



PHOTOMETRIC LIGHT REPORT

Floodlight | 50W/75W/100W | 100x60° | 3-CCT | light sensor

Article number: 146-371



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TRONIX



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Introduction

Purpose of this Document

This document provides accurate and objective photometric data for Tronix Lighting item 146-371. 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 146-371 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 146-371 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 (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 (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	98.5 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 – 146-371
Product Description	Floodlight 50W/75W/100W 100x60° 3-CCT light sensor

Main Light Measurement Results

Output – Total Lumen (Up% / Down%)	14572 lm – 0.02% / 99.98%
Efficiency	148 lm/W
Energy efficiency class	D
Peak Intensity and Beam Angle	7920 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 _f 83.5 – R _g 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}

226 V

RMS Input current feed. I_{RMS}

0.445 A

Total input power

98.5 W

Frequency of input power

50 Hz

Power factor

0.98

Displacement power factor

0.98

Total harmonic distortion of the current

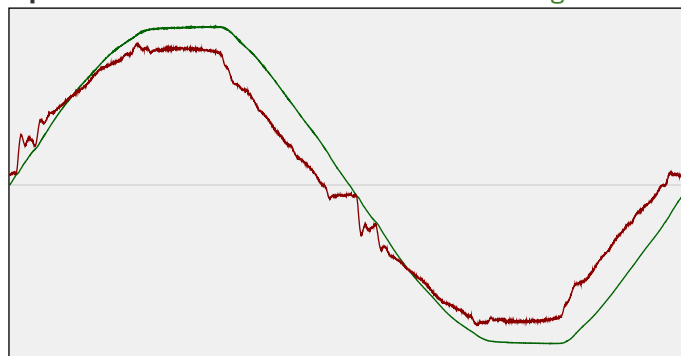
7.65%

Total harmonic distortion of the voltage

2.41%

Input Power Curve

Voltage - Current



Efficiency

Radiated power efficiency: 45.7%



Lumen efficiency: 148 lm/W



Harmonics

3rd Harmonic

5.41%

5th Harmonic

3.39%

7th Harmonic

1%

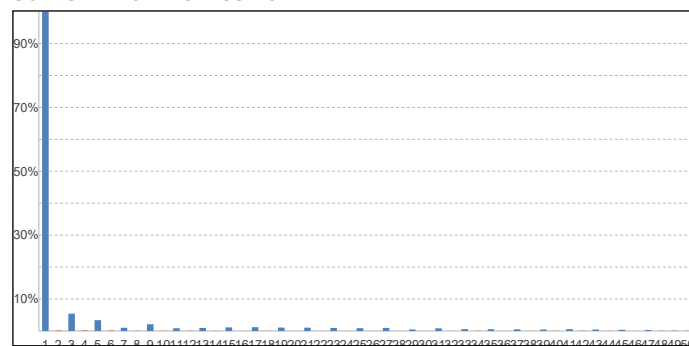
9th Harmonic

2.12%

11th Harmonic

0.86%

Current Harmonics %



Stabilization Details

Warm-up Conditions

Stable period

15 min CCT start

3974 K

Stable change max

2.0% CCT shift

+1 K

Minimum warm-up time

15 min CCT end

3975 K

Colour temperature change during warm-up

Warm-up Results

Total warmup time

Lamp stabilized in 15 min 1 sec

Output intensity change during warm-up

Output start

14647 lm

Warmup variation

-0.5%

Output change

-75 lm

Output end

14572 lm

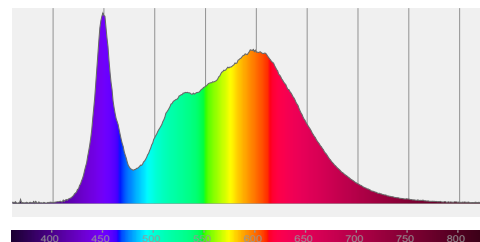
146-371 Floodlight | 50W/75W/100W | 100x60° | 3-CCT | light sensor

