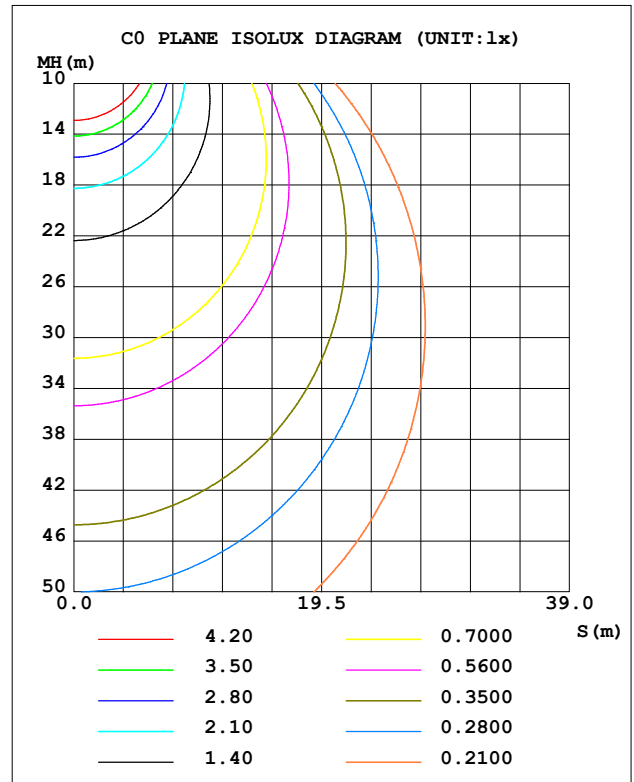
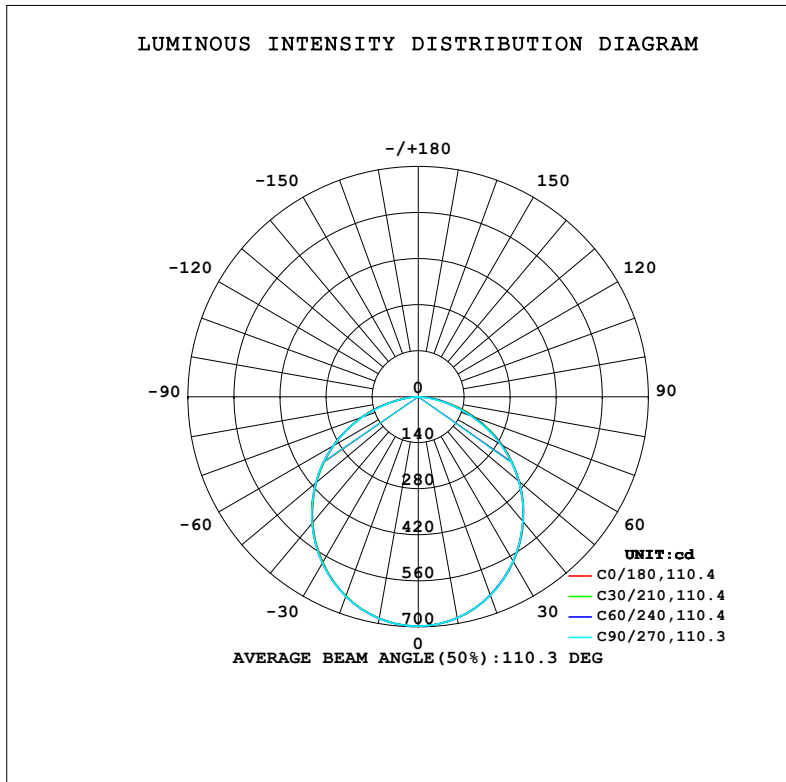


LUMINAIRE PHOTOMETRIC TEST REPORT

| | | |
|-----------------------------|----------------|------------------|
| NAME: 99LED963 | TYPE: 99LED963 | WEIGHT: 1 |
| SPEC.: | DIM.: F 225 | SERIAL No.: 0 |
| MFR.: Elmark Industries JSC | SUR.: round | Shielding Angle: |

| DATA OF LAMP | | PHOTOMETRIC DATA | | | |
|------------------|----------|------------------|--------|------------------------|----------|
| MODEL | 99LED963 | Imax(cd) | 697.4 | S/MH(C0/180) | 1.24 |
| NOMINAL POWER(W) | 24 | LOR(%) | 94.6 | S/MH(C90/270) | 1.24 |
| RATED VOLTAGE(V) | 230 | TOTAL FLUX(lm) | 1929.0 | η UP,DN(C0-180) | 0.0,46.9 |
| NOMINAL FLUX(lm) | 2040 | CIE CLASS | DIRECT | η UP,DN(C180-360) | 0.0,47.6 |
| LAMPS INSIDE | 1 | η up (%) | 0.0 | CIBSE SHR NOM | 1.25 |
| TEST VOLTAGE(V) | 230 | η down (%) | 94.6 | CIBSE SHR MAX | 1.35 |



