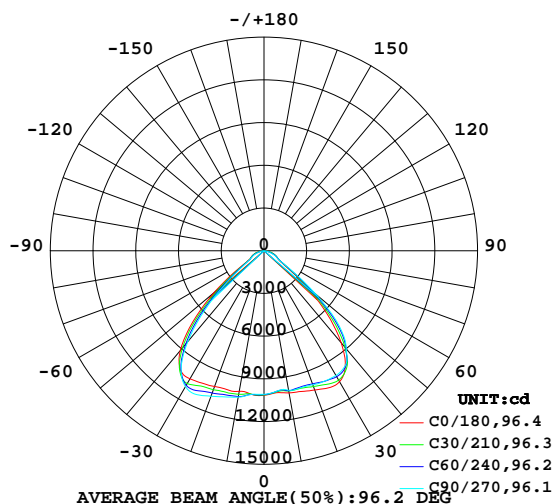


LUMINAIRE PHOTOMETRIC TEST REPORT

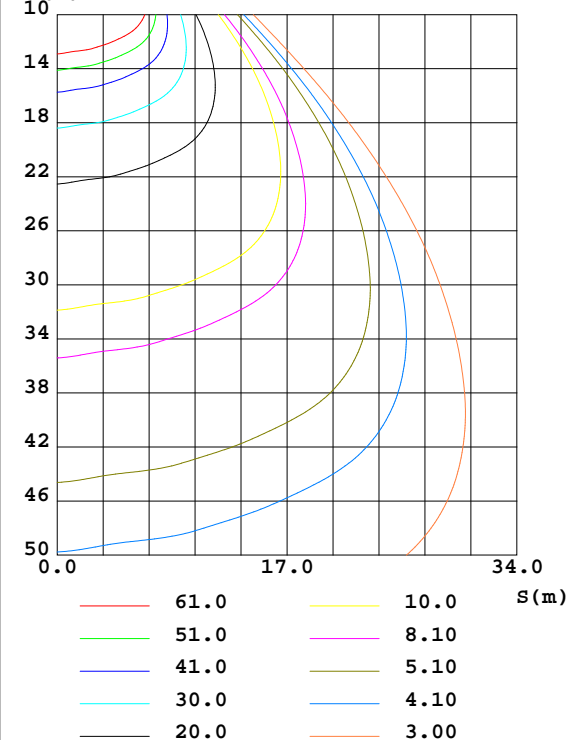
| | | |
|-----------------|----------------|------------------|
| NAME: LED light | TYPE: | WEIGHT: |
| SPEC.: | DIM.: | SERIAL No.: |
| MFR.: | SUR.:21cm*16cm | Shielding Angle: |

| DATA OF LAMP | | PHOTOMETRIC DATA | | | | Eff: 130.04 lm/W |
|------------------|------------|------------------|--------|------------------------|----------|------------------|
| MODEL | 180W 110DU | Imax(cd) | 11210 | S/MH(C0/180) | 1.41 | |
| NOMINAL POWER(W) | 180 | LOR(%) | 100.0 | S/MH(C90/270) | 1.35 | |
| RATED VOLTAGE(V) | 220 | TOTAL FLUX(lm) | 23407 | η UP,DN(C0-180) | 0.0,50.5 | |
| NOMINAL FLUX(lm) | 23400 | CIE CLASS | DIRECT | η UP,DN(C180-360) | 0.0,49.5 | |
| LAMPS INSIDE | 1 | η up(%) | 0.0 | CIBSE SHR NOM | 1.25 | |
| TEST VOLTAGE(V) | 220.1 | η down(%) | 100.0 | CIBSE SHR MAX | 1.35 | |

