



**PHOTOMETRIC LIGHT REPORT**

**Floodlight |  
100W/150W/200W |  
100x60° | 3-CCT | light  
sensor**

**Article number: 146-372**



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Lighting



**TRONIX**



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## Introduction

### Purpose of this Document

This document provides accurate and objective photometric data for Tronix Lighting item 146-372. All information is based on actual measurements taken from standard production units. No modifications were made to enhance performance results. In some cases, minor adjustments—such as temporary removal of covers, cables, or mounting features—were necessary for testing purposes. These did not influence product performance.

### Test Methodology

Testing was conducted using randomly selected, unopened samples from regular inventory. All tests comply with the LM-79-19 standard, the recognized method for photometric and electrical measurements of LED and OLED luminaires. This standard, an update of IES LM-79-2008, outlines environmental test conditions, stabilization procedures, measurement methods, and approved instruments. It uses absolute photometry, meaning results directly reflect the performance of the tested product, without comparison to rated lamp standards.

### Product 146-372 was tested using:

- A photogoniometer to measure luminous intensity distribution at various angles
- An integrating sphere to determine total luminous flux and colour characteristics

### Compliance & Certification

Item 146-372 meets the requirements of the following EU directives. Tronix Lighting certifies that all relevant tests were executed in accordance with the applicable standards, and the CE mark is applied accordingly:

- General Product Safety – Directive 2023/988/EC
- Low Voltage Directive (LVD) – Directive 2014/35/EU
- Electromagnetic Compatibility (EMC) – Directive 2004/108/EC
- Ecodesign – Directive 2009/125/EC
- RoHS 3 – Directive 2011/65/EU + Amendment 2015/863/EU

### Recycling & Sustainability

Tronix Lighting is affiliated with national recycling systems for electrical and electronic waste. The luminaire is over 90% recyclable when disposed of as electronic waste at end of life. In addition, Tronix Lighting participates in national packaging recycling schemes, ensuring full compliance with both the WEEE and packaging directives.



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Laboratory and equipment

|                                      |  |
|--------------------------------------|--|
| Laboratory owner and location        | Tronix Lighting BV. Uden. The Netherlands  |
| Gonio spectrometer system and type   | Viso Systems Type C. horizontal  |
| Spectrometer manufacturer and model  | (Gonio) Ocean Optics STS VIS<br>(Sphere) Admesy HERA VIS 380–780nm                           |
| Flicker meter manufacturer and model | Viso Systems LabFlicker  |
| Oscilloscope manufacturer and model  | Tektronix MDO3024 oscilloscope (4 Channels. 200 MHz)   |
| Power meter manufacturer and model   | Vitretek PA900 Precision Multi-Channel Harmonic Power Analyzer                               |
| Power source manufacturer and model  | (DC) Keithley Source Measure Unit SMU-2420 3A DC Source Meter<br>(AC) Chroma 61601 AC Source |
| Datalogger Manufacturer and Model    | Omega 8-Channel Thermocouple Thermometer/Data Logger   |

Measurement conditions gonio spectrometer

|   |  |
|---|--|
| Number of C-planes and Resolution           | 8 planes – 45°                         |
| γ (gamma)-Resolution                        | 5°                                     |
| Test Distance                               | 1.81 m                                 |
| Room Temperature and Humidity               | 22°C +/- 10% – RH 50% +/- 20%          |
| Input Power. Power and Displacement Factors | 196.7 W – PF 0.98 – DPF 0.98           |
| Frequency of Input Power                    | 50 Hz                                  |
| Warm-up Time and Variation                  | Lamp stabilized in 15 min 1 sec --0.5% |

Tested light source

|                             |  |
|-----------------------------|--|
| Manufacturer and Order Code | Tronix Lighting – 146-372                                    |
| Product Description         | Floodlight   100W/150W/200W   100x60°   3-CCT   light sensor |