Colour measurement details

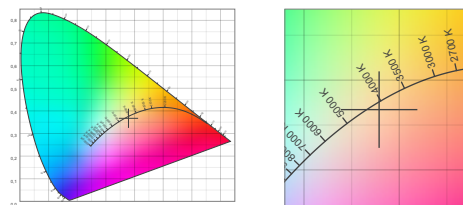
Total lumen output 14572 lm
 Correlated Colour Temperature 3975 K
 Colour coordinates CIE 1931 (x;y) = (0.379;0.367)
 Colour deviation from BBL Duv = -0.0041

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) $R_9 = 17.3$

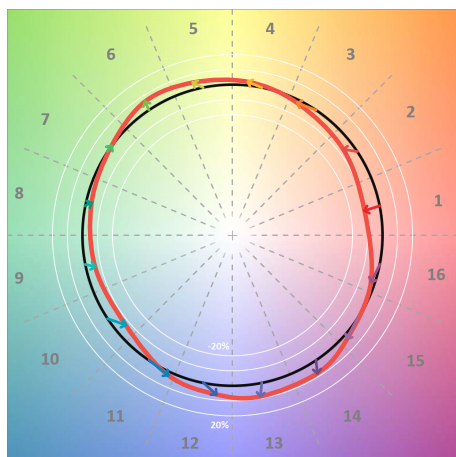
Colour Quality Scale CQS = 82.0
 Television Lighting Consistency Index TLCI = 67



Relative spectral power distribution



TM30 details

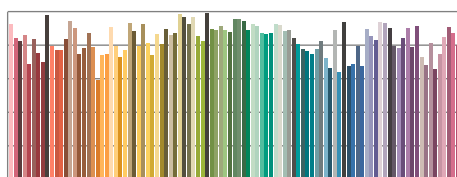


TM30 Colour vectors per hue bin

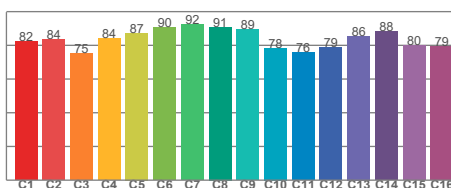


TM30 Colour distortion

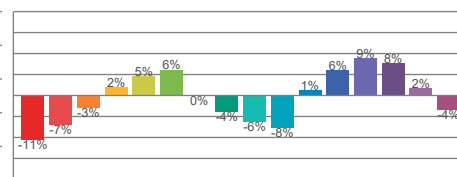
Hue Bin	R_f	Shifts (%)	
		Chroma	Hue
C1	82	-11%	-1%
C2	84	-7%	6%
C3	75	-3%	13%
C4	84	2%	10%
C5	87	5%	6%
C6	90	6%	-1%
C7	92	0%	-5%
C8	91	-4%	-3%
C9	89	-6%	3%
C10	78	-8%	10%
C11	76	1%	16%
C12	79	6%	10%
C13	86	9%	-3%
C14	88	8%	-4%
C15	80	2%	-15%
C16	79	-4%	-13%



TM30-18 R_f -values per reference colour

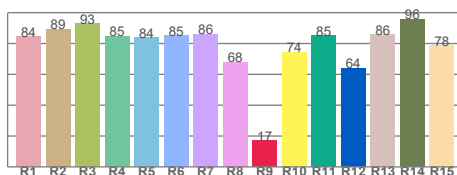


TM30-18 R_f -values per hue bin

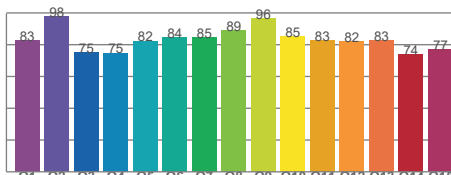


TM30 Chroma shift

Colour Quality details



Colour Rendering Index



Colour Quality Scale

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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)

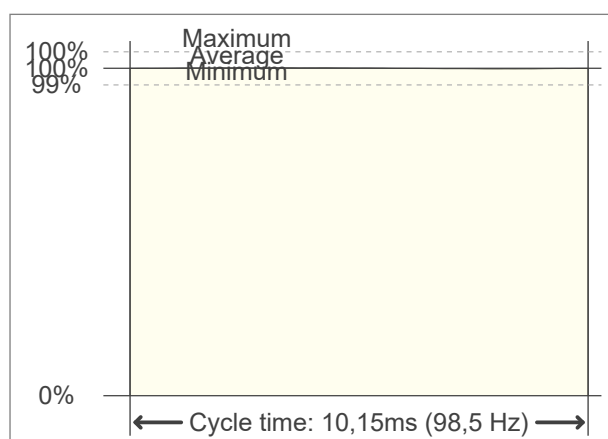
Flicker frequency	98.52 Hz
Percent flicker	0.23 %
Flicker index	0

