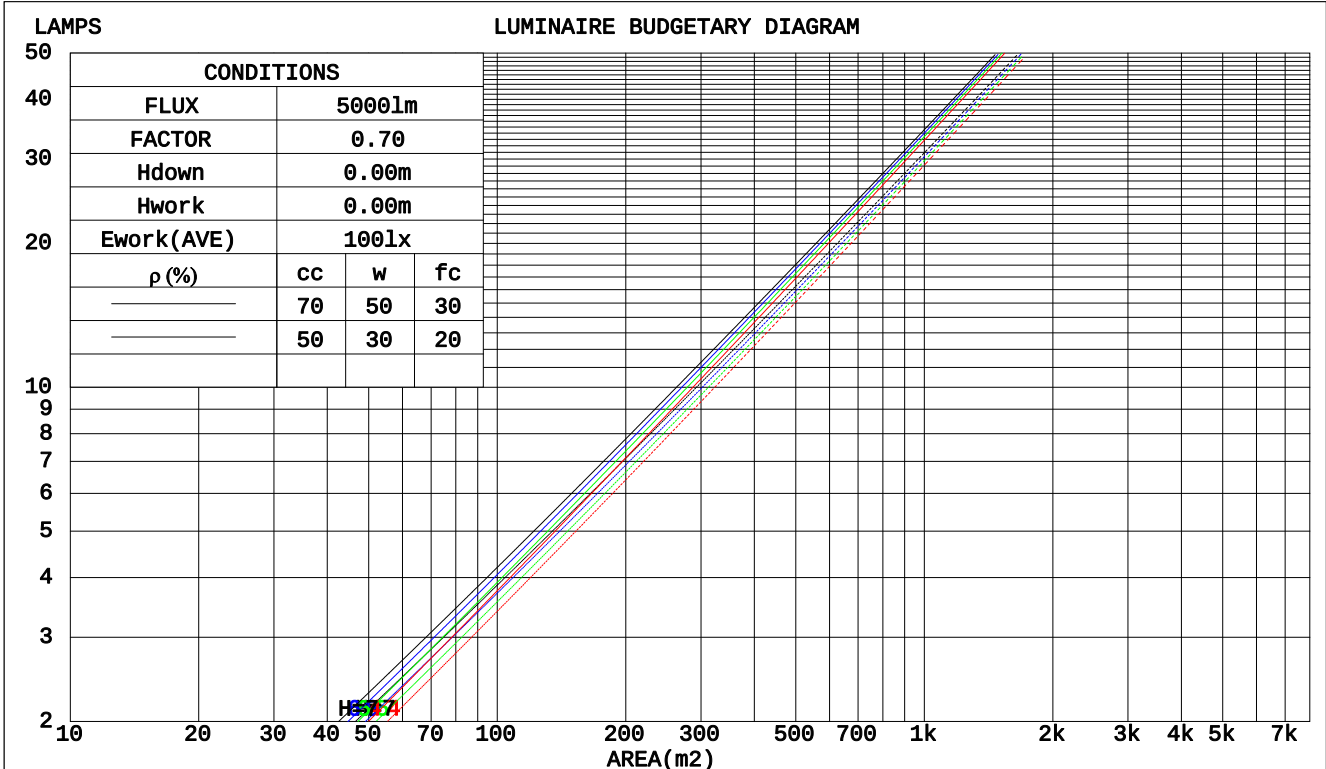
C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: MEDIUM  
 Temperature: 28DEG  
 Operators: LGL  
 Test Date: 2020-08-26

γ Range: 0 - 180DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.401  
 Humidity: 65.0%  
 Test Distance: 5.190m [K=1.0000]  
 Remarks:

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

|                              |       |                  |
|------------------------------|-------|------------------|
| NAME: VM090                  | TYPE: | WEIGHT:1         |
| SPEC.:BR 3000K 28W 90CRI 24D | DIM.: | SERIAL No.:      |
| MFR.:                        | SUR.: | Shielding Angle: |

| $\rho_{CC}$ | 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         | Coefficients of Utilization(CU) |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |
|             | RCR:Room Cavity Ratio           |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 0.0         | 1.02                            | 1.02 | 1.02 | .99 | .99 | .99 | .94 | .94 | .94 | .90 | .90 | .90 | .86 | .86 | .86 | .84 |
| 1.0         | .96                             | .94  | .92  | .94 | .92 | .91 | .90 | .89 | .88 | .86 | .85 | .85 | .83 | .82 | .82 | .80 |
| 2.0         | .91                             | .88  | .86  | .89 | .87 | .85 | .86 | .84 | .82 | .83 | .82 | .80 | .81 | .79 | .78 | .77 |
| 3.0         | .86                             | .83  | .80  | .85 | .82 | .80 | .83 | .80 | .78 | .80 | .78 | .77 | .78 | .77 | .75 | .74 |
| 4.0         | .83                             | .79  | .76  | .82 | .78 | .76 | .80 | .77 | .75 | .78 | .75 | .74 | .76 | .74 | .73 | .71 |
| 5.0         | .79                             | .76  | .73  | .79 | .75 | .72 | .77 | .74 | .72 | .75 | .73 | .71 | .74 | .72 | .70 | .69 |
| 6.0         | .76                             | .73  | .70  | .76 | .72 | .70 | .74 | .71 | .69 | .73 | .70 | .68 | .72 | .70 | .68 | .67 |
| 7.0         | .74                             | .70  | .67  | .73 | .70 | .67 | .72 | .69 | .67 | .71 | .68 | .66 | .70 | .68 | .66 | .65 |
| 8.0         | .71                             | .68  | .65  | .71 | .67 | .65 | .70 | .67 | .65 | .69 | .66 | .64 | .68 | .66 | .64 | .63 |
| 9.0         | .69                             | .66  | .63  | .69 | .65 | .63 | .68 | .65 | .63 | .67 | .64 | .62 | .66 | .64 | .62 | .61 |
| 10.0        | .67                             | .64  | .61  | .67 | .63 | .61 | .66 | .63 | .61 | .65 | .63 | .61 | .65 | .62 | .60 | .60 |