Main Light Measurement Results

|                                       |   |
|---------------------------------------|---|
| Output – Total Lumen (Up% / Down%)    | 29144 lm – 0.02% / 99.98%                 |
| Efficiency                            | 148 lm/W                                  |
| Energy efficiency class               | D   |
| Peak Intensity and Beam Angle         | 15839 cd – 85°                            |
| Correlated Colour Temperature         | CCT = 3975 K                              |
| Colour Shift. CIE duv                 | Duv -0.0041                               |
| Colour Rendering Index                | CRI 84.4                                  |
| Colour Rendering TM30-18              | R <sub>f</sub> 83.5 – R <sub>g</sub> 98.8 |
| Television Lighting Consistency Index | TLCI = 67                                 |
| Flicker                               | SVM 0.01 – PstLM 0.05                     |



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Electrical measurement details

**Input Power**

RMS Input voltage feed.  $V_{RMS}$  231 V  
 RMS Input current feed.  $I_{RMS}$  0.871 A  
 Total input power 196.7 W

Frequency of input power 50 Hz  
 Power factor 0.98  
 Displacement power factor 0.98

Total harmonic distortion of the current 7.89%  
 Total harmonic distortion of the voltage 2.54%

Input Power Curve

Voltage - Current



**Efficiency**

Radiated power efficiency: 45.8%



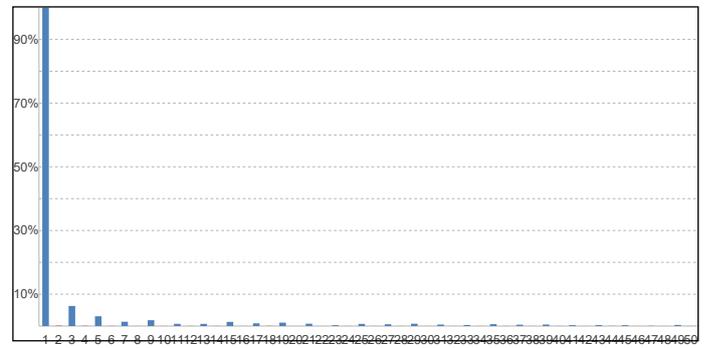
Lumen efficiency: 148 lm/W



**Harmonics**

3rd Harmonic 6.3%  
 5th Harmonic 3.07%  
 7th Harmonic 1.36%  
 9th Harmonic 1.84%  
 11th Harmonic 0.7%

Current Harmonics %



Stabilization Details

**Warm-up Conditions**

Stable period 15 min  
 Stable change max 2.0%  
 Minimum warm-up time 15 min

**Colour temperature change during warm-up**

CCT start 3974 K  
 CCT shift +1 K  
 CCT end 3975 K

**Warm-up Results**

Total warmup time Lamp stabilized in 15 min 1 sec  
 Warmup variation -0.5%

**Output intensity change during warm-up**

Output start 29294 lm  
 Output change -150 lm  
 Output end 29144 lm



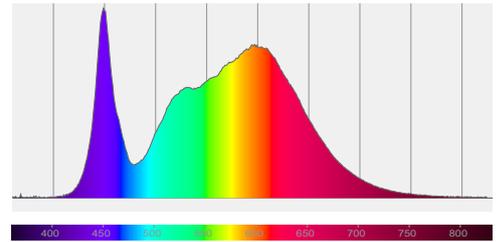
146-372 Floodlight | 100W/150W/200W | 100x60° | 3-CCT | light sensor

## Colour measurement details

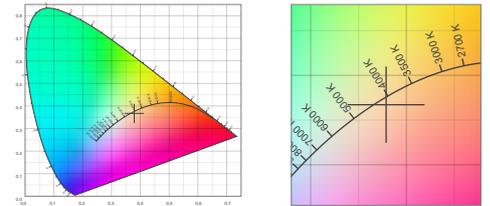
Total lumen output 29144 lm  
 Correlated Colour Temperature 3975 K  
 Colour coordinates CIE 1931 (x;y) = (0.379;0.367)  
 Colour deviation from BBL Duv = -0.0041

TM30-18 Colour Fidelity Index  $R_f$  83.5  
 TM30-18 Colour Gamut Index  $R_g$  98.8  
 Colour Rendering Index (Ra) CRI 84.4  
 Colour Rendering Index. (red component)  $R_9 = 17.3$