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:12 August 2022

γ Range: 0 - 90DEG
 γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [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 | 683.1 | 682.6 | 682.7 | 683.3 | 684.1 | 684.8 | 684.9 | 684.2 | 0- 10 | 65.92 | 65.92 | 3.42, 3.23 |
| 20 | 642.4 | 641.4 | 641.6 | 642.7 | 644.4 | 645.6 | 645.9 | 644.5 | 10- 20 | 188.1 | 254.0 | 13.2, 12.5 |
| 30 | 579.0 | 577.4 | 577.4 | 578.9 | 581.4 | 583.1 | 583.5 | 581.7 | 20- 30 | 283.1 | 537.1 | 27.8, 26.3 |
| 40 | 497.3 | 495.3 | 495.1 | 496.7 | 499.7 | 502.0 | 502.5 | 500.5 | 30- 40 | 338.7 | 875.8 | 45.4, 42.9 |
| 50 | 401.7 | 399.3 | 398.8 | 400.5 | 403.8 | 406.5 | 407.2 | 405.2 | 40- 50 | 348.8 | 1225 | 63.5, 60 |
| 60 | 295.5 | 292.3 | 289.4 | 292.8 | 297.0 | 299.5 | 299.0 | 298.8 | 50- 60 | 313.2 | 1538 | 79.7, 75.4 |
| 70 | 182.6 | 176.3 | 170.8 | 176.4 | 183.2 | 183.3 | 180.5 | 183.2 | 60- 70 | 235.5 | 1773 | 91.9, 86.9 |
| 80 | 71.59 | 64.35 | 57.25 | 64.19 | 71.15 | 68.92 | 65.44 | 69.33 | 70- 80 | 128.7 | 1902 | 98.6, 93.2 |
| 90 | 1.987 | 1.073 | 1.016 | 1.078 | 1.239 | 0.9339 | 0.8937 | 0.9232 | 80- 90 | 27.03 | 1929 | 100, 94.6 |
| 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:cd | | | | | | | | | UNIT:lm | | |

Conical surface Flux(90deg): 1051.9 lm

%lum = 54.5%

%lamp = 51.6%

Conical surface Flux(130deg): 1667.5 lm

%lum = 86.4%

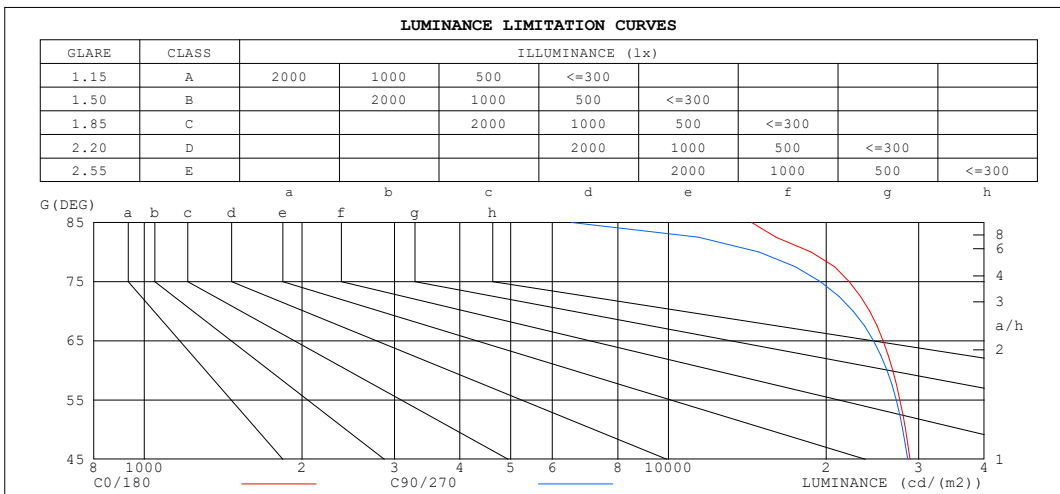
%lamp = 81.7%

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:12 August 2022

γ Range: 0 - 90DEG
 γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

LUMINANCE LIMITATION CURVES

| | | |
|-----------------------------|----------------|------------------|
| NAME: 99LED963 | TYPE: 99LED963 | WEIGHT: 1 |
| SPEC.: | DIM.: F 225 | SERIAL No.: 0 |
| MFR.: Elmark Industries JSC | SUR.: round | Shielding Angle: |



| LUMINANCE cd/(m2) | | |
|-------------------|--------|---------|
| G (DEG) | C0/180 | C90/270 |
| 85 | 14397 | 6532 |
| 80 | 18680 | 14864 |
| 75 | 22113 | 19483 |
| 70 | 24185 | 22510 |
| 65 | 25677 | 24608 |
| 60 | 26775 | 26098 |
| 55 | 27634 | 27193 |
| 50 | 28314 | 27974 |
| 45 | 28904 | 28595 |