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2017.4.26

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
 Humidity:65.0%
 Test Distance:10.480m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

| γ | C0 | C45 | C90 | C135 | C180 | C225 | C270 | C315 | γ | Φ zone | Φ total | %lum, lamp |
|-----|--------------------------|--------|-------|--------|--------|--------|-------|--------|---------|---------|---------|------------|
| 10 | 1013 | 997.9 | 994.3 | 989.0 | 1002 | 1033 | 1044 | 1030 | 0- 10 | 959.8 | 959.8 | 4.1,4.1 |
| 20 | 1041 | 1004 | 1002 | 990.7 | 1015 | 1049 | 1087 | 1069 | 10- 20 | 2893 | 3853 | 16.5,16.5 |
| 30 | 1062 | 1034 | 1012 | 1008 | 1039 | 1091 | 1102 | 1090 | 20- 30 | 4852 | 8706 | 37.2,37.2 |
| 40 | 842.7 | 884.0 | 899.2 | 923.8 | 915.5 | 877.0 | 832.6 | 824.6 | 30- 40 | 6205 | 14911 | 63.7,63.7 |
| 50 | 376.9 | 430.8 | 476.5 | 494.6 | 457.7 | 385.5 | 327.9 | 344.1 | 40- 50 | 5057 | 19968 | 85.3,85.3 |
| 60 | 114.0 | 120.1 | 112.9 | 116.0 | 114.1 | 110.4 | 106.8 | 114.1 | 50- 60 | 1922 | 21889 | 93.5,93.5 |
| 70 | 77.63 | 75.27 | 62.81 | 74.45 | 77.35 | 73.90 | 62.10 | 77.32 | 60- 70 | 926.6 | 22816 | 97.5,97.5 |
| 80 | 30.74 | 20.58 | 10.04 | 20.81 | 30.27 | 20.22 | 9.700 | 22.16 | 70- 80 | 510.6 | 23326 | 99.7,99.7 |
| 90 | 0.3054 | 0.5058 | 2.775 | 0.5459 | 0.3704 | 0.7051 | 3.007 | 0.5621 | 80- 90 | 80.76 | 23407 | 100,100 |
| 100 | | | | | | | | | 90-100 | | | |
| 110 | | | | | | | | | 100-110 | | | |
| 120 | | | | | | | | | 110-120 | | | |
| 130 | | | | | | | | | 120-130 | | | |
| 140 | | | | | | | | | 130-140 | | | |
| 150 | | | | | | | | | 140-150 | | | |
| 160 | | | | | | | | | 150-160 | | | |
| 170 | | | | | | | | | 160-170 | | | |
| 180 | | | | | | | | | 170-180 | | | |
| DEG | LUMINOUS INTENSITY:×10cd | | | | | | | | | UNIT:lm | | |

Conical surface Flux(90deg): 17786 lm

%lum = 76.0%

%lamp = 76.0%

Conical surface Flux(120deg): 21889 lm

%lum = 93.5%

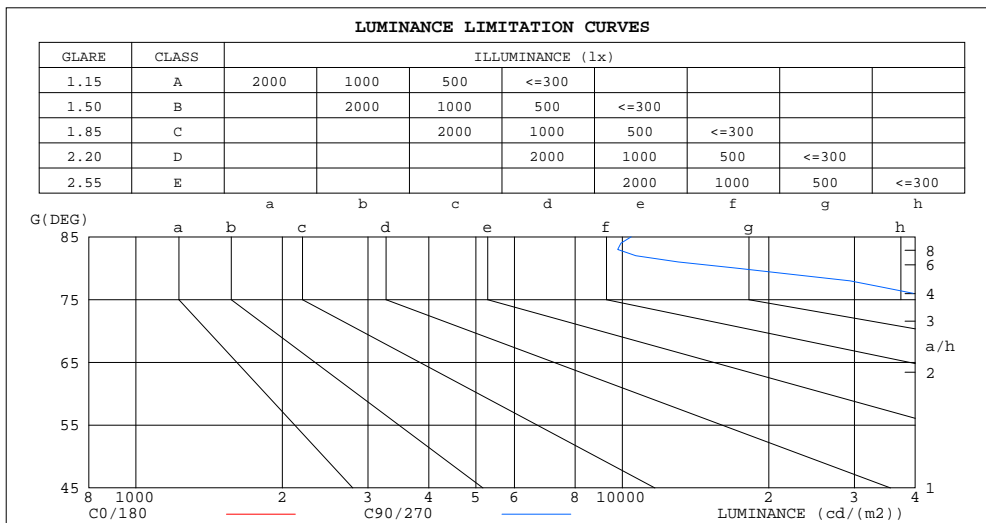
%lamp = 93.5%

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2017.4.26

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
 Humidity:65.0%
 Test Distance:10.480m [K=1.0000]
 Remarks:

LUMINANCE LIMITATION CURVES

| | | |
|-----------------|----------------|------------------|
| NAME: LED light | TYPE: | WEIGHT: |
| SPEC.: | DIM.: | SERIAL No.: |
| MFR.: | SUR.:21cm*16cm | Shielding Angle: |



| LUMINANCE cd/(m2) | | |
|-------------------|--------|---------|
| G(DEG) | C0/180 | C90/270 |
| 85 | 48767 | 10423 |
| 80 | 52686 | 17211 |
| 75 | 63696 | 43251 |
| 70 | 67551 | 54652 |
| 65 | 67275 | 63885 |
| 60 | 67871 | 67188 |
| 55 | 90669 | 109690 |
| 50 | 174506 | 220615 |
| 45 | 263514 | 314576 |

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017.4.26

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:10.480m [K=1.0000]
Remarks:

WEC AND CCEC

| | | |
|-----------------|----------------|------------------|
| NAME: LED light | TYPE: | WEIGHT: |
| SPEC.: | DIM.: | SERIAL No.: |
| MFR.: | SUR.:21cm*16cm | Shielding Angle: |

| pcc | 80% | | | 70% | | | 50% | | | 30% | | | 10% | | | 0 | |
|------|-----------------------|------|------|------|------|------|---------------------------------|------|------|------|------|------|------|------|------|---|--|
| ρw | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 0 | |
| ρfc | 20% | | | 20% | | | 20% | | | 20% | | | 20% | | | 0 | |
| RCR | RCR:Room Cavity Ratio | | | | | | Wall Exitance Coefficients(WEC) | | | | | | | | | | |
| 0.0 | | | | | | | | | | | | | | | | | |
| 1.0 | .238 | .135 | .043 | .231 | .132 | .042 | .218 | .125 | .040 | .206 | .119 | .038 | .195 | .113 | .037 | | |
| 2.0 | .231 | .127 | .039 | .225 | .124 | .038 | .214 | .119 | .037 | .204 | .114 | .036 | .194 | .110 | .035 | | |
| 3.0 | .220 | .117 | .035 | .215 | .115 | .035 | .205 | .111 | .034 | .196 | .107 | .033 | .188 | .104 | .032 | | |
| 4.0 | .208 | .108 | .032 | .204 | .107 | .031 | .195 | .103 | .031 | .187 | .100 | .030 | .180 | .098 | .030 | | |
| 5.0 | .197 | .100 | .029 | .193 | .099 | .029 | .185 | .096 | .028 | .178 | .094 | .028 | .171 | .092 | .028 | | |
| 6.0 | .186 | .093 | .027 | .182 | .092 | .026 | .175 | .090 | .026 | .169 | .088 | .026 | .163 | .086 | .026 | | |
| 7.0 | .176 | .087 | .025 | .173 | .086 | .025 | .167 | .084 | .024 | .161 | .082 | .024 | .156 | .081 | .024 | | |
| 8.0 | .167 | .081 | .023 | .164 | .081 | .023 | .158 | .079 | .023 | .153 | .078 | .022 | .148 | .076 | .022 | | |
| 9.0 | .158 | .076 | .021 | .155 | .076 | .021 | .150 | .074 | .021 | .146 | .073 | .021 | .141 | .072 | .021 | | |
| 10.0 | .150 | .072 | .020 | .148 | .071 | .020 | .143 | .070 | .020 | .139 | .069 | .020 | .135 | .068 | .020 | | |