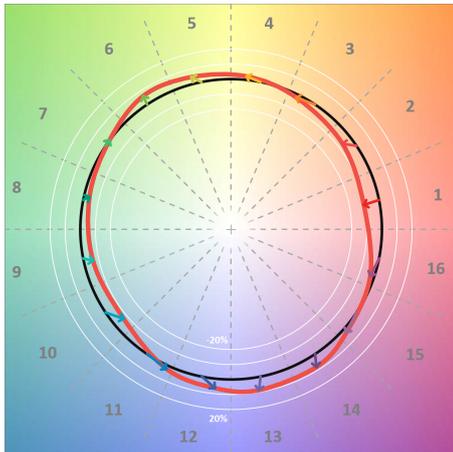
Colour Quality Scale CQS = 82.0  
 Television Lighting Consistency Index TLCI = 67



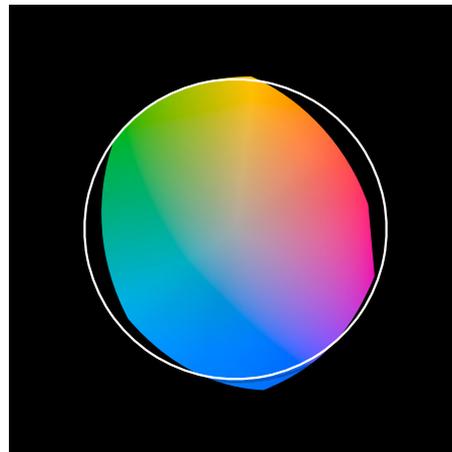
Relative spectral power distribution



## TM30 details

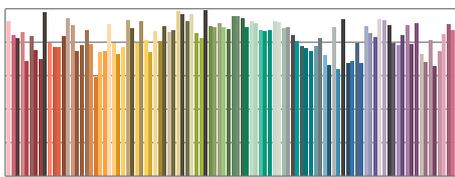


TM30 Colour vectors per hue bin

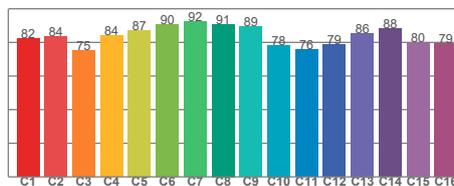


TM30 Colour distortion

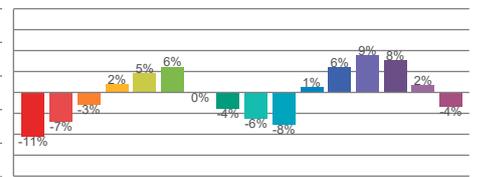
| Hue Bin | $R_f$ | Shifts (%) |      |
|---------|-------|------------|------|
|         |       | Chroma     | Hue  |
| C1      | 82    | -11%       | -1%  |
| C2      | 84    | -7%        | 6%   |
| C3      | 75    | -3%        | 13%  |
| C4      | 84    | 2%         | 10%  |
| C5      | 87    | 5%         | 6%   |
| C6      | 90    | 6%         | -1%  |
| C7      | 92    | 0%         | -5%  |
| C8      | 91    | -4%        | -3%  |
| C9      | 89    | -6%        | 3%   |
| C10     | 78    | -8%        | 10%  |
| C11     | 76    | 1%         | 16%  |
| C12     | 79    | 6%         | 10%  |
| C13     | 86    | 9%         | -3%  |
| C14     | 88    | 8%         | -4%  |
| C15     | 80    | 2%         | -15% |
| C16     | 79    | -4%        | -13% |



TM30-18  $R_f$ -values per reference colour

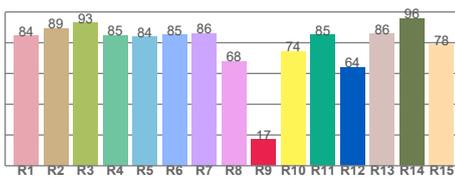


TM30-18  $R_f$ -values per hue bin

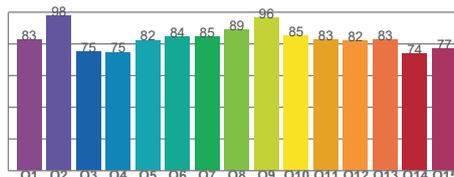


TM30 Chroma shift

## Colour Quality details



Colour Rendering Index



Colour Quality Scale

Document revision date: 19-8-2025 Measurement serial: VFR-250724-10533-SW



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Flicker / temporal light artefacts details