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

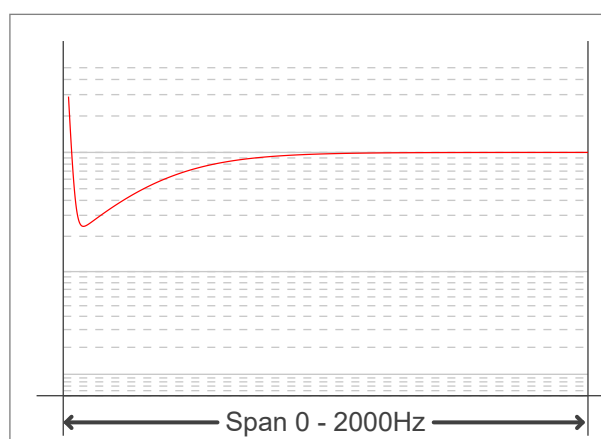
An LED luminaire is considered flicker-free if the SVM value is ≤ 0.4 and if the PstLM value is ≤ 1.0

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

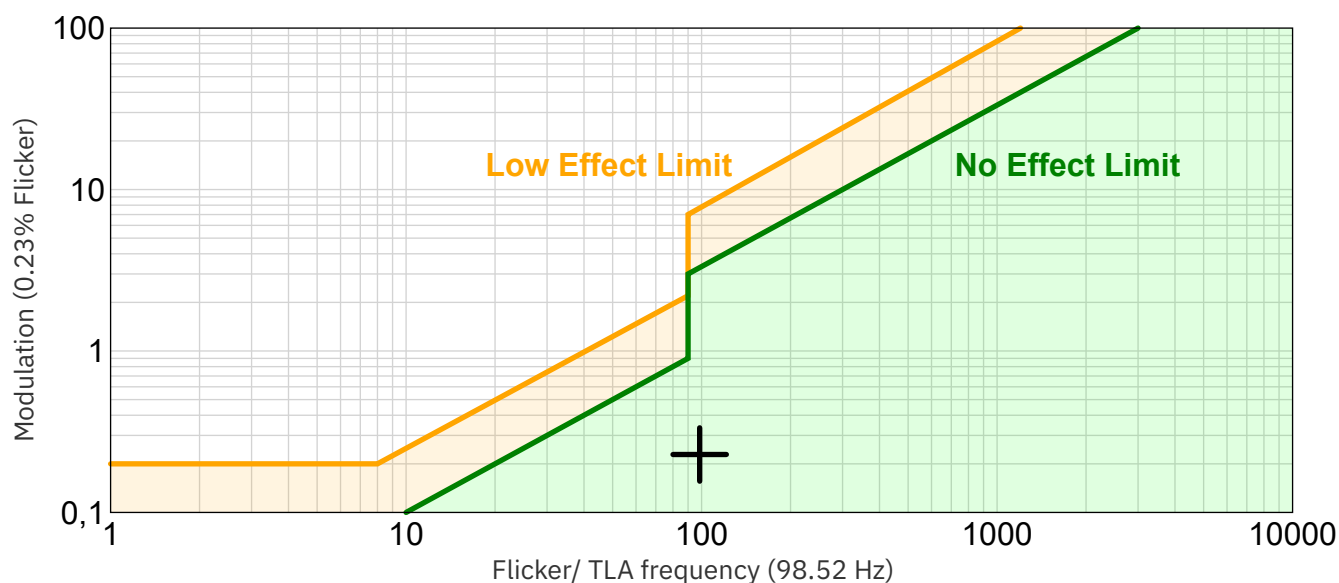
Flicker frame (one flicker period in time domain)



Flicker FFT (flicker curve in frequency domain)