| ρcc | 80% | | | 70% | | | 50% | | | 30% | | | 10% | | | 0 | |
|------|-----------------------|------|------|------|------|------|--|------|------|------|------|------|------|------|------|---|--|
| ρw | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 0 | |
| ρfc | 20% | | | 20% | | | 20% | | | 20% | | | 20% | | | 0 | |
| RCR | RCR:Room Cavity Ratio | | | | | | Ceiling Cavity Exitance Coefficients(CCEC) | | | | | | | | | | |
| 0.0 | .191 | .191 | .191 | .163 | .163 | .163 | .111 | .111 | .111 | .064 | .064 | .064 | .020 | .020 | .020 | | |
| 1.0 | .175 | .157 | .140 | .150 | .135 | .121 | .103 | .093 | .083 | .059 | .054 | .048 | .019 | .017 | .016 | | |
| 2.0 | .164 | .132 | .105 | .141 | .114 | .091 | .096 | .079 | .064 | .056 | .046 | .037 | .018 | .015 | .012 | | |
| 3.0 | .155 | .114 | .081 | .133 | .098 | .071 | .091 | .068 | .050 | .053 | .040 | .029 | .017 | .013 | .010 | | |
| 4.0 | .147 | .100 | .064 | .126 | .086 | .056 | .087 | .060 | .039 | .050 | .035 | .023 | .016 | .011 | .008 | | |
| 5.0 | .139 | .089 | .052 | .120 | .077 | .045 | .083 | .054 | .032 | .048 | .032 | .019 | .015 | .010 | .006 | | |
| 6.0 | .133 | .081 | .043 | .114 | .070 | .038 | .079 | .049 | .027 | .046 | .029 | .016 | .015 | .009 | .005 | | |
| 7.0 | .127 | .074 | .036 | .109 | .064 | .032 | .075 | .045 | .022 | .044 | .026 | .013 | .014 | .009 | .004 | | |
| 8.0 | .121 | .068 | .031 | .104 | .059 | .027 | .072 | .041 | .019 | .042 | .024 | .011 | .014 | .008 | .004 | | |
| 9.0 | .116 | .063 | .027 | .100 | .055 | .024 | .069 | .038 | .017 | .040 | .023 | .010 | .013 | .007 | .003 | | |
| 10.0 | .111 | .059 | .024 | .096 | .051 | .021 | .066 | .036 | .015 | .039 | .021 | .009 | .013 | .007 | .003 | | |

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017.4.26

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:10.480m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