**Measurement conditions**

|                         |  |
|-------------------------|--|
| Flicker meter type      | Viso Systems LabFlicker  |
| Flicker/TLA sample rate | 20000 samples/s  |
| Measurement time        | 5x 180 seconds (15 minutes) for PstLM. 1.2 sec for all other indices |

**Flicker indices according to Illuminating Engineering Society (IES)**

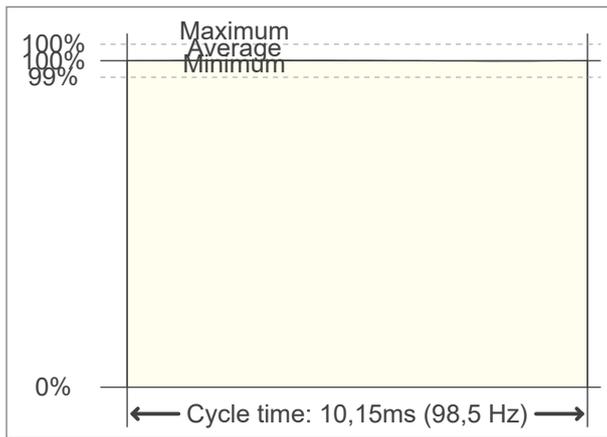
|                   |          |
|-------------------|----------|
| Flicker frequency | 98.52 Hz |
| Percent flicker   | 0.23 %   |
| Flicker index     | 0        |

**TLA indices (according IEC TR 61547-1. EN 61000-3-3 and EN 61000-4-15)**

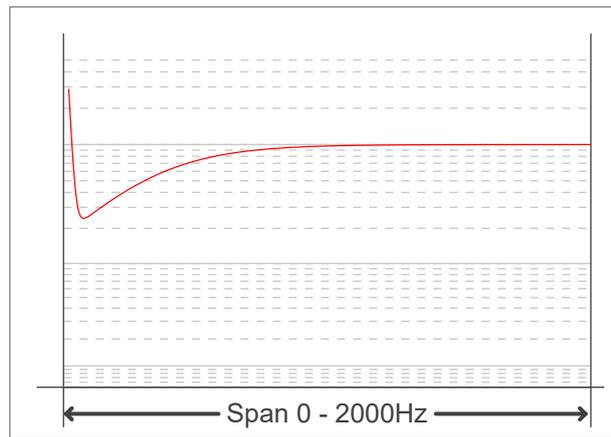
An LED luminaire is considered flicker-free if the SVM value is  $\leq 0.4$  and if the PstLM value is  $\leq 1.0$

|                              |      |
|------------------------------|------|
| PstLM value (F < 80 Hz)      | 0.05 |
| SVM value (80 < F < 2000 Hz) | 0.01 |

