



PHOTOMETRIC LIGHT REPORT

Batten light | 600mm | 10~25W | IP20 | 3-CCT

Article number: 136-305



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TRONIX



136-305 Batten light | 600mm | 10~25W | IP20 | 3-CCT

Introduction

Purpose of this Document

This document provides accurate and objective photometric data for Tronix Lighting item 136-305. 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 136-305 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 136-305 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.

136-305 Batten light | 600mm | 10~25W | IP20 | 3-CCT

Laboratory and equipment

Laboratory owner and location
Gonio spectrometer system and type
Spectrometer manufacturer and model

Flicker meter manufacturer and model
Oscilloscope manufacturer and model
Power meter manufacturer and model

Power source manufacturer and model

Datalogger Manufacturer and Model

Tronix Lighting BV, Uden, The Netherlands
Viso Systems Type C, horizontal
(Gonio) Ocean Optics STS VIS
(Sphere) Admesy HERA VIS 380–780nm
Viso Systems LabFlicker
Tektronix MDO3024 oscilloscope (4 Channels, 200 MHz)
Vitretek PA900 Precision Multi-Channel Harmonic Power Analyzer
(DC) Keithley Source Measure Unit SMU-2420 3A DC Source Meter
(AC) Chroma 61601 AC Source
Omega 8-Channel Thermocouple Thermometer/Data Logger

Measurement conditions gonio spectrometer

Number of C-planes and Resolution
 γ (gamma)-Resolution
Test Distance
Room Temperature and Humidity
Input Power, Power and Displacement Factors
Frequency of Input Power
Warm-up Time and Variation

4 planes – 90°
5°
1.81 m
22°C +/- 10% – RH 50% +/- 20%
22.7 W – PF 0.96 – DPF 0.97
50 Hz
Lamp stabilized in 16 min 59 sec --2.4%

Tested light source

Manufacturer and Order Code
Product Description

Tronix Lighting – 136-305
Batten light | 600mm | 10~25W | IP20 | 3-CCT

Main Light Measurement Results

Output – Total Lumen (Up% / Down%)
Efficiency
Energy efficiency class
Peak Intensity and Beam Angle
Correlated Colour Temperature
Colour Shift, CIE u_{uv}
Colour Rendering Index
Colour Rendering TM30-18
Television Lighting Consistency Index
Flicker

2845 lm – 6.78% / 93.22%
125 lm/W
E
824 cd – 121°
CCT = 4289 K
Duv -0.0058
CRI 87.6
 R_f 85.3 – R_g 98.4
TLCI = 75
SVM 0 – PstLM 0.11

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Electrical measurement details