| | | | | | | | | | | | | | | |
|--|-----|-----|-----|-----|------------------|------|------|------|------|------------------|------|------|------|------|
| NAME: LED light | | | | | TYPE: | | | | | WEIGHT: | | | | |
| SPEC.: | | | | | DIM.: | | | | | SERIAL No.: | | | | |
| MFR.: | | | | | SUR.:21cm*16cm | | | | | 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 | | | | | 18.3 | 19.6 | 18.5 | 19.8 | 20.0 | 18.7 | 20.0 | 18.9 | 20.2 | 20.4 |
| 3H | | | | | 18.6 | 19.8 | 18.9 | 20.0 | 20.2 | 18.8 | 20.0 | 19.1 | 20.2 | 20.4 |
| 4H | | | | | 18.8 | 19.9 | 19.1 | 20.1 | 20.4 | 18.8 | 20.0 | 19.1 | 20.2 | 20.4 |
| 6H | | | | | 18.9 | 19.9 | 19.2 | 20.2 | 20.5 | 18.8 | 19.8 | 19.1 | 20.1 | 20.4 |
| 8H | | | | | 18.9 | 19.9 | 19.2 | 20.2 | 20.5 | 18.8 | 19.8 | 19.1 | 20.0 | 20.3 |
| 12H | | | | | 18.9 | 19.9 | 19.3 | 20.2 | 20.5 | 18.7 | 19.7 | 19.0 | 20.0 | 20.2 |
| 4H 2H | | | | | 18.3 | 19.4 | 18.6 | 19.6 | 19.9 | 18.6 | 19.7 | 18.9 | 20.0 | 20.2 |
| 3H | | | | | 18.7 | 19.7 | 19.1 | 20.0 | 20.3 | 18.9 | 19.8 | 19.2 | 20.1 | 20.4 |
| 4H | | | | | 19.1 | 19.9 | 19.4 | 20.2 | 20.6 | 19.0 | 19.9 | 19.3 | 20.2 | 20.5 |
| 6H | | | | | 19.3 | 20.1 | 19.7 | 20.4 | 20.8 | 19.0 | 19.7 | 19.4 | 20.1 | 20.4 |
| 8H | | | | | 19.4 | 20.1 | 19.8 | 20.5 | 20.8 | 18.9 | 19.6 | 19.3 | 20.0 | 20.4 |
| 12H | | | | | 19.4 | 20.1 | 19.8 | 20.5 | 20.8 | 18.9 | 19.5 | 19.3 | 19.9 | 20.3 |
| 8H 4H | | | | | 19.1 | 19.8 | 19.5 | 20.2 | 20.5 | 19.0 | 19.7 | 19.4 | 20.1 | 20.4 |
| 6H | | | | | 19.4 | 20.0 | 19.9 | 20.4 | 20.8 | 19.0 | 19.6 | 19.4 | 20.0 | 20.4 |
| 8H | | | | | 19.5 | 20.1 | 20.0 | 20.5 | 20.9 | 19.0 | 19.5 | 19.4 | 19.9 | 20.4 |
| 12H | | | | | 19.6 | 20.1 | 20.1 | 20.5 | 21.0 | 18.9 | 19.4 | 19.4 | 19.8 | 20.3 |
| 12H 4H | | | | | 19.0 | 19.7 | 19.5 | 20.1 | 20.5 | 19.0 | 19.6 | 19.4 | 20.0 | 20.4 |
| 6H | | | | | 19.4 | 19.9 | 19.9 | 20.3 | 20.8 | 19.0 | 19.5 | 19.4 | 19.9 | 20.4 |
| 8H | | | | | 19.5 | 20.0 | 20.0 | 20.4 | 20.9 | 19.0 | 19.4 | 19.4 | 19.8 | 20.3 |
| Variations with the observer position at spacings: | | | | | | | | | | | | | | |
| S = 1.0H | | | | | + 1.4 / - 1.9 | | | | | + 1.9 / - 2.6 | | | | |
| 1.5H | | | | | + 1.1 / - 2.1 | | | | | + 1.2 / - 3.0 | | | | |
| 2.0H | | | | | + 3.2 / - 2.0 | | | | | + 4.0 / - 3.3 | | | | |

CIE Pub.117, 23400 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 11.0)

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017.4.26

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:10.480m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

| | | |
|-----------------|----------------|------------------|
| NAME: LED light | TYPE: | WEIGHT: |
| SPEC.: | DIM.: | SERIAL No.: |
| MFR.: | SUR.:21cm*16cm | Shielding Angle: |