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: MEDIUM
 Temperature: 25.3°C
 Operators:
 Test Date: 12 August 2022

γ Range: 0 - 90DEG
 γ Interval: 2.5DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
 Humidity: 65.0%
 Test Distance: 6.265m [K=1.0000]
 Remarks:

```

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

```

WEC AND CCEC

| | | |
|-----------------------------|----------------|------------------|
| NAME: 99LED963 | TYPE: 99LED963 | WEIGHT: 1 |
| SPEC.: | DIM.: F 225 | SERIAL No.: 0 |
| MFR.: Elmark Industries JSC | SUR.: round | Shielding Angle: |

| pcc | 80% | | | 70% | | | 50% | | | 30% | | | 10% | | | 0 |
|------|-----------------------|------|------|------|------|------|---------------------------------|------|------|------|------|------|------|------|------|---|
| pw | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 0 |
| pfc | 20% | | | 20% | | | 20% | | | 20% | | | 20% | | | 0 |
| RCR | RCR:Room Cavity Ratio | | | | | | Wall Exitance Coefficients(WEC) | | | | | | | | | |
| 0.0 | | | | | | | | | | | | | | | | |
| 1.0 | .286 | .163 | .052 | .279 | .159 | .051 | .267 | .153 | .049 | .255 | .147 | .047 | .245 | .142 | .046 | |
| 2.0 | .272 | .149 | .046 | .266 | .146 | .045 | .255 | .142 | .044 | .244 | .137 | .043 | .235 | .133 | .042 | |
| 3.0 | .252 | .134 | .040 | .247 | .132 | .040 | .237 | .129 | .039 | .228 | .125 | .038 | .220 | .122 | .038 | |
| 4.0 | .233 | .121 | .036 | .229 | .120 | .035 | .220 | .117 | .035 | .212 | .114 | .034 | .205 | .111 | .034 | |
| 5.0 | .216 | .110 | .032 | .212 | .109 | .032 | .204 | .106 | .031 | .197 | .104 | .031 | .191 | .102 | .031 | |
| 6.0 | .201 | .101 | .029 | .197 | .100 | .029 | .190 | .097 | .028 | .184 | .096 | .028 | .178 | .094 | .028 | |
| 7.0 | .187 | .092 | .026 | .184 | .092 | .026 | .178 | .090 | .026 | .172 | .088 | .026 | .166 | .086 | .025 | |
| 8.0 | .175 | .085 | .024 | .172 | .085 | .024 | .166 | .083 | .024 | .161 | .082 | .024 | .156 | .080 | .023 | |
| 9.0 | .164 | .079 | .022 | .161 | .079 | .022 | .156 | .077 | .022 | .152 | .076 | .022 | .147 | .075 | .022 | |
| 10.0 | .154 | .074 | .021 | .152 | .073 | .020 | .147 | .072 | .020 | .143 | .071 | .020 | .139 | .070 | .020 | |

| pcc | 80% | | | 70% | | | 50% | | | 30% | | | 10% | | | 0 |
|------|-----------------------|------|------|------|------|------|---|------|------|------|------|------|------|------|------|---|
| pw | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 0 |
| pfc | 20% | | | 20% | | | 20% | | | 20% | | | 20% | | | 0 |
| RCR | RCR:Room Cavity Ratio | | | | | | Ceiling Cavity Exitance Coefficients (CCEC) | | | | | | | | | |
| 0.0 | .180 | .180 | .180 | .154 | .154 | .154 | .105 | .105 | .105 | .060 | .060 | .060 | .019 | .019 | .019 | |
| 1.0 | .170 | .148 | .128 | .145 | .127 | .110 | .100 | .087 | .076 | .057 | .050 | .044 | .018 | .016 | .014 | |
| 2.0 | .162 | .125 | .093 | .139 | .107 | .081 | .095 | .074 | .056 | .055 | .043 | .033 | .018 | .014 | .011 | |
| 3.0 | .155 | .108 | .071 | .133 | .093 | .061 | .091 | .065 | .043 | .053 | .038 | .025 | .017 | .012 | .008 | |
| 4.0 | .148 | .095 | .055 | .127 | .082 | .048 | .087 | .057 | .034 | .050 | .034 | .020 | .016 | .011 | .007 | |
| 5.0 | .141 | .086 | .045 | .121 | .074 | .039 | .083 | .052 | .028 | .048 | .030 | .016 | .016 | .010 | .005 | |
| 6.0 | .134 | .078 | .037 | .115 | .067 | .032 | .079 | .047 | .023 | .046 | .028 | .014 | .015 | .009 | .004 | |
| 7.0 | .128 | .071 | .032 | .110 | .062 | .027 | .076 | .043 | .019 | .044 | .025 | .012 | .014 | .008 | .004 | |
| 8.0 | .122 | .066 | .027 | .105 | .057 | .024 | .072 | .040 | .017 | .042 | .024 | .010 | .014 | .008 | .003 | |
| 9.0 | .116 | .061 | .024 | .100 | .053 | .021 | .069 | .037 | .015 | .040 | .022 | .009 | .013 | .007 | .003 | |
| 10.0 | .110 | .057 | .021 | .095 | .049 | .019 | .066 | .035 | .013 | .039 | .021 | .008 | .012 | .007 | .003 | |