C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: MEDIUM  
 Temperature: 28DEG  
 Operators: LGL  
 Test Date: 2020-08-26

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.401  
 Humidity: 65.0%  
 Test Distance: 5.190m [K=1.0000]  
 Remarks:

## WEC AND CCEC

|                              |       |                  |
|------------------------------|-------|------------------|
| NAME: VM090                  | TYPE: | WEIGHT:1         |
| SPEC.:BR 3000K 28W 90CRI 24D | DIM.: | SERIAL No.:      |
| MFR.:                        | SUR.: | Shielding Angle: |

| $\rho_{cc}$ | 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         | .127                  | .072 | .023 | .121 | .069 | .022 | .109                            | .062 | .020 | .098 | .057 | .018 | .088 | .051 | .016 |   |  |
| 2.0         | .118                  | .065 | .020 | .113 | .062 | .019 | .103                            | .057 | .018 | .094 | .053 | .016 | .085 | .048 | .015 |   |  |
| 3.0         | .110                  | .058 | .018 | .105 | .056 | .017 | .097                            | .053 | .016 | .089 | .049 | .015 | .082 | .045 | .014 |   |  |
| 4.0         | .103                  | .053 | .016 | .099 | .052 | .015 | .092                            | .049 | .015 | .085 | .046 | .014 | .079 | .043 | .013 |   |  |
| 5.0         | .096                  | .049 | .014 | .093 | .048 | .014 | .087                            | .045 | .013 | .081 | .043 | .013 | .076 | .040 | .012 |   |  |
| 6.0         | .091                  | .046 | .013 | .088 | .044 | .013 | .083                            | .042 | .012 | .077 | .040 | .012 | .073 | .038 | .011 |   |  |
| 7.0         | .086                  | .043 | .012 | .084 | .042 | .012 | .079                            | .040 | .011 | .074 | .038 | .011 | .070 | .036 | .011 |   |  |
| 8.0         | .082                  | .040 | .011 | .079 | .039 | .011 | .075                            | .038 | .011 | .071 | .036 | .010 | .067 | .035 | .010 |   |  |
| 9.0         | .078                  | .038 | .011 | .076 | .037 | .010 | .072                            | .036 | .010 | .068 | .034 | .010 | .065 | .033 | .010 |   |  |
| 10.0        | .074                  | .036 | .010 | .073 | .035 | .010 | .069                            | .034 | .010 | .066 | .033 | .009 | .063 | .032 | .009 |   |  |

| $\rho_{cc}$ | 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         | .179                  | .179 | .179 | .153 | .153 | .153 | .105                                       | .105 | .105 | .060 | .060 | .060 | .019 | .019 | .019 |   |
| 1.0         | .161                  | .151 | .142 | .138 | .130 | .122 | .094                                       | .089 | .085 | .054 | .052 | .049 | .017 | .017 | .016 |   |
| 2.0         | .146                  | .130 | .116 | .125 | .112 | .100 | .086                                       | .077 | .070 | .049 | .045 | .041 | .016 | .015 | .013 |   |
| 3.0         | .134                  | .113 | .097 | .115 | .098 | .084 | .079                                       | .068 | .059 | .045 | .040 | .035 | .015 | .013 | .011 |   |
| 4.0         | .123                  | .100 | .083 | .106 | .087 | .072 | .073                                       | .060 | .051 | .042 | .035 | .030 | .014 | .012 | .010 |   |
| 5.0         | .115                  | .090 | .072 | .098 | .078 | .063 | .068                                       | .054 | .044 | .039 | .032 | .026 | .013 | .010 | .009 |   |
| 6.0         | .107                  | .082 | .063 | .092 | .071 | .055 | .064                                       | .049 | .039 | .037 | .029 | .023 | .012 | .010 | .008 |   |
| 7.0         | .101                  | .075 | .056 | .087 | .065 | .049 | .060                                       | .045 | .035 | .035 | .027 | .021 | .011 | .009 | .007 |   |
| 8.0         | .095                  | .069 | .051 | .082 | .060 | .044 | .057                                       | .042 | .032 | .033 | .025 | .019 | .011 | .008 | .006 |   |
| 9.0         | .090                  | .064 | .047 | .078 | .056 | .041 | .054                                       | .039 | .029 | .031 | .023 | .017 | .010 | .008 | .006 |   |
| 10.0        | .086                  | .060 | .043 | .074 | .052 | .037 | .051                                       | .037 | .027 | .030 | .022 | .016 | .010 | .007 | .005 |   |

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: MEDIUM  
 Temperature: 28DEG  
 Operators: LGL  
 Test Date: 2020-08-26

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.401  
 Humidity: 65.0%  
 Test Distance: 5.190m [K=1.0000]  
 Remarks:

## UGR(Unified Glare Rating) Table

|                                                    |     |                  |      |      |      |       |                |      |                  |      |      |
|----------------------------------------------------|-----|------------------|------|------|------|-------|----------------|------|------------------|------|------|
| NAME: VM090                                        |     |                  |      |      |      | TYPE: |                |      | WEIGHT:1         |      |      |
| SPEC.:BR 3000K 28W 90CRI 24D                       |     |                  |      |      |      | DIM.: |                |      | SERIAL No.:      |      |      |
| MFR.:                                              |     |                  |      |      |      | SUR.: |                |      | Shielding Angle: |      |      |
| ceiling/cavity                                     | 0.7 | 0.7              | 0.5  | 0.5  | 0.3  | 0.7   | 0.7            | 0.5  | 0.5              | 0.3  |      |
| walls                                              | 0.5 | 0.3              | 0.5  | 0.3  | 0.3  | 0.5   | 0.3            | 0.5  | 0.3              | 0.3  |      |
| working plane                                      | 0.2 | 0.2              | 0.2  | 0.2  | 0.2  | 0.2   | 0.2            | 0.2  | 0.2              | 0.2  |      |
| Room dimensions                                    |     | Viewed crosswise |      |      |      |       | Viewed endwise |      |                  |      |      |
| x = 2H y = 2H                                      |     | 12.7             | 13.4 | 13.0 | 13.6 | 13.8  | 11.9           | 12.6 | 12.1             | 12.7 | 12.9 |
| 3H                                                 |     | 13.4             | 14.1 | 13.7 | 14.3 | 14.5  | 12.4           | 13.1 | 12.7             | 13.3 | 13.5 |
| 4H                                                 |     | 13.9             | 14.5 | 14.2 | 14.8 | 15.0  | 12.7           | 13.3 | 13.0             | 13.5 | 13.8 |
| 6H                                                 |     | 14.3             | 14.8 | 14.6 | 15.1 | 15.4  | 12.8           | 13.3 | 13.1             | 13.6 | 13.9 |
| 8H                                                 |     | 14.4             | 14.9 | 14.7 | 15.2 | 15.5  | 12.7           | 13.3 | 13.1             | 13.6 | 13.9 |
| 12H                                                |     | 14.4             | 14.9 | 14.7 | 15.2 | 15.6  | 12.7           | 13.2 | 13.0             | 13.5 | 13.8 |
| 4H 2H                                              |     | 12.9             | 13.5 | 13.2 | 13.8 | 14.0  | 12.2           | 12.8 | 12.5             | 13.0 | 13.3 |
| 3H                                                 |     | 13.8             | 14.4 | 14.2 | 14.7 | 15.0  | 13.0           | 13.5 | 13.3             | 13.8 | 14.1 |
| 4H                                                 |     | 14.5             | 14.9 | 14.8 | 15.3 | 15.6  | 13.3           | 13.8 | 13.7             | 14.1 | 14.5 |
| 6H                                                 |     | 14.9             | 15.4 | 15.3 | 15.7 | 16.1  | 13.4           | 13.9 | 13.9             | 14.2 | 14.6 |
| 8H                                                 |     | 15.1             | 15.5 | 15.5 | 15.9 | 16.3  | 13.4           | 13.8 | 13.8             | 14.2 | 14.6 |
| 12H                                                |     | 15.1             | 15.5 | 15.6 | 15.9 | 16.3  | 13.4           | 13.7 | 13.8             | 14.2 | 14.6 |
| 8H 4H                                              |     | 14.6             | 15.0 | 15.0 | 15.4 | 15.8  | 13.5           | 13.9 | 13.9             | 14.3 | 14.7 |
| 6H                                                 |     | 15.1             | 15.5 | 15.6 | 15.9 | 16.4  | 13.7           | 14.0 | 14.2             | 14.5 | 14.9 |
| 8H                                                 |     | 15.3             | 15.6 | 15.8 | 16.1 | 16.6  | 13.7           | 14.0 | 14.2             | 14.5 | 14.9 |
| 12H                                                |     | 15.4             | 15.7 | 15.9 | 16.2 | 16.7  | 13.7           | 13.9 | 14.2             | 14.4 | 14.9 |
| 12H 4H                                             |     | 14.5             | 14.9 | 15.0 | 15.3 | 15.7  | 13.5           | 13.9 | 14.0             | 14.3 | 14.7 |
| 6H                                                 |     | 15.1             | 15.4 | 15.6 | 15.9 | 16.4  | 13.7           | 14.0 | 14.2             | 14.5 | 15.0 |
| 8H                                                 |     | 15.3             | 15.6 | 15.8 | 16.1 | 16.6  | 13.7           | 14.0 | 14.2             | 14.5 | 15.0 |
| Variations with the observer position at spacings: |     |                  |      |      |      |       |                |      |                  |      |      |
| S = 1.0H                                           |     | + 0.5 / - 0.6    |      |      |      |       | + 0.7 / - 0.9  |      |                  |      |      |
| 1.5H                                               |     | + 0.5 / - 0.4    |      |      |      |       | + 0.6 / - 0.7  |      |                  |      |      |
| 2.0H                                               |     | + 1.0 / - 0.8    |      |      |      |       | + 1.3 / - 1.3  |      |                  |      |      |

CIE Pub.117, 2842 lm Total Lamp Luminous Flux Correct ( $8\log(F/F_0) = 3.6$ )

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: MEDIUM  
 Temperature: 28DEG  
 Operators: LGL  
 Test Date: 2020-08-26

γ Range: 0 - 180DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.401  
 Humidity: 65.0%  
 Test Distance: 5.190m [K=1.0000]  
 Remarks:

## UTILIZATION FACTORS TABLE

|                              |       |                  |
|------------------------------|-------|------------------|
| NAME: VM090                  | TYPE: | WEIGHT:1         |
| SPEC.:BR 3000K 28W 90CRI 24D | DIM.: | SERIAL No.:      |
| MFR.:                        | SUR.: | Shielding Angle: |