Input Power

RMS Input voltage feed. V_{RMS}

232 V

RMS Input current feed. I_{RMS}

0.102 A

Total input power

22.7 W

Frequency of input power

50 Hz

Power factor

0.96

Displacement power factor

0.97

Total harmonic distortion of the current

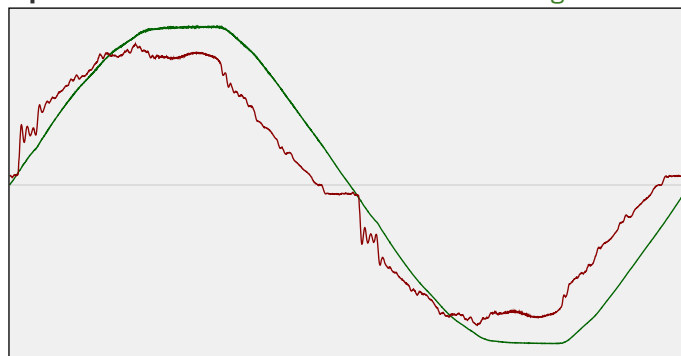
9.13%

Total harmonic distortion of the voltage

2.44%

Input Power Curve

Voltage - Current



Efficiency

Radiated power efficiency: 40.3%



Lumen efficiency: 125 lm/W



Harmonics

3rd Harmonic

3.11%

5th Harmonic

6.52%

7th Harmonic

1.51%

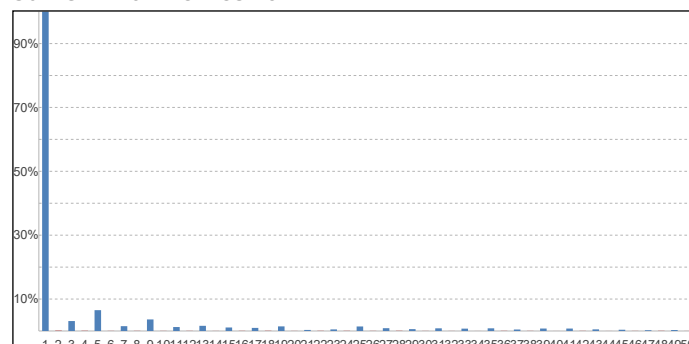
9th Harmonic

3.61%

11th Harmonic

1.24%

Current Harmonics %



Stabilization Details

Warm-up Conditions

Stable period

15 min CCT start

4266 K

Stable change max

2.0% CCT shift

+23 K

Minimum warm-up time

15 min CCT end

4289 K

Colour temperature change during warm-up

Warm-up Results

Total warmup time

Lamp stabilized in 16 min 59

sec

Output intensity change during warm-up

Output start

2899 lm

Warmup variation

-2.4% Output change

-55 lm

Output end

2845 lm

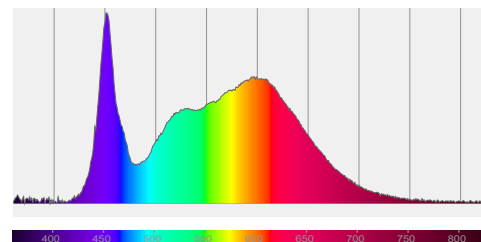
136-305 Batten light | 600mm | 10~25W | IP20 | 3-CCT

Colour measurement details

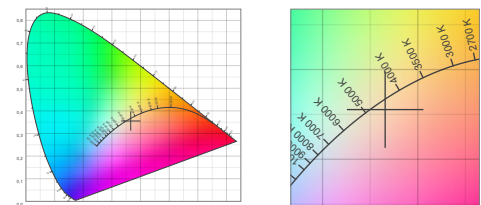
Total lumen output 2845 lm
 Correlated Colour Temperature 4289 K
 Colour coordinates CIE 1931 (x;y) = (0.366;0.355)
 Colour deviation from BBL Duv = -0.0058

TM30-18 Colour Fidelity Index R_f 85.3
 TM30-18 Colour Gamut Index R_g 98.4
 Colour Rendering Index (Ra) CRI 87.6
 Colour Rendering Index. (red component) $R_9 = 31.1$

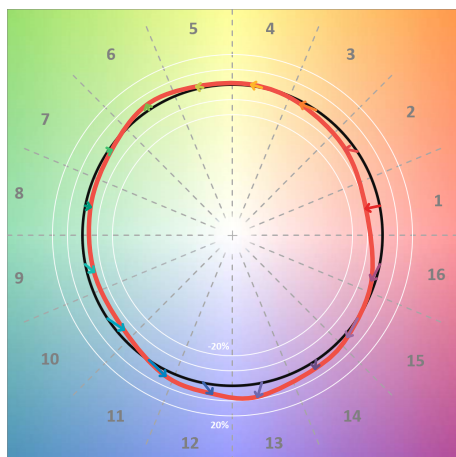
Colour Quality Scale CQS = 84.0
 Television Lighting Consistency Index TLCI = 75