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:12 August 2022

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

| | | | | | | | | | | | |
|---|--------|------------------|------|------|----------------|------|----------------|------------------|------|------|------|
| NAME: 99LED963 | | | | | TYPE: 99LED963 | | | WEIGHT: 1 | | | |
| SPEC.: | | | | | DIM.: F 225 | | | SERIAL No.: 0 | | | |
| MFR.: Elmark Industries JSC | | | | | SUR.: round | | | 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 | 21.9 | 23.4 | 22.2 | 23.6 | 23.8 | 21.8 | 23.3 | 22.1 | 23.5 | 23.7 |
| | 3H | 23.4 | 24.8 | 23.7 | 25.0 | 25.3 | 23.2 | 24.6 | 23.5 | 24.8 | 25.1 |
| | 4H | 24.0 | 25.3 | 24.3 | 25.6 | 25.8 | 23.7 | 25.0 | 24.0 | 25.3 | 25.5 |
| | 6H | 24.4 | 25.6 | 24.7 | 25.9 | 26.2 | 24.0 | 25.2 | 24.3 | 25.5 | 25.8 |
| | 8H | 24.5 | 25.7 | 24.8 | 26.0 | 26.2 | 24.0 | 25.2 | 24.3 | 25.5 | 25.8 |
| | 12H | 24.5 | 25.7 | 24.9 | 26.0 | 26.3 | 24.0 | 25.1 | 24.3 | 25.4 | 25.7 |
| 4H | 2H | 22.5 | 23.8 | 22.8 | 24.1 | 24.3 | 22.4 | 23.7 | 22.7 | 24.0 | 24.3 |
| | 3H | 24.2 | 25.3 | 24.5 | 25.6 | 25.9 | 24.0 | 25.1 | 24.3 | 25.4 | 25.7 |
| | 4H | 24.9 | 25.9 | 25.2 | 26.2 | 26.6 | 24.6 | 25.6 | 24.9 | 26.0 | 26.3 |
| | 6H | 25.4 | 26.3 | 25.7 | 26.6 | 27.0 | 24.9 | 25.9 | 25.3 | 26.2 | 26.6 |
| | 8H | 25.5 | 26.4 | 25.9 | 26.7 | 27.1 | 25.0 | 25.9 | 25.4 | 26.2 | 26.6 |
| | 12H | 25.6 | 26.4 | 26.0 | 26.8 | 27.2 | 25.0 | 25.8 | 25.4 | 26.2 | 26.6 |
| 8H | 4H | 25.1 | 25.9 | 25.5 | 26.3 | 26.7 | 24.8 | 25.7 | 25.2 | 26.0 | 26.4 |
| | 6H | 25.7 | 26.4 | 26.1 | 26.8 | 27.2 | 25.3 | 26.0 | 25.7 | 26.4 | 26.8 |
| | 8H | 25.9 | 26.5 | 26.4 | 27.0 | 27.4 | 25.4 | 26.0 | 25.8 | 26.4 | 26.9 |
| | 12H | 26.0 | 26.6 | 26.5 | 27.0 | 27.5 | 25.4 | 25.9 | 25.9 | 26.4 | 26.9 |
| 12H | 4H | 25.1 | 25.9 | 25.5 | 26.2 | 26.6 | 24.8 | 25.6 | 25.2 | 26.0 | 26.4 |
| | 6H | 25.7 | 26.3 | 26.2 | 26.8 | 27.2 | 25.3 | 26.0 | 25.8 | 26.4 | 26.8 |
| | 8H | 25.9 | 26.5 | 26.4 | 26.9 | 27.4 | 25.4 | 26.0 | 25.9 | 26.4 | 26.9 |
| Variations with the observer position at spacings(CIE Pub.117): | | | | | | | | | | | |
| S = 1.0H | | + 0.2 / - 0.2 | | | | | + 0.2 / - 0.2 | | | | |
| 1.5H | | + 0.2 / - 0.3 | | | | | + 0.2 / - 0.3 | | | | |
| 2.0H | | + 0.2 / - 0.3 | | | | | + 0.2 / - 0.3 | | | | |