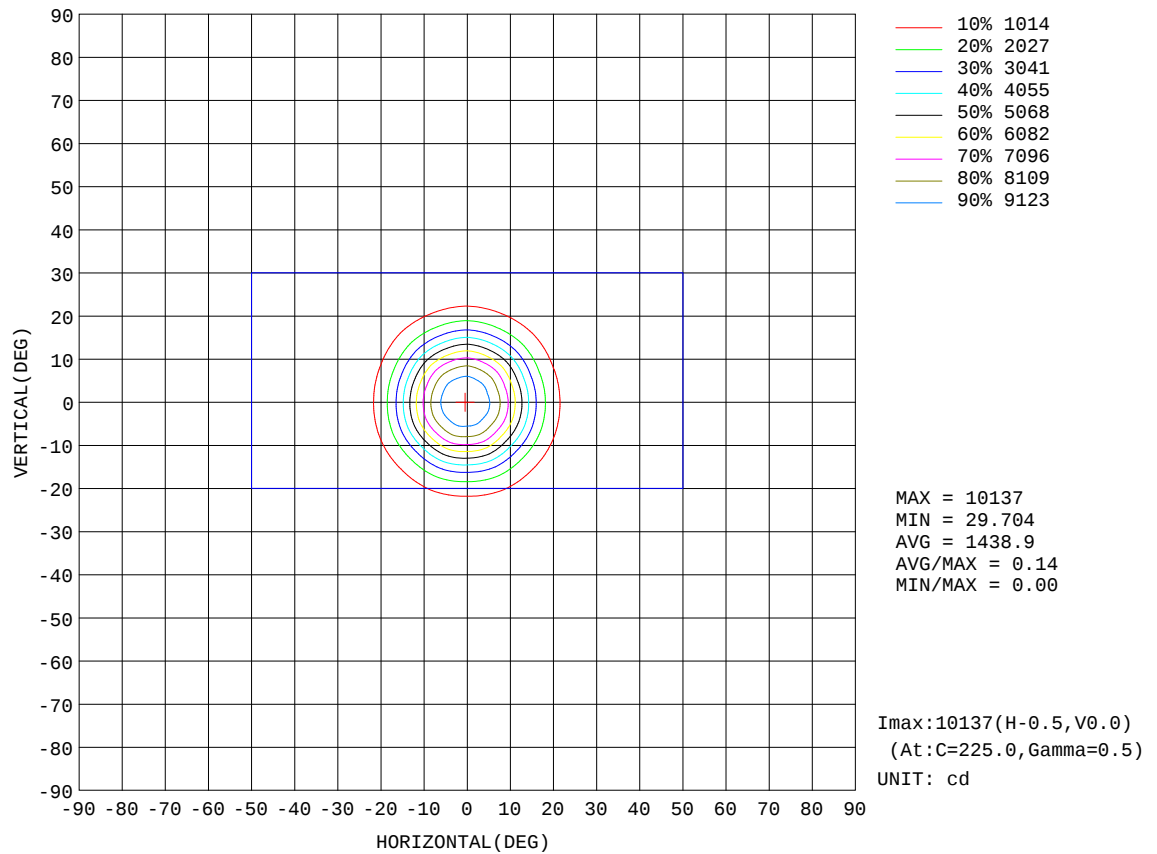
| REFLECTANCE                      |                                                     |     |           |     |     |     |     |               |     |        |
|----------------------------------|-----------------------------------------------------|-----|-----------|-----|-----|-----|-----|---------------|-----|--------|
| 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) $k(RI) \times RCR = 5$ |     |           |     |     |     |     |               |     |        |
| $k = 0.60$                       | 74                                                  | 69  | 66        | 74  | 69  | 66  | 73  | 68            | 66  | 62     |
| 0.80                             | 81                                                  | 76  | 73        | 80  | 75  | 72  | 79  | 75            | 72  | 69     |
| 1.00                             | 84                                                  | 80  | 76        | 84  | 79  | 76  | 82  | 79            | 76  | 72     |
| 1.25                             | 88                                                  | 83  | 80        | 87  | 83  | 80  | 85  | 81            | 79  | 75     |
| 1.50                             | 90                                                  | 86  | 83        | 89  | 85  | 83  | 87  | 84            | 81  | 77     |
| 2.00                             | 92                                                  | 89  | 86        | 91  | 88  | 85  | 88  | 86            | 84  | 79     |
| 2.50                             | 94                                                  | 90  | 88        | 92  | 89  | 87  | 89  | 87            | 85  | 79     |
| 3.00                             | 95                                                  | 92  | 90        | 93  | 91  | 89  | 90  | 88            | 87  | 80     |
| 4.00                             | 97                                                  | 94  | 93        | 95  | 93  | 91  | 91  | 90            | 89  | 82     |
| 5.00                             | 98                                                  | 96  | 94        | 96  | 94  | 93  | 92  | 91            | 90  | 83     |
| ROOM INDEX                       | UF(total)                                           |     |           |     |     |     |     |               |     | Direct |
| According to DIN EN 13032-2 2004 |                                                     |     | Suspended |     |     |     |     | SHRNOM = 1.25 |     |        |

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: MEDIUM  
 Temperature:28DEG  
 Operators:LGL  
 Test Date:2020-08-26

γ Range: 0 - 180DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE G0-2000B\_V1 SYSTEM V2.0.401  
 Humidity:65.0%  
 Test Distance:5.190m [K=1.0000]  
 Remarks:

## ISOCANDELA DIAGRAM

|                              |       |                  |
|------------------------------|-------|------------------|
| NAME: VM090                  | TYPE: | WEIGHT:1         |
| SPEC.:BR 3000K 28W 90CRI 24D | DIM.: | SERIAL No.:      |
| MFR.:                        | SUR.: | Shielding Angle: |