IEEE 1789-2015 Lighting Flicker Risk Zones



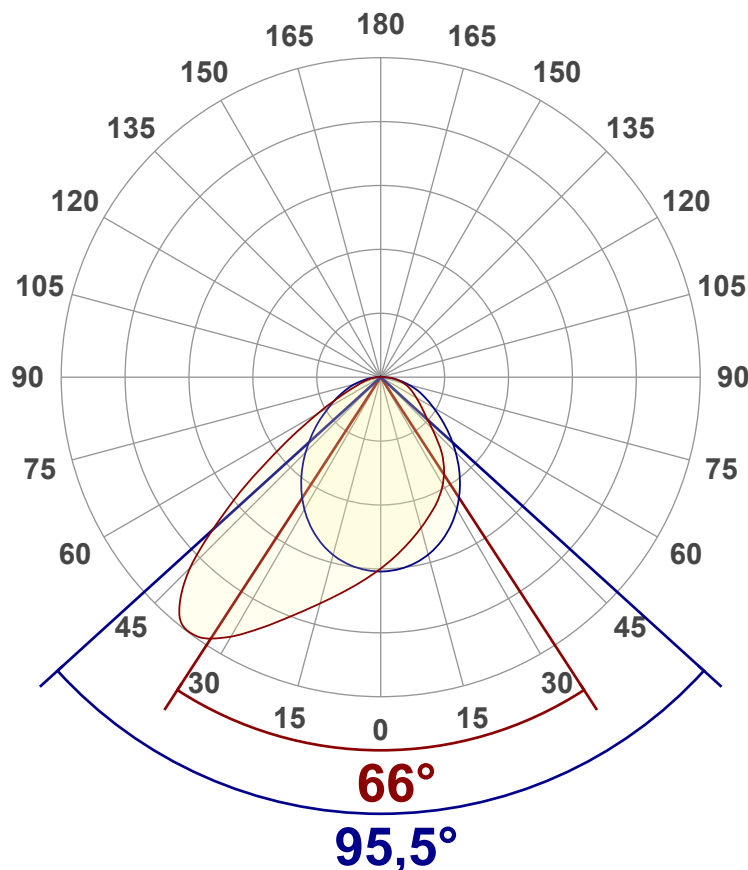
Document revision date: 19-8-2025 Measurement serial: VFR-250724-10533-SW

146-371 Floodlight | 50W/75W/100W | 100x60° | 3-CCT | light sensor

Beam angle

Luminous Intensity diagram

Unit: 0-100% of peak intensity



Main Values

Output (total Lumen)	14572 lm
Lumen Up/Down	0.02% / 99.98%
Peak Intensity	7920 cd
Beam Angle (50%)	85°
Beam Angle (90%)	95.5°
Beam Angle (10%)	66°

Cut-off Angle

Average 2.5%	176.3°
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Field Angle