Relative spectral power distribution



TM30 details

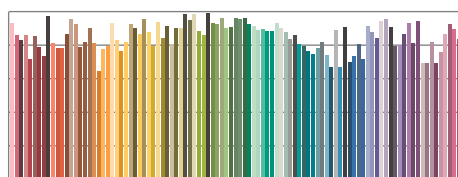


TM30 Colour vectors per hue bin

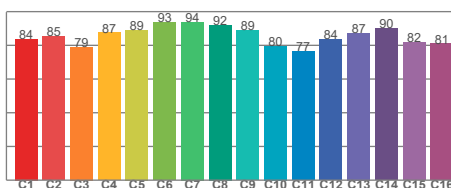


TM30 Colour distortion

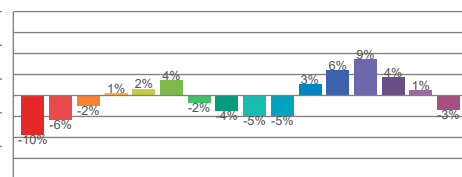
Hue Bin	R_f	Shifts (%)	
		Chroma	Hue
C1	84	-10%	0%
C2	85	-6%	6%
C3	79	-2%	11%
C4	87	1%	7%
C5	89	2%	4%
C6	93	4%	-1%
C7	94	-2%	-2%
C8	92	-4%	0%
C9	89	-5%	6%
C10	80	-5%	12%
C11	77	3%	15%
C12	84	6%	7%
C13	87	9%	-5%
C14	90	4%	-4%
C15	82	1%	-14%
C16	81	-3%	-11%



TM30-18 R_f -values per reference colour

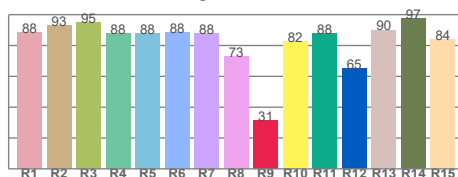


TM30-18 R_f -values per hue bin

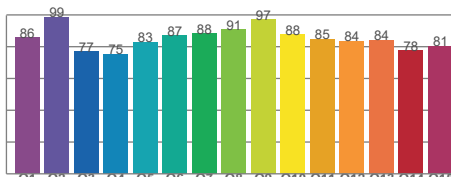


TM30 Chroma shift

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)

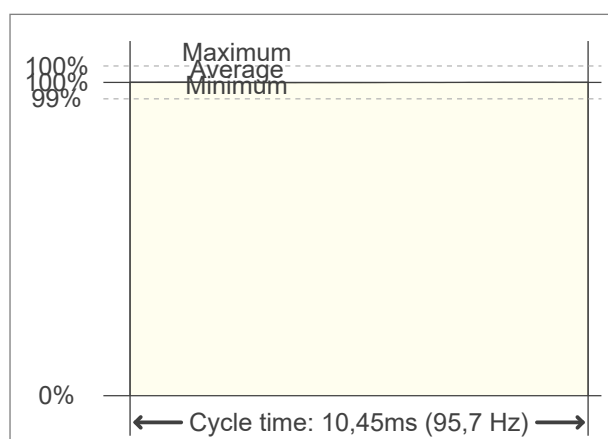
Flicker frequency	95.69 Hz
Percent flicker	4.81 %
Flicker index	0

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

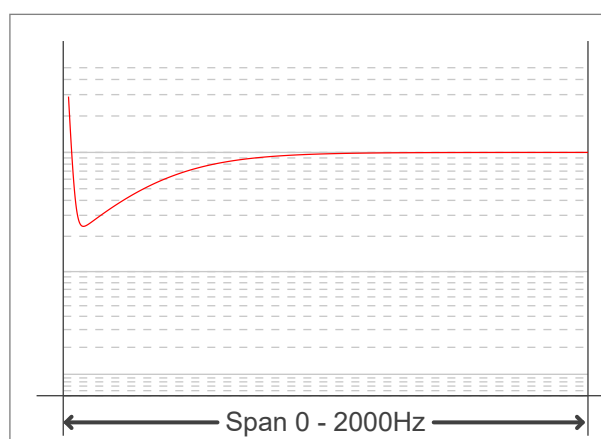
An LED luminaire is considered flicker-free if the SVM value is ≤ 0.4 and if the PstLM value is ≤ 1.0