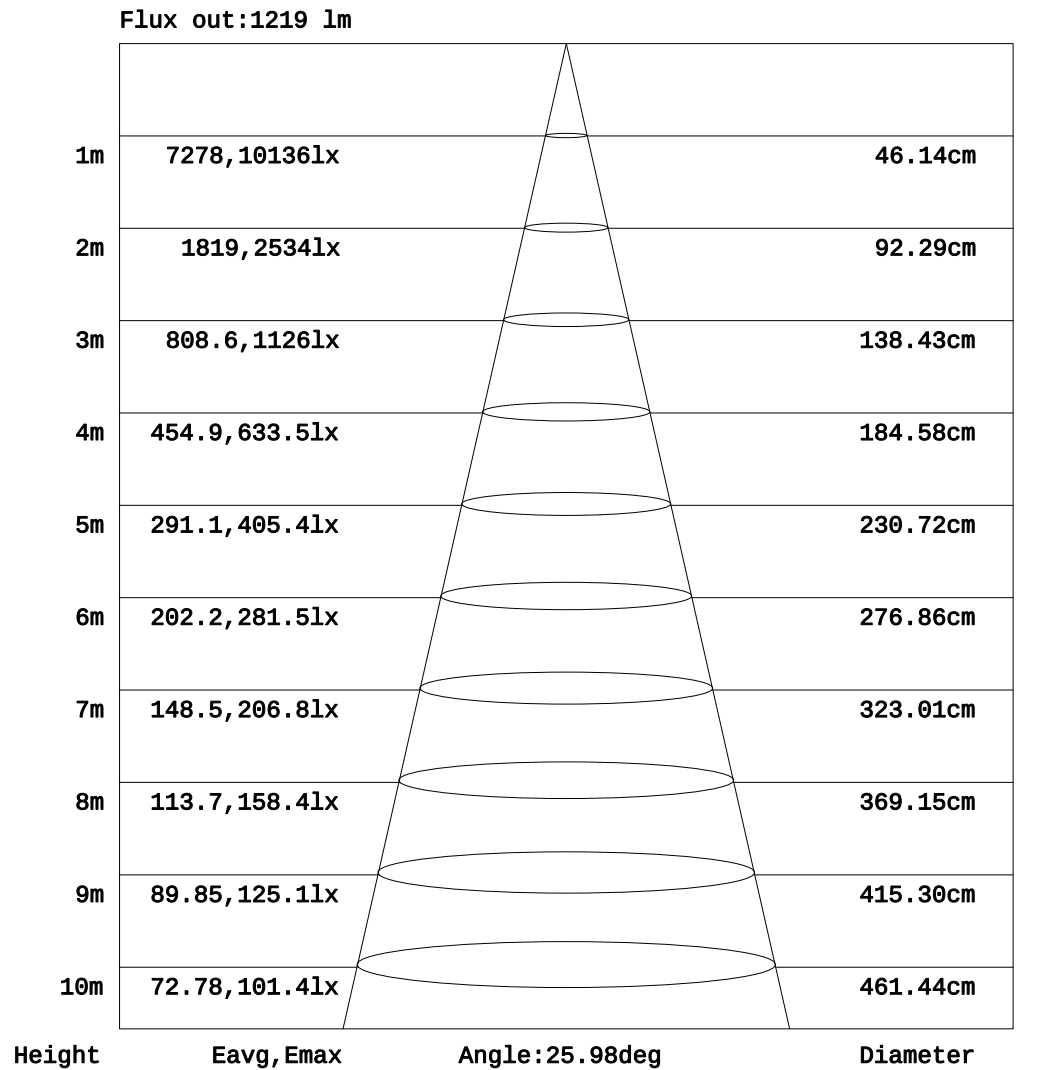


C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: MEDIUM  
 Temperature:28DEG  
 Operators:LGL  
 Test Date:2020-08-26

γ Range: 0 - 180DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE G0-2000B\_V1 SYSTEM V2.0.401  
 Humidity:65.0%  
 Test Distance:5.190m [K=1.0000]  
 Remarks:

## AAI Figure

|                              |       |                  |
|------------------------------|-------|------------------|
| NAME: VM090                  | TYPE: | WEIGHT:1         |
| SPEC.:BR 3000K 28W 90CRI 24D | DIM.: | SERIAL No.:      |
| MFR.:                        | SUR.: | Shielding Angle: |



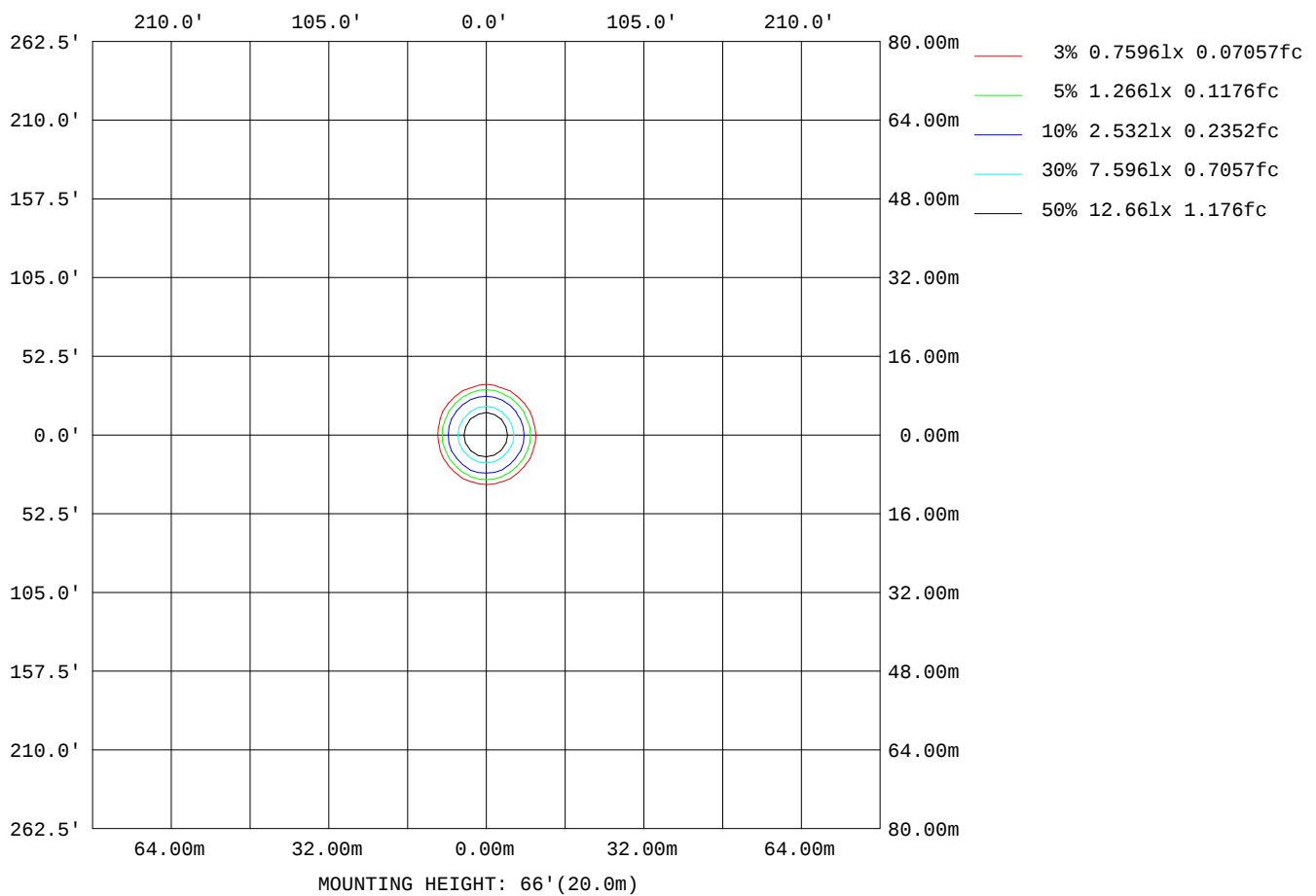
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: MEDIUM  
 Temperature: 28DEG  
 Operators: LGL  
 Test Date: 2020-08-26