CIE Pub.117, 2040 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 2.5)
Area: 0.02216 m2

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:12 August 2022

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

| | | |
|-----------------------------|----------------|------------------|
| NAME: 99LED963 | TYPE: 99LED963 | WEIGHT: 1 |
| SPEC.: | DIM.: F 225 | SERIAL No.: 0 |
| MFR.: Elmark Industries JSC | SUR.: round | Shielding Angle: |

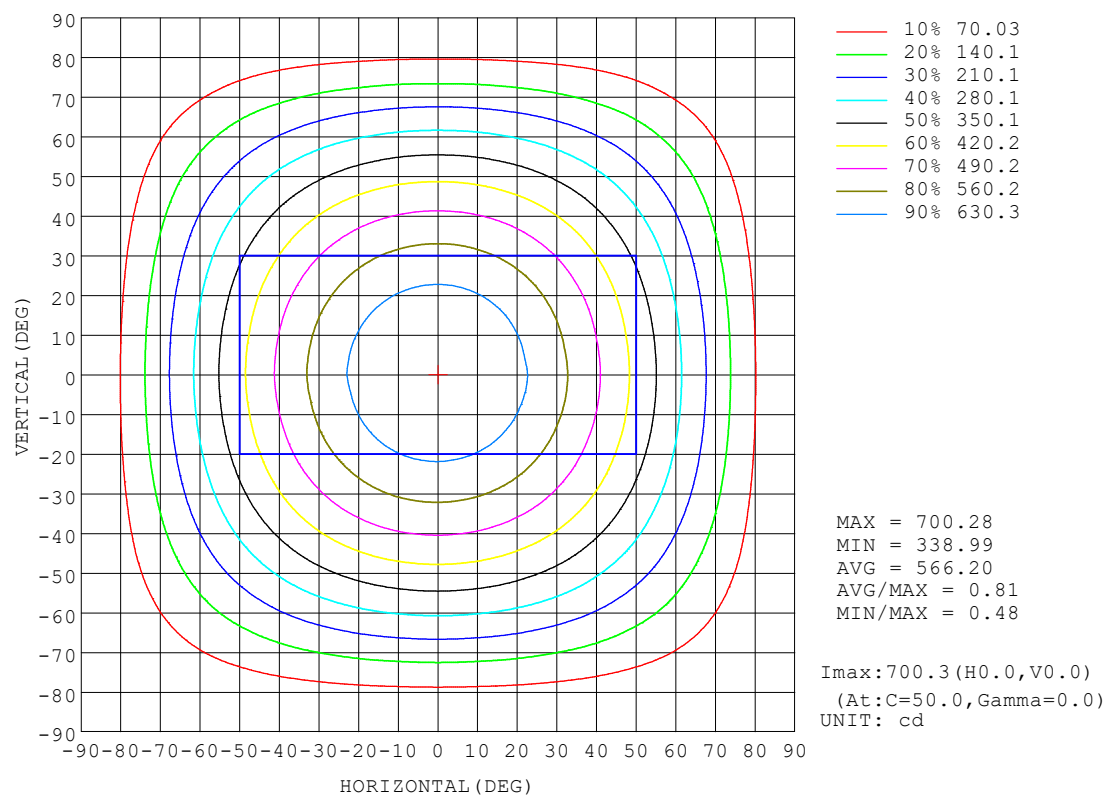
| REFLECTANCE | | | | | | | | | | |
|----------------------------------|--|-----|-----------|-----|-----|-----|-----|---------------|-----|--------|
| Ceiling | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 | 0.7 | 0.5 | 0.5 | 0.5 | 0 |
| Walls | 0.7 | 0.5 | 0.3 | 0.7 | 0.5 | 0.3 | 0.7 | 0.5 | 0.3 | 0 |
| Working plane | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0 |
| ROOM INDEX | UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$ | | | | | | | | | |
| $k = 0.60$ | 55 | 44 | 37 | 54 | 44 | 37 | 53 | 43 | 37 | 31 |
| 0.80 | 64 | 53 | 46 | 63 | 53 | 46 | 62 | 52 | 46 | 39 |
| 1.00 | 72 | 62 | 55 | 71 | 61 | 55 | 69 | 63 | 54 | 48 |
| 1.25 | 79 | 69 | 63 | 78 | 69 | 62 | 75 | 67 | 61 | 55 |
| 1.50 | 84 | 74 | 68 | 82 | 74 | 67 | 79 | 72 | 66 | 59 |
| 2.00 | 90 | 82 | 76 | 88 | 81 | 75 | 85 | 79 | 74 | 67 |
| 2.50 | 94 | 87 | 81 | 92 | 85 | 80 | 88 | 83 | 78 | 71 |
| 3.00 | 97 | 91 | 86 | 95 | 89 | 85 | 91 | 86 | 82 | 75 |
| 4.00 | 101 | 95 | 91 | 99 | 94 | 90 | 95 | 91 | 87 | 79 |
| 5.00 | 103 | 99 | 95 | 101 | 97 | 93 | 96 | 93 | 90 | 82 |
| ROOM INDEX | UF(total) | | | | | | | | | Direct |
| According to DIN EN 13032-2 2004 | | | Suspended | | | | | SHRNOM = 1.25 | | |