PstLM value ($F < 80$ Hz)	0.11
SVM value ($80 < F < 2000$ Hz)	0

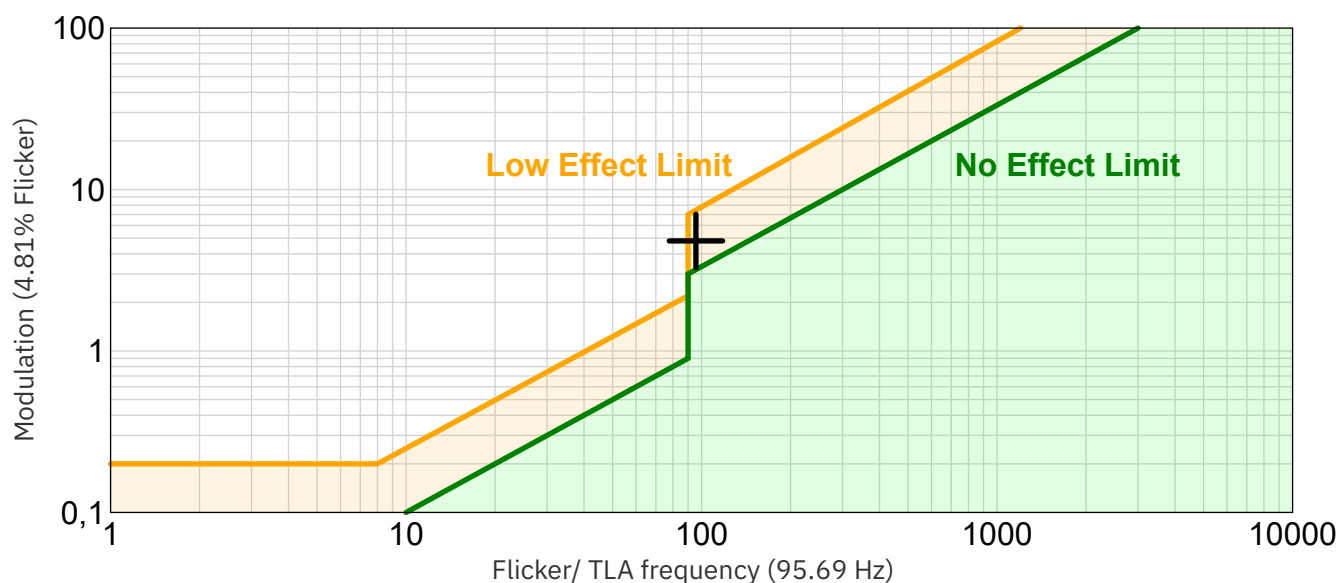
Flicker frame (one flicker period in time domain)



Flicker FFT (flicker curve in frequency domain)