γ Range: 0 - 180DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.401  
 Humidity: 65.0%  
 Test Distance: 5.190m [K=1.0000]  
 Remarks:

## ISOLUX DIAGRAM

|                              |       |                  |
|------------------------------|-------|------------------|
| NAME: VM090                  | TYPE: | WEIGHT:1         |
| SPEC.:BR 3000K 28W 90CRI 24D | DIM.: | SERIAL No.:      |
| MFR.:                        | SUR.: | Shielding Angle: |



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: MEDIUM  
Temperature: 28DEG  
Operators: LGL  
Test Date: 2020-08-26

γ Range: 0 - 180DEG  
γ Interval: 0.5DEG  
Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.401  
Humidity: 65.0%  
Test Distance: 5.190m [K=1.0000]  
Remarks:

## LED Avg.L Report

|                              |       |                  |
|------------------------------|-------|------------------|
| NAME: VM090                  | TYPE: | WEIGHT:1         |
| SPEC.:BR 3000K 28W 90CRI 24D | DIM.: | SERIAL No.:      |
| MFR.:                        | SUR.: | Shielding Angle: |

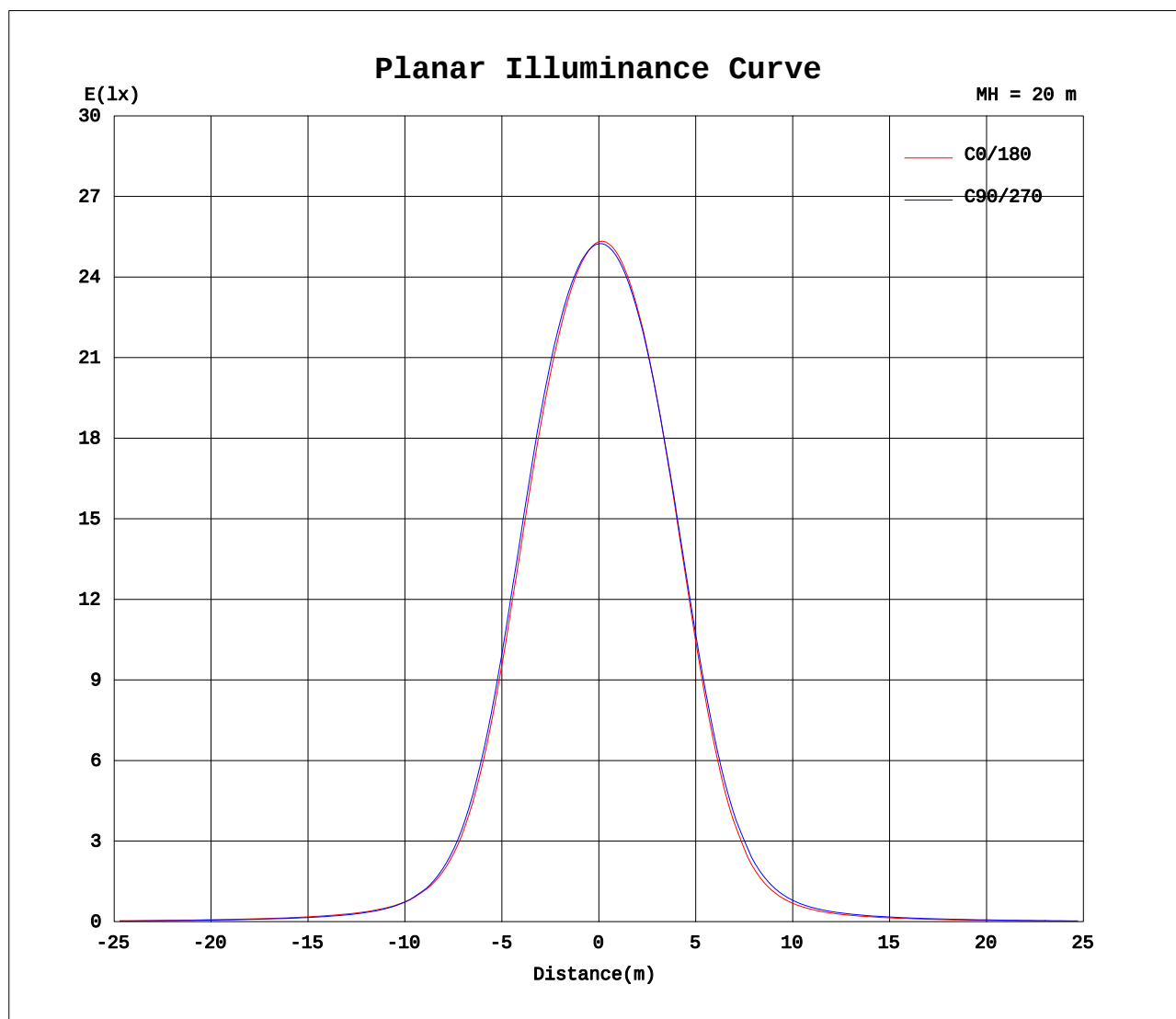
| AvgL           | cd/m2 |
|----------------|-------|
| L_0~180(65)av  | 11286 |
| L_0~180(75)av  | 9685  |
| L_0~180(85)av  | 5619  |
| L_90~270(65)av | 10751 |
| L_90~270(75)av | 8856  |
| L_90~270(85)av | 2963  |
| L_45(65)av     | 10859 |
| L_45(75)av     | 9347  |
| L_45(85)av     | 3945  |