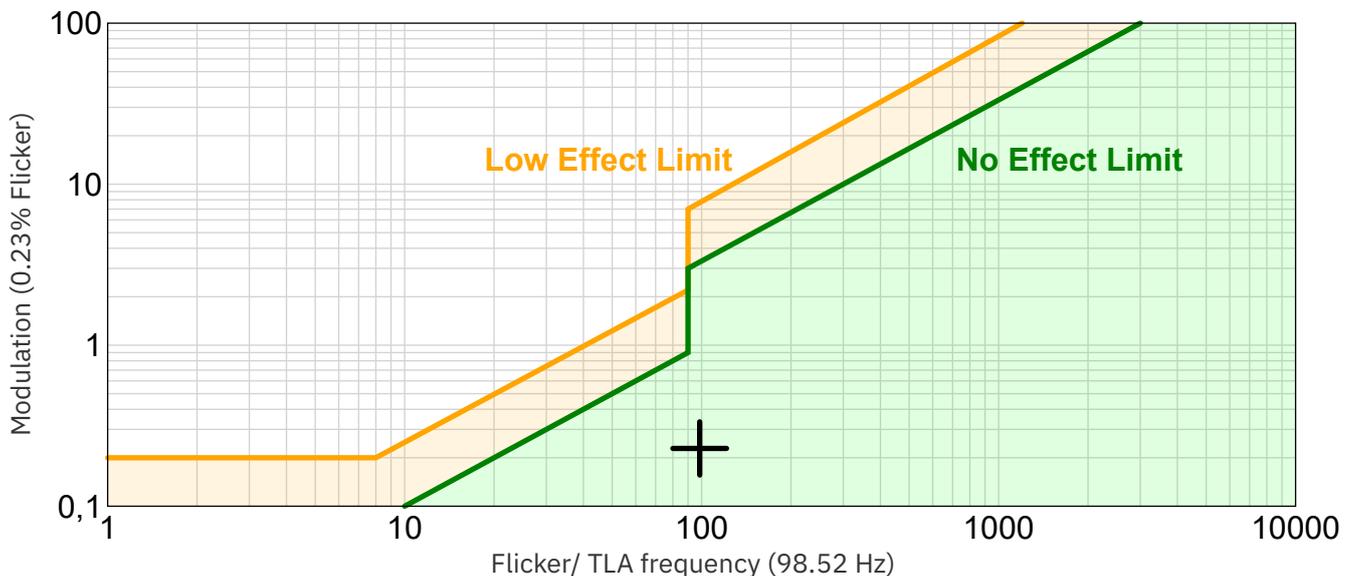
**Flicker frame (one flicker period in time domain)**



**Flicker FFT (flicker curve in frequency domain)**



**IEEE 1789-2015 Lighting Flicker Risk Zones**



Document revision date: 19-8-2025 Measurement serial: VFR-250724-10533-SW

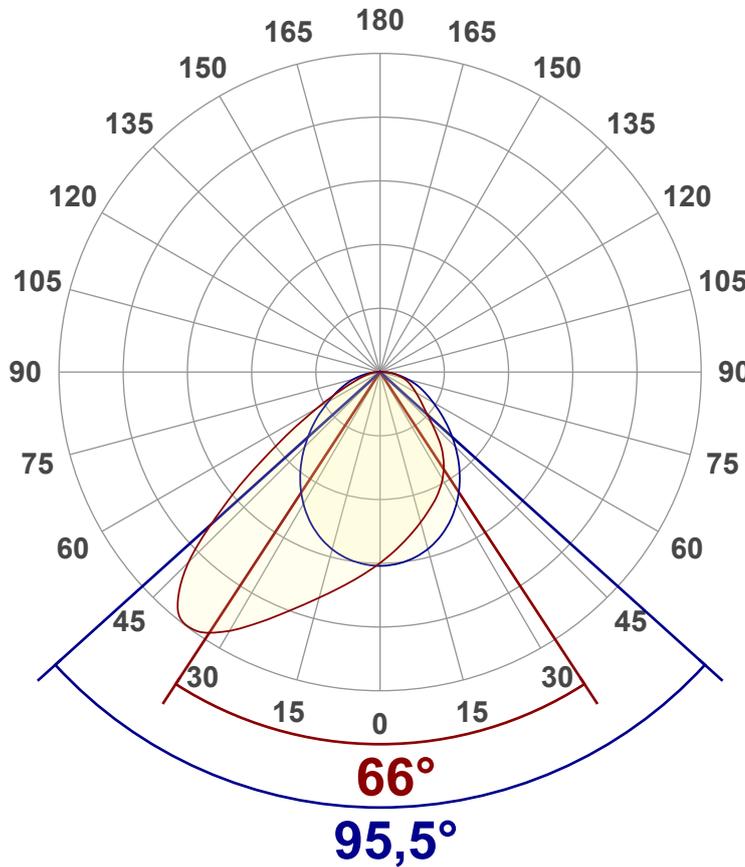


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Beam angle

**Luminous Intensity diagram**

Unit: 0-100% of peak intensity



**Main Values**

|                      |                |
|----------------------|----------------|
| Output (total Lumen) | 29144 lm       |
| Lumen Up/Down        | 0.02% / 99.98% |
| Peak Intensity       | 15839 cd       |
| Beam Angle (50%)     | 85°            |
| Beam Angle (90%)     | 95.5°          |
| Beam Angle (10%)     | 66°            |