IEEE 1789-2015 Lighting Flicker Risk Zones



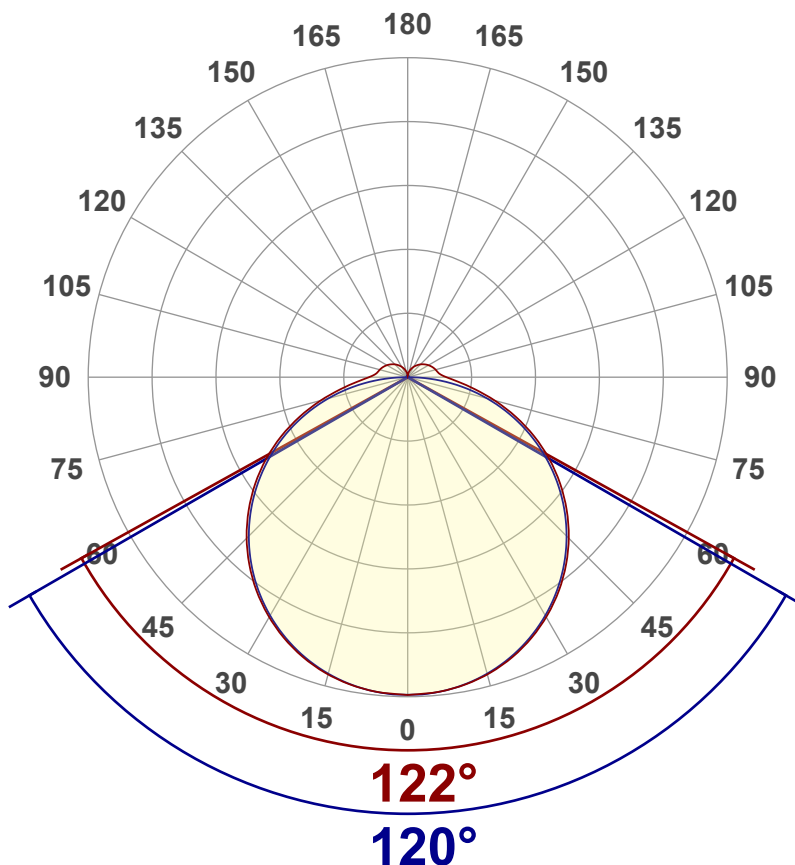
Document revision date: 1-7-2025 Measurement serial: VFR-250404-5291-MS

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Beam angle

Luminous Intensity diagram

Unit: 0-100% of peak intensity



Main Values

Output (total Lumen)	2845 lm
Lumen Up/Down	6.78% / 93.22%
Peak Intensity	824 cd
Beam Angle (50%)	121°
Beam Angle (90%)	120°
Beam Angle (10%)	122°

Cut-off Angle

Average 2.5%	248.5°
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Field Angle

Average 10%	181.4°
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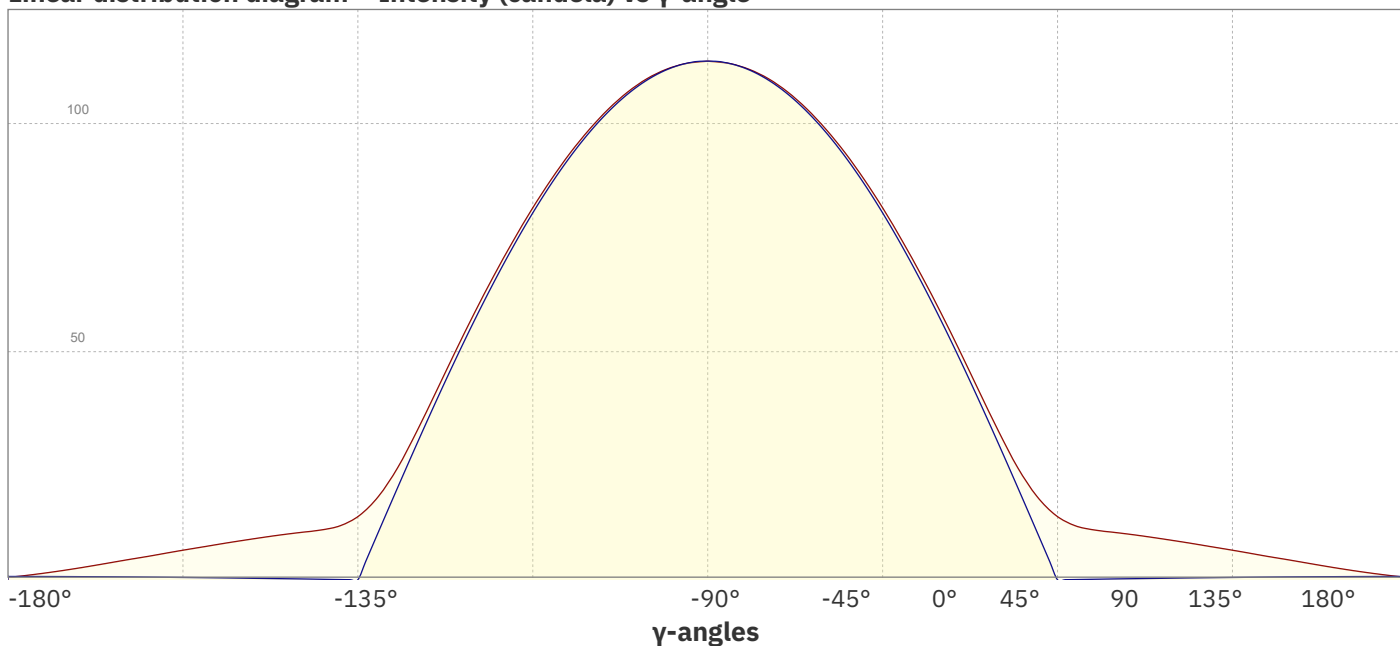
Intensity Ratio