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: MEDIUM  
Temperature:28DEG  
Operators:LGL  
Test Date:2020-08-26

γ Range: 0 - 180DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE G0-2000B\_V1 SYSTEM V2.0.401  
Humidity:65.0%  
Test Distance:5.190m [K=1.0000]  
Remarks:

## Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: MEDIUM  
Temperature: 28DEG  
Operators: LGL  
Test Date: 2020-08-26

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE G0-2000B\_V1 SYSTEM V2.0.401  
Humidity: 65.0%  
Test Distance: 5.190m [K=1.0000]  
Remarks:



## LUMINOUS DISTRIBUTION INTENSITY DATA

|                              |       |                  |
|------------------------------|-------|------------------|
| NAME: VM090                  | TYPE: | WEIGHT:1         |
| SPEC.:BR 3000K 28W 90CRI 24D | DIM.: | SERIAL No.:      |
| MFR.:                        | SUR.: | Shielding Angle: |

Table--1

UNIT: ×10cd

| C (DEG)<br>γ (DEG) | 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                  | 1010 | 1010 | 1010 | 1010 | 1010 | 1010  | 1010 | 1010  | 1010 | 1010  | 1010 | 1010  | 1010 | 1010  | 1010 | 1010  |  |  |  |
| 5                  | 918  | 921  | 919  | 930  | 930  | 942   | 942  | 950   | 947  | 944   | 949  | 943   | 944  | 933   | 930  | 918   |  |  |  |
| 10                 | 677  | 683  | 680  | 700  | 699  | 719   | 717  | 731   | 722  | 717   | 730  | 720   | 727  | 707   | 702  | 678   |  |  |  |
| 15                 | 359  | 364  | 361  | 380  | 377  | 395   | 390  | 403   | 394  | 392   | 408  | 399   | 408  | 387   | 383  | 358   |  |  |  |
| 20                 | 137  | 143  | 139  | 152  | 147  | 158   | 147  | 155   | 151  | 148   | 163  | 157   | 165  | 152   | 152  | 137   |  |  |  |
| 25                 | 53.7 | 53.5 | 54.1 | 55.5 | 55.1 | 55.0  | 52.0 | 51.5  | 51.0 | 53.3  | 57.0 | 58.2  | 59.1 | 57.0  | 55.3 | 53.2  |  |  |  |
| 30                 | 26.7 | 26.5 | 25.8 | 26.2 | 24.8 | 24.9  | 23.2 | 23.1  | 23.2 | 23.9  | 25.9 | 26.5  | 27.2 | 26.2  | 26.6 | 26.2  |  |  |  |
| 35                 | 16.7 | 16.4 | 15.8 | 15.6 | 14.7 | 14.6  | 13.7 | 13.5  | 13.6 | 14.0  | 15.0 | 15.6  | 16.3 | 15.9  | 16.3 | 16.4  |  |  |  |
| 40                 | 11.7 | 11.5 | 10.9 | 10.6 | 10.0 | 9.90  | 9.18 | 8.92  | 9.04 | 9.37  | 9.98 | 10.5  | 11.2 | 10.9  | 11.3 | 11.5  |  |  |  |
| 45                 | 8.74 | 8.50 | 8.03 | 7.69 | 7.24 | 7.09  | 6.54 | 6.30  | 6.43 | 6.69  | 7.14 | 7.55  | 8.06 | 7.90  | 8.29 | 8.56  |  |  |  |
| 50                 | 6.55 | 6.35 | 5.95 | 5.65 | 5.24 | 5.07  | 4.61 | 4.41  | 4.51 | 4.71  | 5.11 | 5.46  | 5.87 | 5.77  | 6.15 | 6.38  |  |  |  |
| 55                 | 4.80 | 4.65 | 4.31 | 4.03 | 3.68 | 3.54  | 3.18 | 3.02  | 3.10 | 3.26  | 3.57 | 3.85  | 4.18 | 4.12  | 4.47 | 4.66  |  |  |  |
| 60                 | 3.42 | 3.30 | 3.03 | 2.80 | 2.51 | 2.40  | 2.13 | 2.01  | 2.06 | 2.16  | 2.40 | 2.64  | 2.91 | 2.87  | 3.16 | 3.33  |  |  |  |
| 65                 | 2.39 | 2.31 | 2.12 | 1.96 | 1.75 | 1.71  | 1.56 | 1.48  | 1.49 | 1.52  | 1.61 | 1.73  | 1.94 | 1.94  | 2.18 | 2.32  |  |  |  |
| 70                 | 1.88 | 1.83 | 1.74 | 1.63 | 1.44 | 1.38  | 1.16 | 1.04  | 1.03 | 1.08  | 1.23 | 1.40  | 1.60 | 1.64  | 1.79 | 1.88  |  |  |  |
| 75                 | 1.53 | 1.46 | 1.29 | 1.09 | 0.85 | 0.80  | 0.62 | 0.52  | 0.51 | 0.54  | 0.68 | 0.79  | 1.01 | 1.09  | 1.35 | 1.51  |  |  |  |