Average 10%	149.3°
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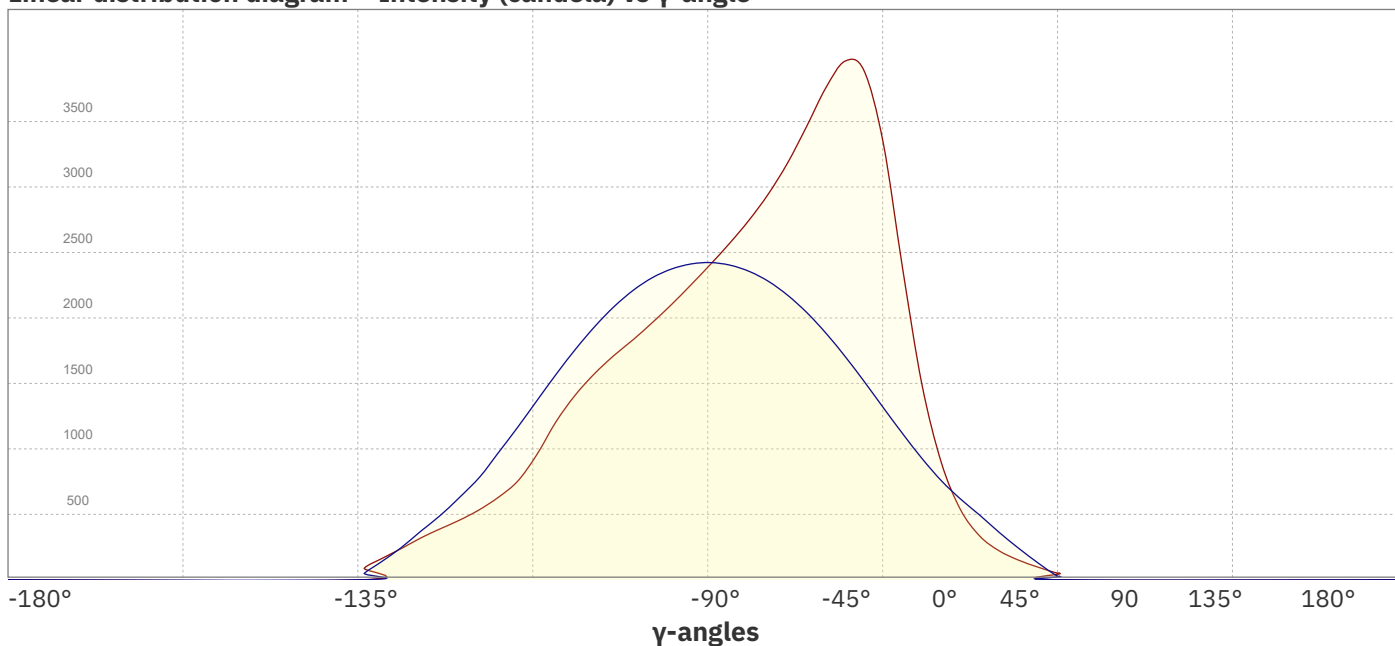
Intensity Ratio

In 120° cone	83.0%
In 90° cone	56.7%

C planes

C000-C180
C090-C270

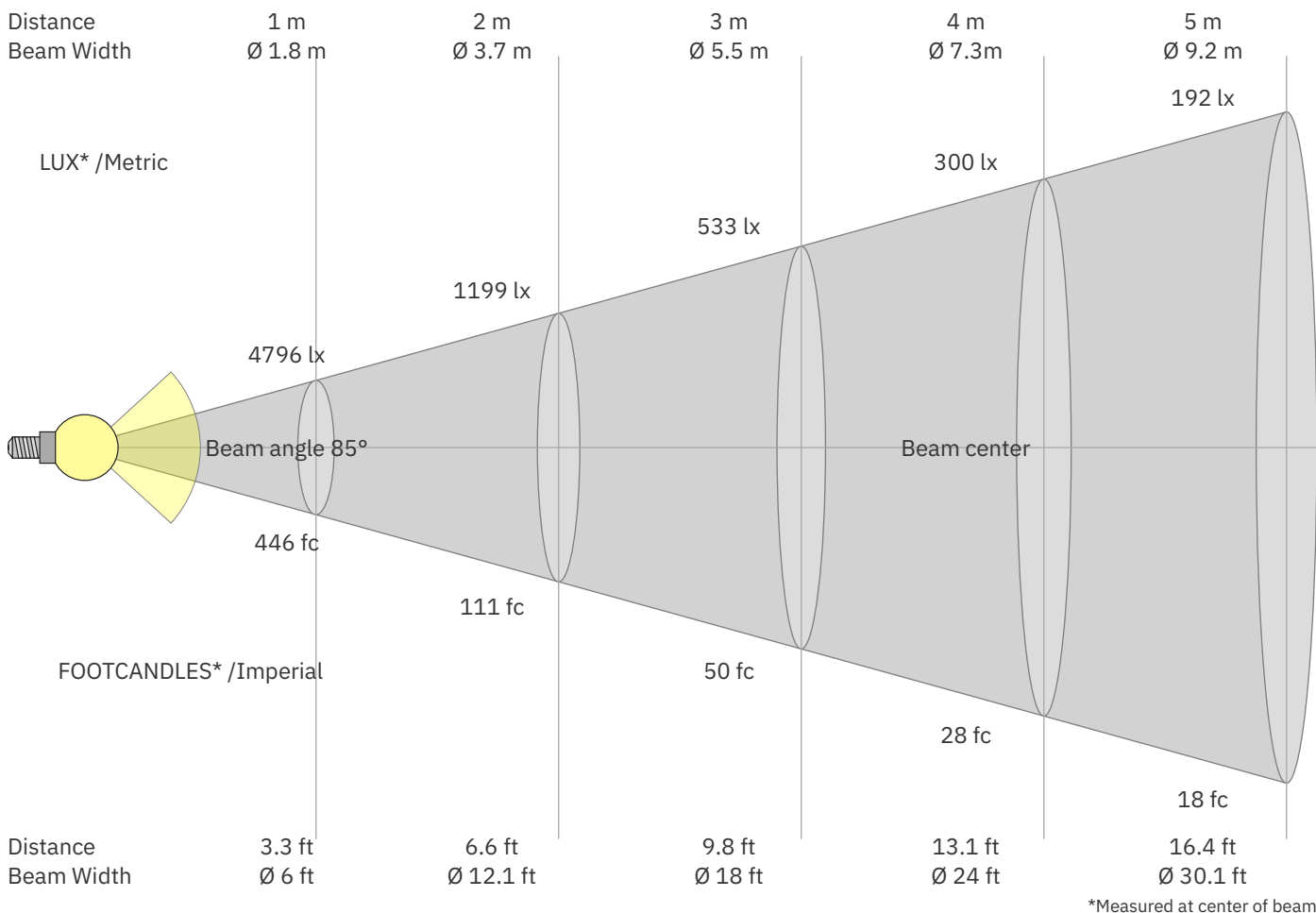
Linear distribution diagram - Intensity (candela) vs γ-angle