In 120° cone	68.6%
In 90° cone	45.7%

C planes

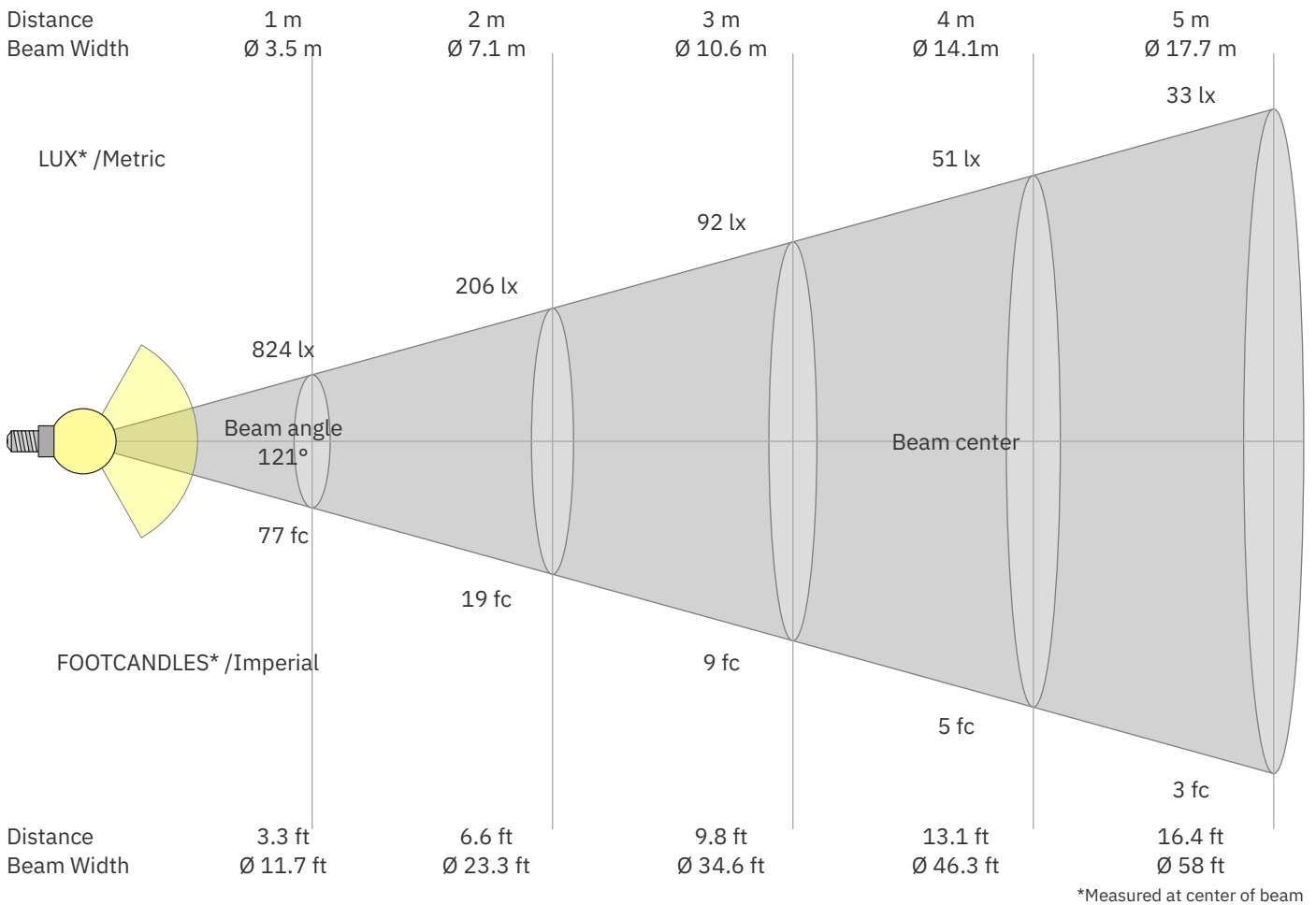
C000-C180
C090-C270

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



Document revision date: 1-7-2025 Measurement serial: VFR-250404-5291-MS

Beam Details



*Measured at center of beam

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
824	206	92	51	33	23	17	13	10	8	7	6	5	4	4	3	3	3	2	2	lux
76.5	19.1	8.5	4.8	3.1	2.1	1.6	1.2	0.9	0.8	0.6	0.5	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	fc

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°	γ
824	814	786	738	673	591	494	387	272	167	101	80	73	65	56	47	37	28	19	10	cd
100%	99%	95%	90%	82%	72%	60%	47%	33%	20%	12%	10%	9%	8%	7%	6%	5%	3%	2%	1%	of 0°val

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°	γ
824	814	784	734	667	583	485	374	255	129	0	1	2	2	3	4	4	5	5	5	cd
100%	99%	95%	89%	81%	71%	59%	45%	31%	16%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	of 0°val

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°	γ
824	814	786	738	673	591	494	387	272	167	101	80	73	65	56	47	37	28	19	10	cd
100%	99%	95%	90%	82%	72%	60%	47%	33%	20%	12%	10%	9%	8%	7%	6%	5%	3%	2%	1%	of 0°val