| 80                 | 0.90 | 0.84 | 0.68 | 0.48 | 0.30 | 0.30  | 0.18 | 0.13  | 0.12 | 0.13  | 0.20 | 0.27  | 0.40 | 0.49  | 0.74 | 0.88  |  |  |  |
| 85                 | 0.32 | 0.28 | 0.18 | 0.12 | 0.11 | 0.11  | 0.10 | 0.08  | 0.08 | 0.08  | 0.08 | 0.09  | 0.10 | 0.10  | 0.20 | 0.30  |  |  |  |
| 90                 | 0.10 | 0.10 | 0.09 | 0.07 | 0.06 | 0.06  | 0.06 | 0.07  | 0.06 | 0.06  | 0.06 | 0.06  | 0.06 | 0.06  | 0.08 | 0.09  |  |  |  |
| 95                 | 0.06 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07  | 0.07 | 0.08  | 0.08 | 0.07  | 0.07 | 0.07  | 0.07 | 0.06  | 0.06 | 0.06  |  |  |  |
| 100                | 0.07 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08  | 0.09 | 0.09  | 0.09 | 0.09  | 0.09 | 0.08  | 0.08 | 0.08  | 0.08 | 0.07  |  |  |  |
| 105                | 0.09 | 0.09 | 0.09 | 0.09 | 0.10 | 0.10  | 0.10 | 0.11  | 0.11 | 0.10  | 0.10 | 0.10  | 0.10 | 0.09  | 0.09 | 0.08  |  |  |  |
| 110                | 0.10 | 0.10 | 0.11 | 0.11 | 0.12 | 0.12  | 0.12 | 0.12  | 0.13 | 0.12  | 0.12 | 0.11  | 0.11 | 0.11  | 0.10 | 0.10  |  |  |  |
| 115                | 0.13 | 0.13 | 0.13 | 0.14 | 0.15 | 0.14  | 0.15 | 0.15  | 0.16 | 0.15  | 0.15 | 0.14  | 0.14 | 0.14  | 0.13 | 0.13  |  |  |  |
| 120                | 0.18 | 0.19 | 0.20 | 0.20 | 0.21 | 0.20  | 0.21 | 0.21  | 0.22 | 0.22  | 0.21 | 0.21  | 0.20 | 0.20  | 0.19 | 0.19  |  |  |  |
| 125                | 0.33 | 0.34 | 0.36 | 0.36 | 0.37 | 0.36  | 0.36 | 0.35  | 0.37 | 0.37  | 0.36 | 0.36  | 0.35 | 0.36  | 0.35 | 0.35  |  |  |  |
| 130                | 0.66 | 0.66 | 0.69 | 0.68 | 0.70 | 0.67  | 0.68 | 0.65  | 0.68 | 0.68  | 0.67 | 0.68  | 0.68 | 0.70  | 0.68 | 0.69  |  |  |  |
| 135                | 1.18 | 1.19 | 1.21 | 1.20 | 1.22 | 1.19  | 1.18 | 1.15  | 1.19 | 1.19  | 1.17 | 1.19  | 1.18 | 1.22  | 1.20 | 1.22  |  |  |  |
| 140                | 1.85 | 1.85 | 1.87 | 1.86 | 1.88 | 1.84  | 1.83 | 1.80  | 1.84 | 1.84  | 1.82 | 1.84  | 1.83 | 1.86  | 1.85 | 1.90  |  |  |  |
| 145                | 2.54 | 2.54 | 2.56 | 2.54 | 2.56 | 2.52  | 2.52 | 2.49  | 2.54 | 2.53  | 2.51 | 2.52  | 2.51 | 2.54  | 2.54 | 2.59  |  |  |  |
| 150                | 3.14 | 3.14 | 3.15 | 3.13 | 3.14 | 3.11  | 3.11 | 3.10  | 3.15 | 3.14  | 3.12 | 3.13  | 3.12 | 3.14  | 3.14 | 3.17  |  |  |  |
| 155                | 3.54 | 3.52 | 3.51 | 3.49 | 3.50 | 3.48  | 3.49 | 3.51  | 3.56 | 3.54  | 3.52 | 3.52  | 3.52 | 3.52  | 3.53 | 3.55  |  |  |  |
| 160                | 3.64 | 3.62 | 3.57 | 3.55 | 3.54 | 3.53  | 3.57 | 3.61  | 3.67 | 3.67  | 3.65 | 3.62  | 3.63 | 3.62  | 3.63 | 3.66  |  |  |  |
| 165                | 3.40 | 3.37 | 3.31 | 3.29 | 3.25 | 3.25  | 3.32 | 3.40  | 3.47 | 3.48  | 3.45 | 3.39  | 3.41 | 3.40  | 3.40 | 3.42  |  |  |  |
| 170                | 2.86 | 2.81 | 2.78 | 2.81 | 2.75 | 2.78  | 2.79 | 2.89  | 2.95 | 2.97  | 2.95 | 2.93  | 2.94 | 2.94  | 2.90 | 2.88  |  |  |  |
| 175                | 2.29 | 2.29 | 2.34 | 2.32 | 2.28 | 2.30  | 2.36 | 2.37  | 2.36 | 2.43  | 2.48 | 2.43  | 2.44 | 2.45  | 2.45 | 2.37  |  |  |  |
| 180                | 2.14 | 2.15 | 2.23 | 2.19 | 2.19 | 2.19  | 2.22 | 2.17  | 2.14 | 2.15  | 2.24 | 2.19  | 2.19 | 2.19  | 2.23 | 2.17  |  |  |  |

C Range: 0 - 360DEG  
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