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature: 25.3°C
Operators:
Test Date: 12 August 2022

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity: 65.0%
Test Distance: 6.265m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

| | | |
|-----------------------------|----------------|------------------|
| NAME: 99LED963 | TYPE: 99LED963 | WEIGHT: 1 |
| SPEC.: | DIM.: F 225 | SERIAL No.: 0 |
| MFR.: Elmark Industries JSC | SUR.: round | Shielding Angle: |

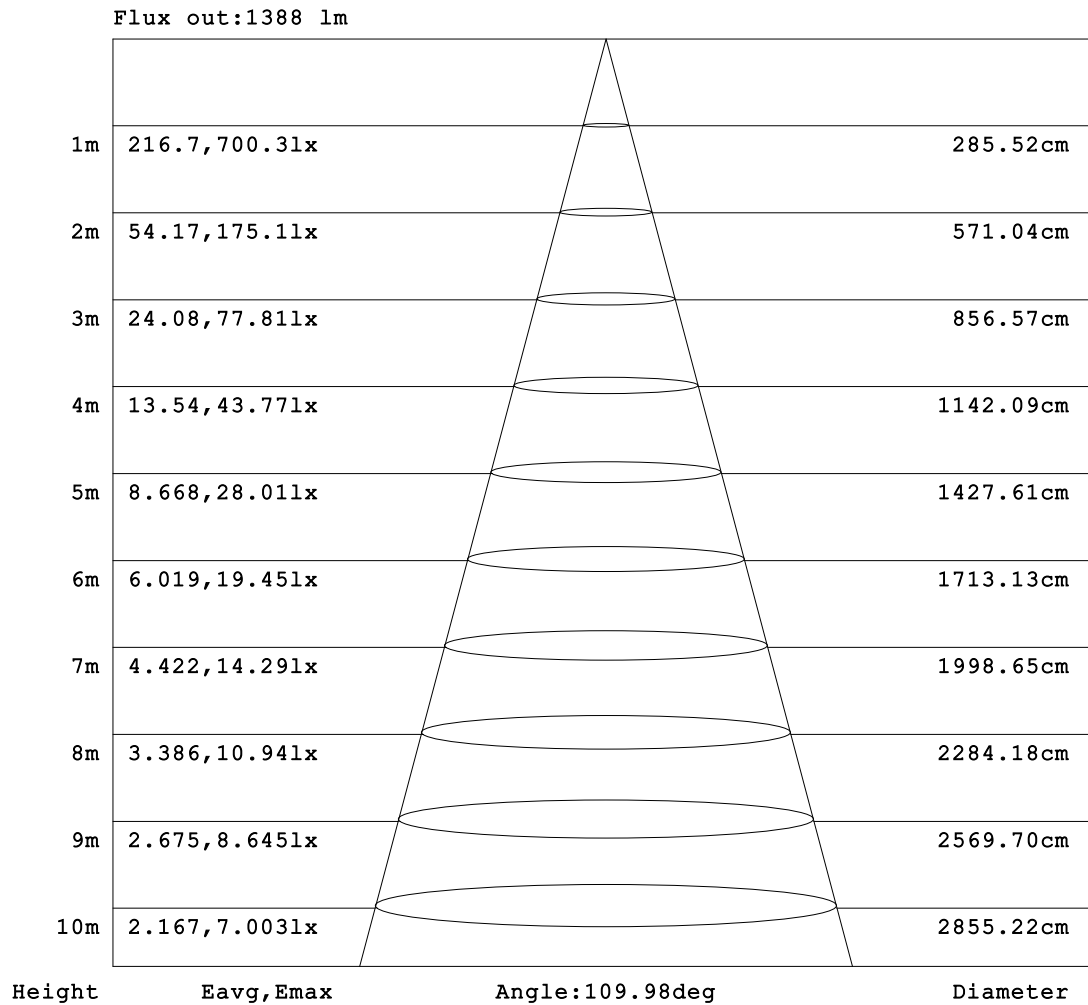


C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:12 August 2022

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

AAI Figure

| | | |
|-----------------------------|----------------|------------------|
| NAME: 99LED963 | TYPE: 99LED963 | WEIGHT: 1 |
| SPEC.: | DIM.: F 225 | SERIAL No.: 0 |
| MFR.: Elmark Industries JSC | SUR.: round | Shielding Angle: |