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°	γ
824	814	784	734	667	583	485	374	255	129	0	1	2	2	3	4	4	5	5	5	cd
100%	99%	95%	89%	81%	71%	59%	45%	31%	16%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	of 0°val







CARE

SHARE

CONNECT

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 (Viewing direction orthogonal to lamp length axis)				Viewed Endwise (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
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	117	117	117	117	114	114	114	114	114	107	107	107	101	101	96	96	96	93
1	106	101	96	92	102	98	93	89	92	89	85	87	84	82	82	80	78	75
2	96	87	80	73	92	84	78	72	80	74	69	75	71	67	71	68	64	62
3	87	76	67	60	84	74	66	59	70	63	57	66	60	56	63	58	54	51
4	79	67	58	51	76	65	57	50	62	54	48	58	52	47	55	50	46	43
5	73	59	50	43	70	58	49	43	55	47	42	52	46	41	50	44	40	37
6	67	53	44	38	65	52	43	37	50	42	36	47	40	35	45	39	35	32
7	62	48	39	33	60	47	39	33	45	37	32	43	36	31	41	35	31	28
8	58	44	35	29	56	43	35	29	41	34	28	39	33	28	38	32	27	25
9	54	40	32	26	52	39	31	26	38	31	25	36	30	25	35	29	25	23
10	50	37	29	24	49	36	29	23	35	28	23	33	27	23	32	26	22	20