**Cut-off Angle**

|              |        |
|--------------|--------|
| Average 2.5% | 176.3° |
|--------------|--------|

**Field Angle**

|             |        |
|-------------|--------|
| Average 10% | 149.3° |
|-------------|--------|

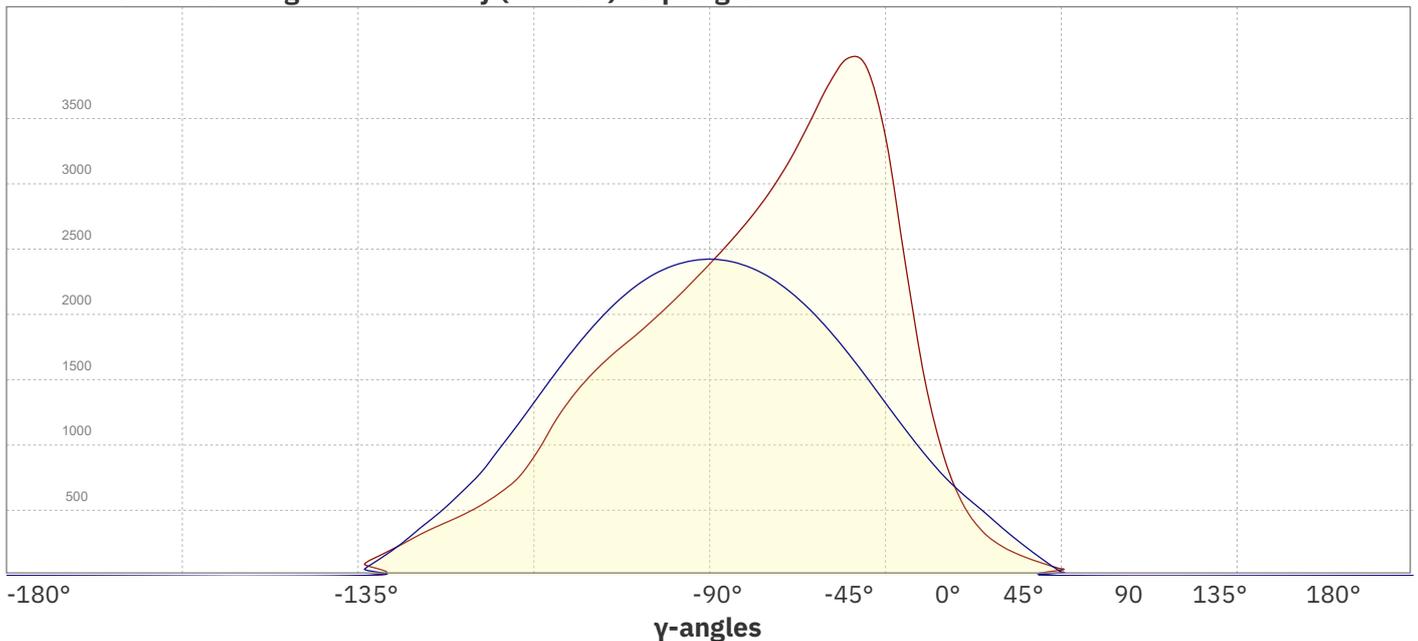
**Intensity Ratio**

|              |       |
|--------------|-------|
| In 120° cone | 83.0% |
| In 90° cone  | 56.7% |