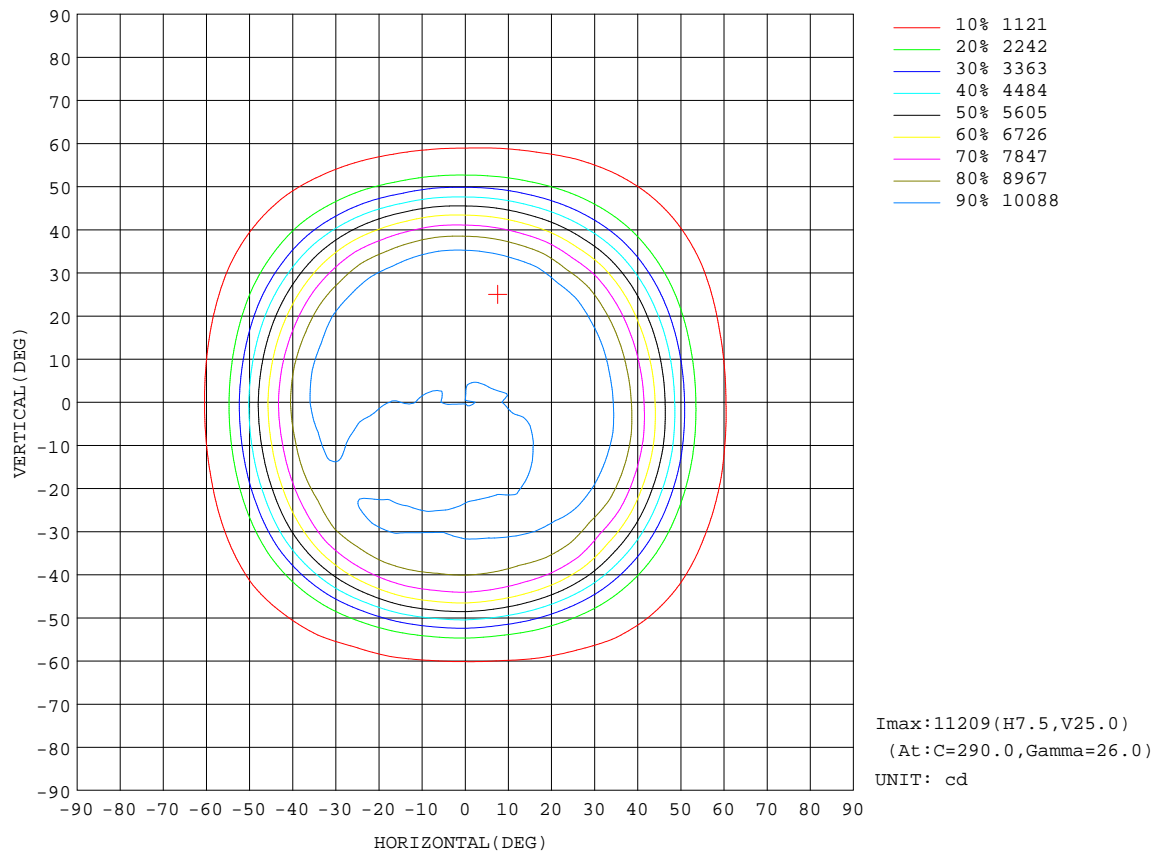
| REFLECTANCE | | | | | | | | | | |
|----------------------------------|---|-----|-----|-----|-----|-----|-----|-----|-----|--------|
| Ceiling | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 | 0.7 | 0.5 | 0.5 | 0.5 | 0 |
| Walls | 0.7 | 0.5 | 0.3 | 0.7 | 0.5 | 0.3 | 0.7 | 0.5 | 0.3 | 0 |
| Working plane | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0 |
| ROOM INDEX | UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5 | | | | | | | | | |
| k = 0.60 | 69 | 59 | 53 | 68 | 59 | 53 | 67 | 58 | 53 | 48 |
| 0.80 | 79 | 69 | 63 | 78 | 69 | 63 | 76 | 68 | 63 | 57 |
| 1.00 | 86 | 78 | 72 | 85 | 77 | 72 | 83 | 78 | 71 | 66 |
| 1.25 | 93 | 85 | 79 | 91 | 84 | 79 | 89 | 83 | 78 | 72 |
| 1.50 | 97 | 89 | 84 | 95 | 89 | 84 | 93 | 87 | 83 | 77 |
| 2.00 | 102 | 96 | 91 | 100 | 95 | 90 | 97 | 93 | 89 | 82 |
| 2.50 | 105 | 99 | 95 | 103 | 98 | 94 | 99 | 95 | 92 | 85 |
| 3.00 | 107 | 102 | 98 | 105 | 101 | 97 | 102 | 98 | 95 | 87 |
| 4.00 | 110 | 106 | 102 | 108 | 104 | 101 | 104 | 101 | 98 | 90 |
| 5.00 | 112 | 108 | 105 | 109 | 106 | 104 | 105 | 103 | 100 | 92 |
| ROOM INDEX | UF(total) | | | | | | | | | Direct |
| According to DIN EN 13032-2 2004 | | | | | | | | | | |
| Suspended | | | | | | | | | | |
| SHRNM = 1.25 | | | | | | | | | | |