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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
4796	1199	533	300	192	133	98	75	59	48	40	33	28	24	21	19	17	15	13	12	lux
445.6	111.4	49.5	27.8	17.8	12.4	9.1	7	5.5	4.5	3.7	3.1	2.6	2.3	2	1.7	1.5	1.4	1.2	1.1	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
4796	4463	4166	3889	3627	3377	3090	2745	2314	1826	1452	1216	1031	880	745	601	441	287	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
4796	4811	4723	4577	4370	4108	3793	3436	3048	2643	2244	1863	1521	1236	986	723	481	256	62	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
4796	5098	5448	5844	6314	6873	7467	7898	7789	6706	4808	3020	1813	1075	667	442	300	193	103	0	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
4796	4813	4728	4584	4379	4117	3802	3446	3057	2649	2242	1852	1489	1194	925	683	442	233	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

Light Planning – UGR table

Reflectances											
ρ Ceiling		70	70	50	50	30	70	70	50	50	30
ρ Walls		50	30	50	30	30	50	30	50	30	30
ρ Floor		20	20	20	20	20	20	20	20	20	20
Room size											
H = mounting height above eye level											
X	Y	Viewed Crosswise					Viewed Endwise				
		(Viewing direction orthogonal to lamp length axis)					(Viewing direction parallel to lamp length axis)				
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Variations with the observer position for the luminaire spacings. S:											
	n/a			n/a					n/a		
	n/a			n/a					n/a		
	n/a			n/a					n/a		

Ceiling reflectance	80			70			50			30			10			0		
Wall reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Floor reflectance	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	0
RCR	(RCR: Room Cavity Ratio) Room Values are expressed as percentage of Lumen delivered to the task surface																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	104	100	97	106	102	98	95	98	95	92	94	92	89	90	88	87	84
2	100	92	85	79	97	90	84	78	86	81	77	83	79	75	80	76	73	71
3	91	81	73	66	89	79	72	66	76	70	65	73	68	63	71	66	62	60
4	83	72	63	56	81	70	62	56	68	61	55	65	59	54	63	58	54	52
5	77	64	55	49	75	63	54	48	61	53	48	59	52	47	57	51	47	45
6	71	58	49	42	69	57	48	42	55	47	42	53	46	41	52	46	41	39
7	65	52	43	37	64	51	43	37	50	42	37	48	42	37	47	41	36	34
8	61	47	39	33	59	47	39	33	45	38	33	44	37	33	43	37	32	30
9	57	43	35	30	55	43	35	30	42	34	29	41	34	29	40	34	29	27
10	53	40	32	27	52	39	32	27	38	31	27	38	31	26	37	31	26	25