**C planes**

- C000-C180
- C090-C270

**Linear distribution diagram - Intensity (candela) vs γ-angle**

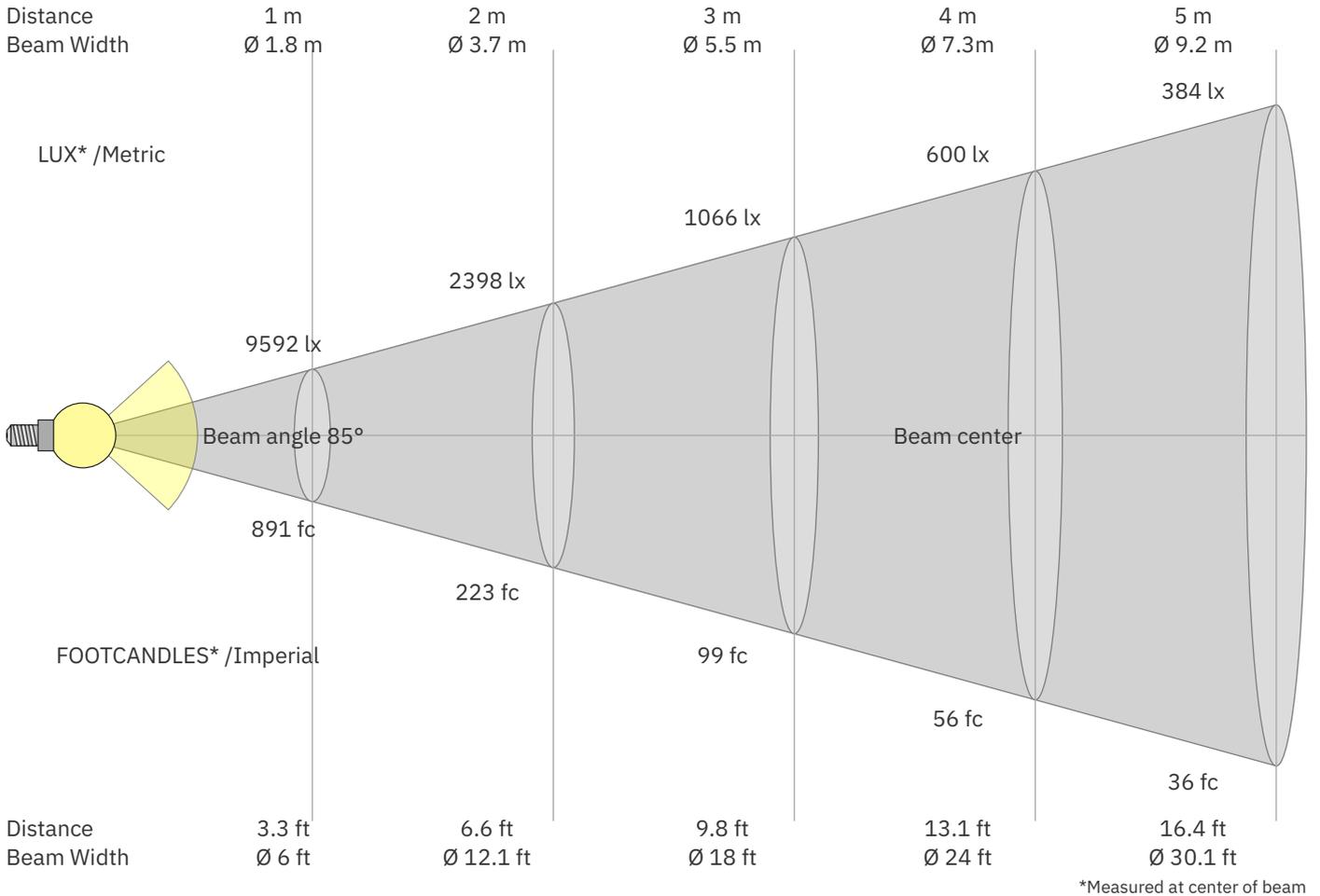


Document revision date: 19-8-2025 Measurement serial: VFR-250724-10533-SW



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### Beam Details



#### Beam intensities from 1 – 20 m

| 1     | 2     | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | m   |
|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| 3.3   | 6.6   | 9.8  | 13.1 | 16.4 | 19.7 | 23   | 26.2 | 29.5 | 32.8 | 36.1 | 39.4 | 42.7 | 45.9 | 49.2 | 52.5 | 55.8 | 59.1 | 62.3 | 65.6 | ft  |
| 9592  | 2398  | 1066 | 600  | 384  | 266  | 196  | 150  | 118  | 96   | 79   | 67   | 57   | 49   | 43   | 37   | 33   | 30   | 27   | 24   | lux |
| 891.2 | 222.8 | 99   | 55.7 | 35.6 | 24.8 | 18.2 | 13.9 | 11   | 8.9  | 7.4  | 6.2  | 5.3  | 4.5  | 4    | 3.5  | 3.1  | 2.8  | 2.5  | 2.2  | fc  |

#### Intensities in 0° c-plane

| 0°   | 5°   | 10°  | 15°  | 20°  | 25°  | 30°  | 35°  | 40°  | 45°  | 50°  | 55°  | 60°  | 65°  | 70°  | 75°  | 80° | 85° | 90° | 95° | γ        |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|----------|
| 9592 | 8927 | 8332 | 7777 | 7254 | 6754 | 6180 | 5490 | 4628 | 3651 | 2903 | 2432 | 2061 | 1760 | 1491 | 1201 | 882 | 575 | 0   | 0   | cd       |
| 100% | 93%  | 87%  | 81%  | 76%  | 70%  | 64%  | 57%  | 48%  | 38%  | 30%  | 25%  | 21%  | 18%  | 16%  | 13%  | 9%  | 6%  | 0%  | 0%  | of 0°val |

#### Intensities in 90° c-plane

| 0°   | 5°   | 10°  | 15°  | 20°  | 25°  | 30°  | 35°  | 40°  | 45°  | 50°  | 55°  | 60°  | 65°  | 70°  | 75°  | 80° | 85° | 90° | 95° | γ        |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|----------|