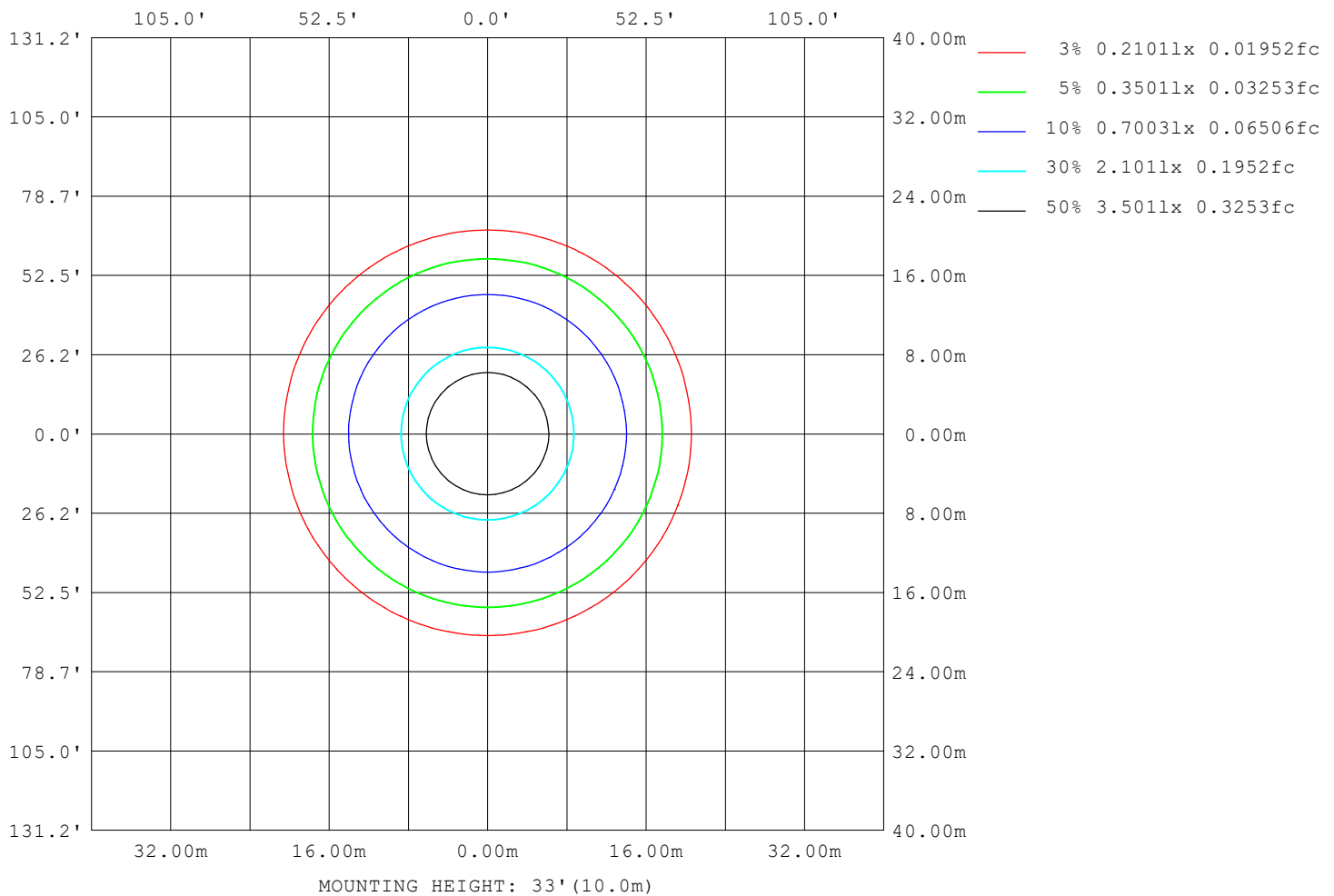
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: MEDIUM
 Temperature:25.3°C
 Operators:
 Test Date:12 August 2022

γ Range: 0 - 90DEG
 γ Interval: 2.5DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
 Humidity:65.0%
 Test Distance:6.265m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

| | | |
|-----------------------------|----------------|------------------|
| NAME: 99LED963 | TYPE: 99LED963 | WEIGHT: 1 |
| SPEC.: | DIM.: F 225 | SERIAL No.: 0 |
| MFR.: Elmark Industries JSC | SUR.: round | Shielding Angle: |



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature: 25.3°C
Operators:
Test Date: 12 August 2022

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity: 65.0%
Test Distance: 6.265m [K=1.0000]
Remarks:

LED Avg.L Report

| | | |
|-----------------------------|----------------|------------------|
| NAME: 99LED963 | TYPE: 99LED963 | WEIGHT: 1 |
| SPEC.: | DIM.: F 225 | SERIAL No.: 0 |
| MFR.: Elmark Industries JSC | SUR.: round | Shielding Angle: |