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017.4.26

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:10.480m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

| | | |
|-----------------|----------------|------------------|
| NAME: LED light | TYPE: | WEIGHT: |
| SPEC.: | DIM.: | SERIAL No.: |
| MFR.: | SUR.:21cm*16cm | Shielding Angle: |



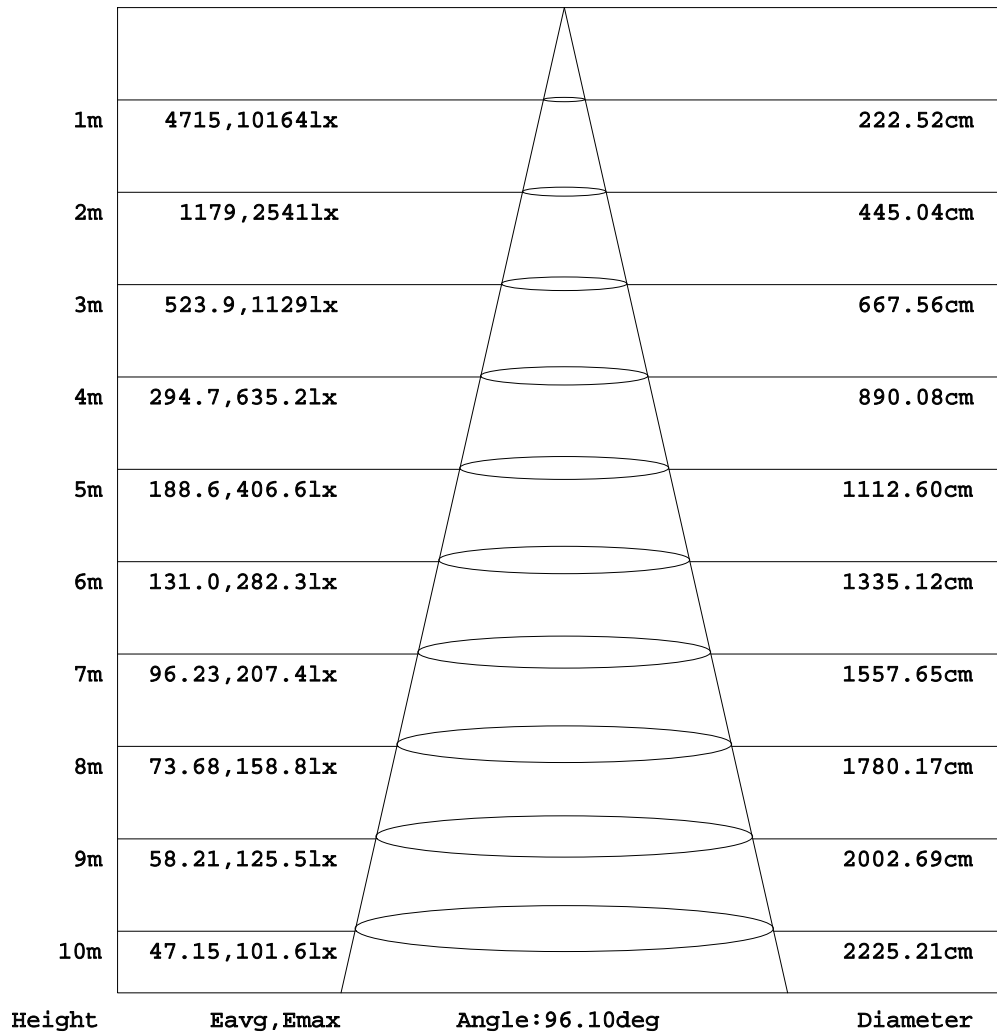
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017.4.26

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:10.480m [K=1.0000]
Remarks:

AAI Figure

| | | |
|-----------------|----------------|------------------|
| NAME: LED light | TYPE: | WEIGHT: |
| SPEC.: | DIM.: | SERIAL No.: |
| MFR.: | SUR.:21cm*16cm | Shielding Angle: |