| 9592 | 9623 | 9446 | 9155 | 8741 | 8215 | 7586 | 6871 | 6097 | 5286 | 4487 | 3726 | 3042 | 2473 | 1973 | 1447 | 962 | 513 | 124 | 0   | cd       |
| 100% | 100% | 98%  | 95%  | 91%  | 86%  | 79%  | 72%  | 64%  | 55%  | 47%  | 39%  | 32%  | 26%  | 21%  | 15%  | 10% | 5%  | 1%  | 0%  | of 0°val |

#### Intensities in 180° c-plane

| 0°   | 5°    | 10°   | 15°   | 20°   | 25°   | 30°   | 35°   | 40°   | 45°   | 50°  | 55°  | 60°  | 65°  | 70°  | 75°  | 80°  | 85°  | 90°  | 95°  | γ        |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|----------|
| 9.6k | 10.2k | 10.9k | 11.7k | 12.6k | 13.7k | 14.9k | 15.8k | 15.6k | 13.4k | 9.6k | 6.0k | 3.6k | 2.2k | 1.3k | 0.9k | 0.6k | 0.4k | 0.2k | 0.0k | cd       |
| 100% | 106%  | 114%  | 122%  | 132%  | 143%  | 156%  | 165%  | 162%  | 140%  | 100% | 63%  | 38%  | 22%  | 14%  | 9%   | 6%   | 4%   | 2%   | 0%   | of 0°val |

#### Intensities in 270° c-plane

| 0°   | 5°   | 10°  | 15°  | 20°  | 25°  | 30°  | 35°  | 40°  | 45°  | 50°  | 55°  | 60°  | 65°  | 70°  | 75°  | 80° | 85° | 90° | 95° | γ        |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|----------|
| 9592 | 9626 | 9456 | 9169 | 8758 | 8233 | 7604 | 6891 | 6113 | 5298 | 4484 | 3705 | 2979 | 2388 | 1849 | 1366 | 885 | 466 | 0   | 0   | cd       |
| 100% | 100% | 99%  | 96%  | 91%  | 86%  | 79%  | 72%  | 64%  | 55%  | 47%  | 39%  | 31%  | 25%  | 19%  | 14%  | 9%  | 5%  | 0%  | 0%  | of 0°val |

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