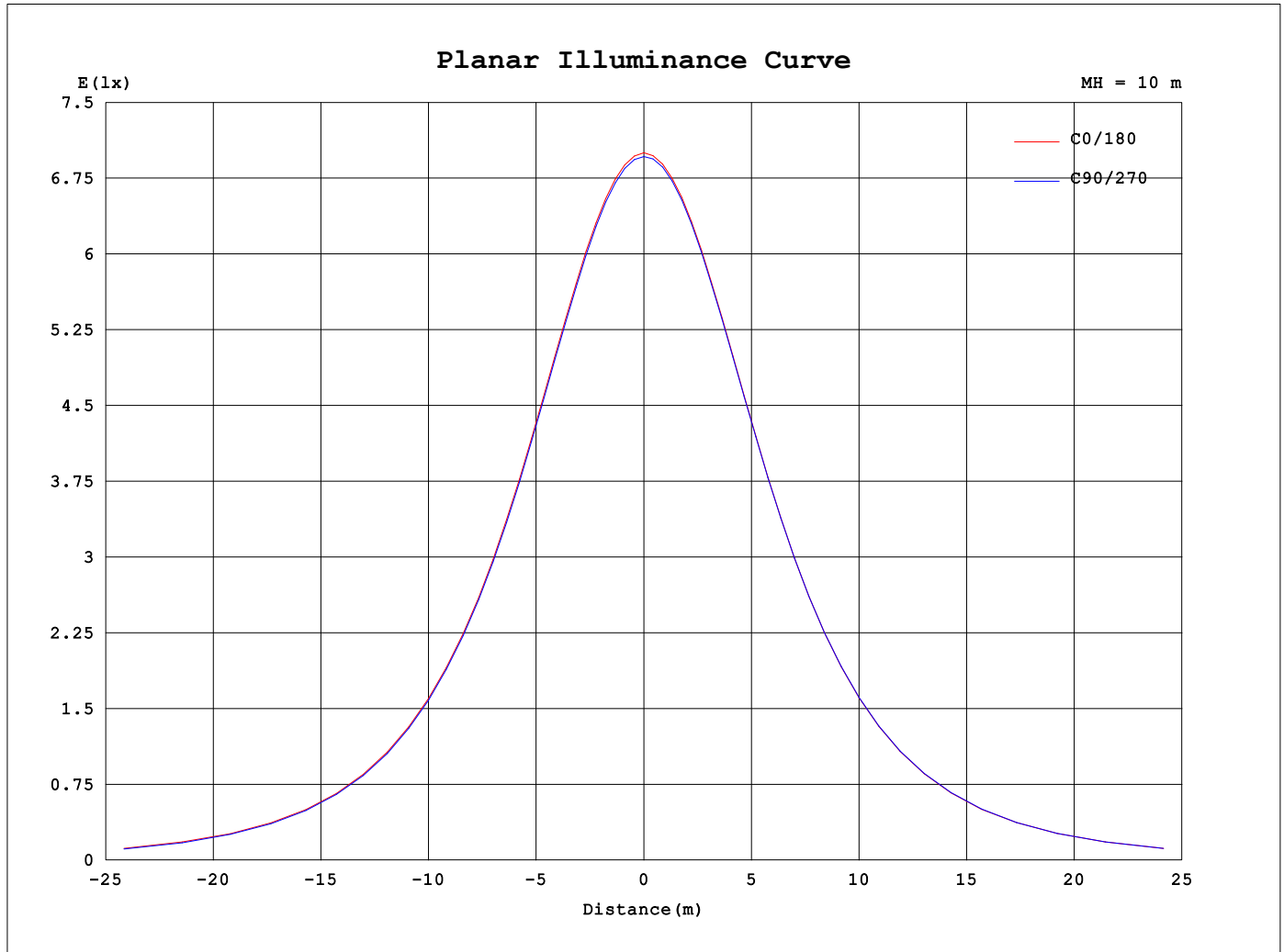
| AvgL | cd/m2 |
|------------------|-------|
| L_0~180 (65) av | 25631 |
| L_0~180 (75) av | 22086 |
| L_0~180 (85) av | 14078 |
| L_90~270 (65) av | 25151 |
| L_90~270 (75) av | 20299 |
| L_90~270 (85) av | 8019 |
| L_45 (65) av | 25478 |
| L_45 (75) av | 21211 |
| L_45 (85) av | 10275 |

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:12 August 2022

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: MEDIUM
 Temperature: 25.3°C
 Operators:
 Test Date: 12 August 2022

γ Range: 0 - 90DEG
 γ Interval: 2.5DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
 Humidity: 65.0%
 Test Distance: 6.265m [K=1.0000]
 Remarks:

```

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

```

```

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

```