Flux out:19604 lm

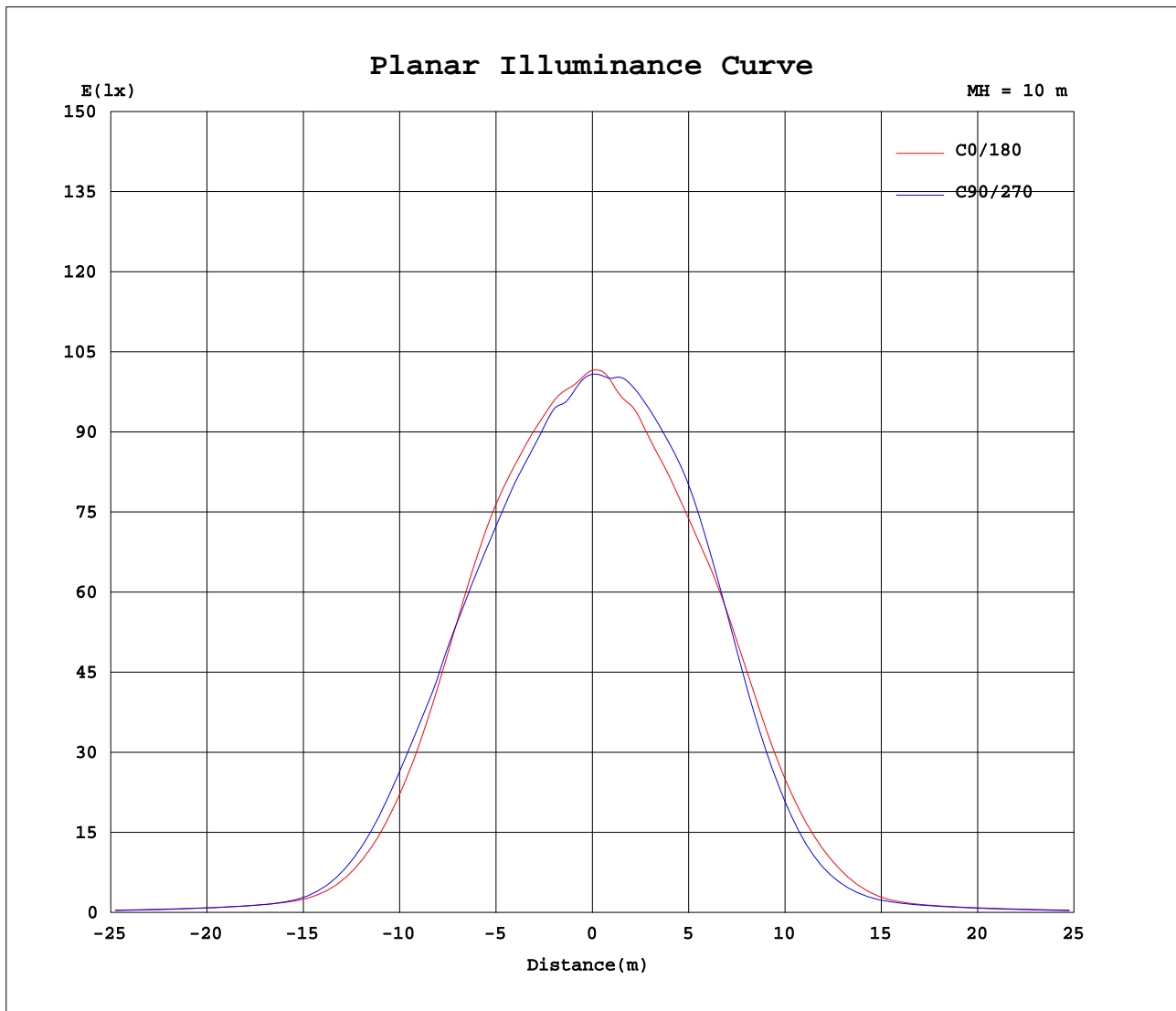


Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017.4.26

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:10.480m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017.4.26

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity: 65.0%
Test Distance: 10.480m [K=1.0000]
Remarks:

