



PHOTOMETRIC LIGHT REPORT

Batten light flat | 1200mm | 30W | IP20 | 3-CCT

Article number: 136-311



Go to the
webshop
of Tronix
Lighting



TRONIX

136-311 Batten light flat | 1200mm | 30W | IP20 | 3-CCT

Introduction

Purpose of this Document

This document provides accurate and objective photometric data for Tronix Lighting item 136-311. 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 136-311 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 136-311 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.

136-311 Batten light flat | 1200mm | 30W | 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%
28.1 W – PF 0.98 – DPF 0.99
50.1 Hz
Lamp stabilized in 15 min 1 sec --1.4%

Tested light source

Manufacturer and Order Code
Product Description

Tronix Lighting – 136-311
Batten light flat | 1200mm | 30W | 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 duv
Colour Rendering Index
Colour Rendering TM30-18
Television Lighting Consistency Index
Flicker

3992 lm – 5.94% / 94.06%
142 lm/W
D
1147 cd – 122.1°
CCT = 4038 K
Duv -0.0061
CRI 86.9
 R_f 85.2 – R_g 97.2
TLCI = 74
SVM 0.02 – PstLM 0.01

136-311 Batten light flat | 1200mm | 30W | IP20 | 3-CCT

Electrical measurement details

Input Power

RMS Input voltage feed. V_{RMS}

232 V

RMS Input current feed. I_{RMS}

0.124 A

Total input power

28.1 W

Frequency of input power

50.1 Hz

Power factor

0.98

Displacement power factor

0.99

Total harmonic distortion of the current

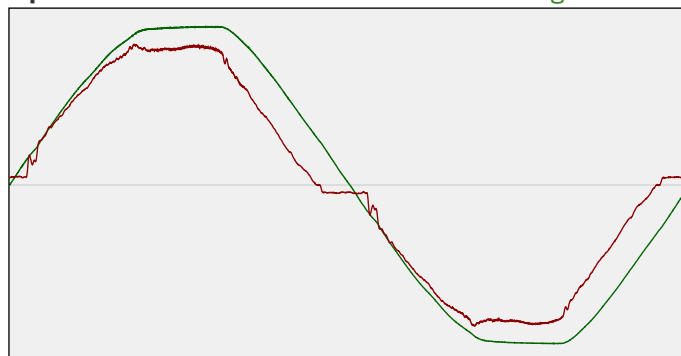
13.07%

Total harmonic distortion of the voltage

2.69%

Input Power Curve

Voltage - Current



Efficiency

Radiated power efficiency: 45.2%



Lumen efficiency: 142 lm/W



Harmonics

3rd Harmonic

9.95%

5th Harmonic

7.49%

7th Harmonic

0.86%

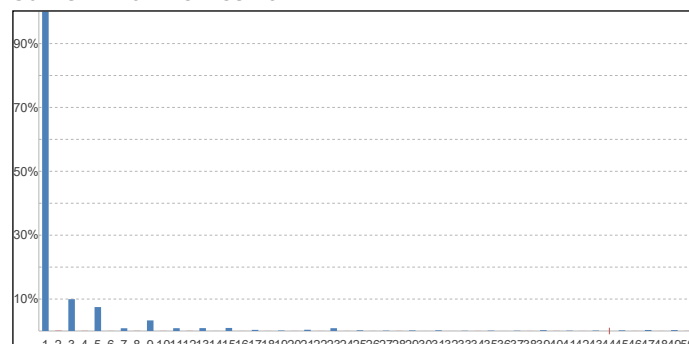
9th Harmonic

3.31%

11th Harmonic

0.88%

Current Harmonics %



Stabilization Details

Warm-up Conditions

Stable period

15 min CCT start

3981 K

Stable change max

2.0% CCT shift

+57 K

Minimum warm-up time

15 min CCT end

4038 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

4008 lm

Warmup variation

-1.4%

Output change

-16 lm

Output end

3992 lm

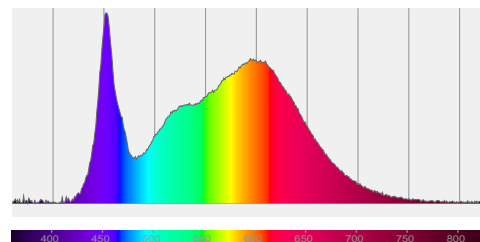
136-311 Batten light flat | 1200mm | 30W | IP20 | 3-CCT

Colour measurement details

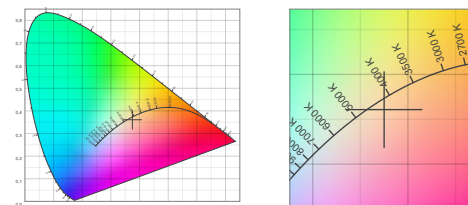
Total lumen output 3992 lm
 Correlated Colour Temperature 4038 K
 Colour coordinates CIE 1931 (x;y) = (0.375;0.361)
 Colour deviation from BBL Duv = -0.0061

TM30-18 Colour Fidelity Index R_f 85.2
 TM30-18 Colour Gamut Index R_g 97.2
 Colour Rendering Index (Ra) CRI 86.9
 Colour Rendering Index. (red component) $R_9 = 26.7$

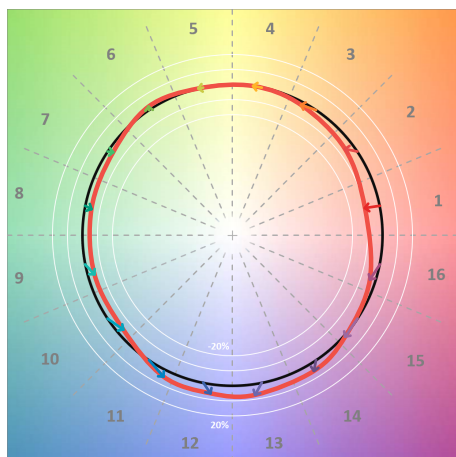
Colour Quality Scale CQS = 83.6
 Television Lighting Consistency Index TLCI = 74



Relative spectral power distribution



TM30 details

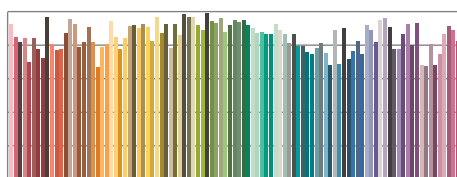


TM30 Colour vectors per hue bin

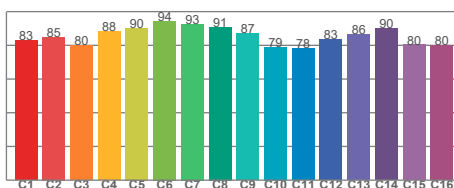


TM30 Colour distortion

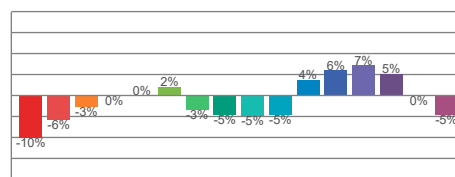
Hue Bin	R_f	Shifts (%)	
		Chroma	Hue
C1	83	-10%	0%
C2	85	-6%	6%
C3	80	-3%	10%
C4	88	0%	6%
C5	90	0%	3%
C6	94	2%	-1%
C7	93	-3%	-2%
C8	91	-5%	1%
C9	87	-5%	8%
C10	79	-5%	12%
C11	78	4%	14%
C12	83	6%	6%
C13	86	7%	-6%
C14	90	5%	-5%
C15	80	0%	-15%
C16	80	-5%	-11%



TM30-18 R_f -values per reference colour

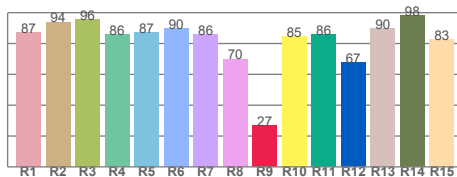


TM30-18 R_f -values per hue bin

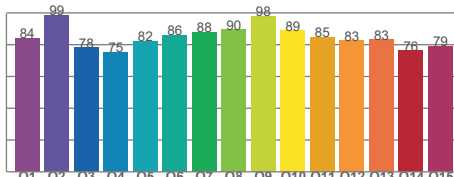


TM30 Chroma shift

Colour Quality details



Colour Rendering Index



Colour Quality Scale

136-311 Batten light flat | 1200mm | 30W | IP20 | 3-CCT

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)

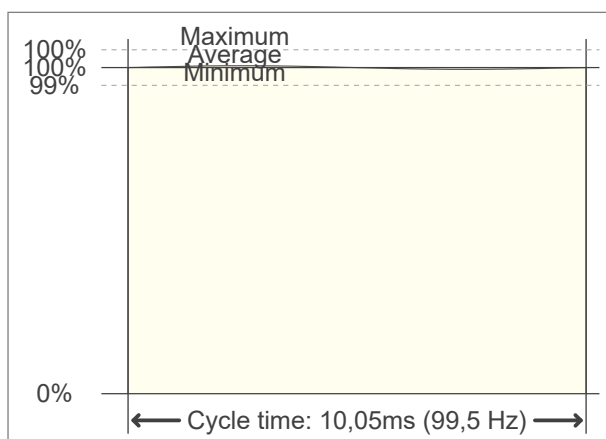
Flicker frequency	99.5 Hz
Percent flicker	0.57 %
Flicker index	0

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

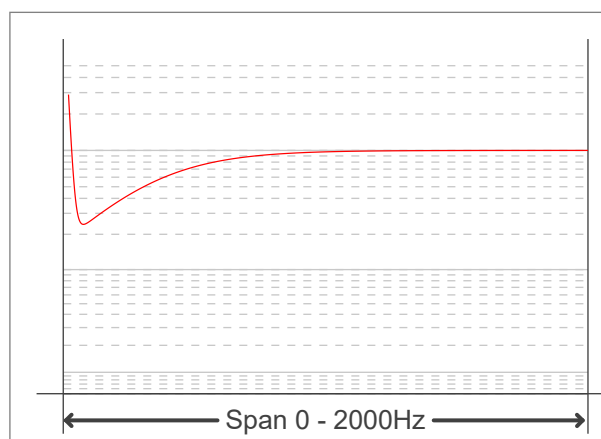
An LED luminaire is considered flicker-free if the SVM value is ≤ 0.4 and if the PstLM value is ≤ 1.0

PstLM value ($F < 80$ Hz)	0.01
SVM value ($80 < F < 2000$ Hz)	0.02

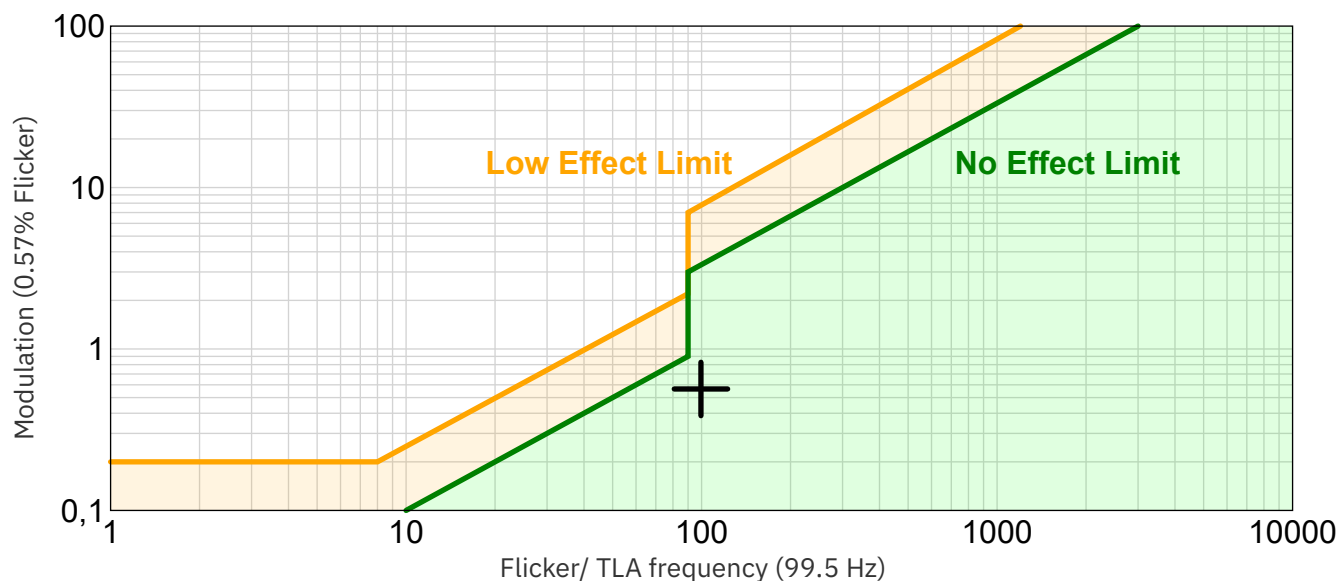
Flicker frame (one flicker period in time domain)



Flicker FFT (flicker curve in frequency domain)



IEEE 1789-2015 Lighting Flicker Risk Zones



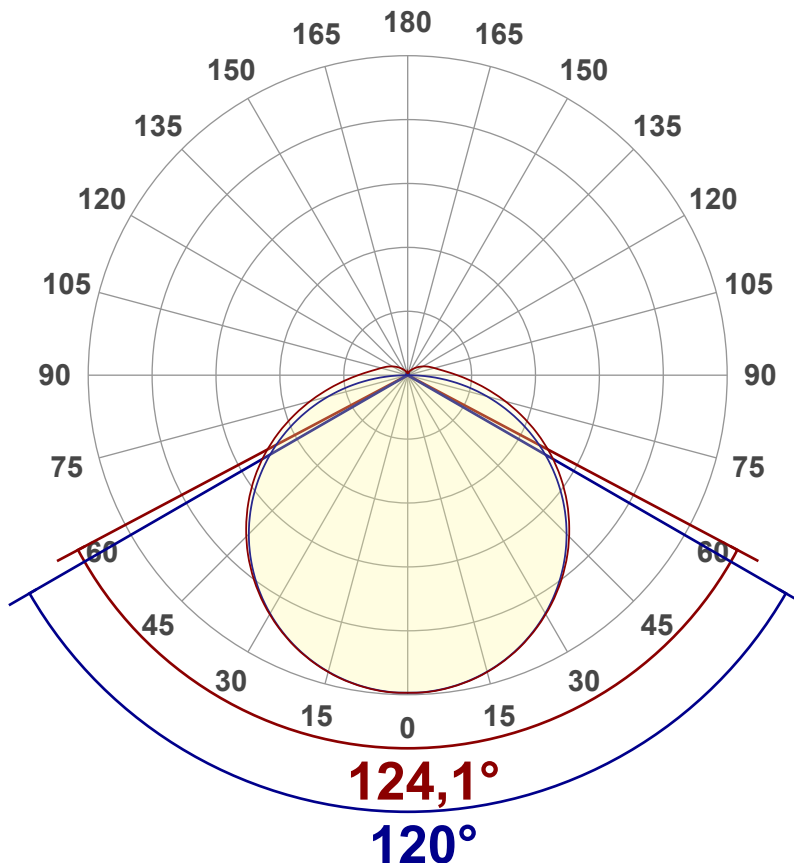
Document revision date: 1-7-2025 Measurement serial: VFR-250403-5244-MS

136-311 Batten light flat | 1200mm | 30W | IP20 | 3-CCT

Beam angle

Luminous Intensity diagram

Unit: 0-100% of peak intensity



Main Values

Output (total Lumen)	3992 lm
Lumen Up/Down	5.94% / 94.06%
Peak Intensity	1147 cd
Beam Angle (50%)	122.1°
Beam Angle (90%)	120°
Beam Angle (10%)	124.1°

Cut-off Angle

Average 2.5%	229.3°
--------------	--------

Field Angle

Average 10%	184.9°
-------------	--------

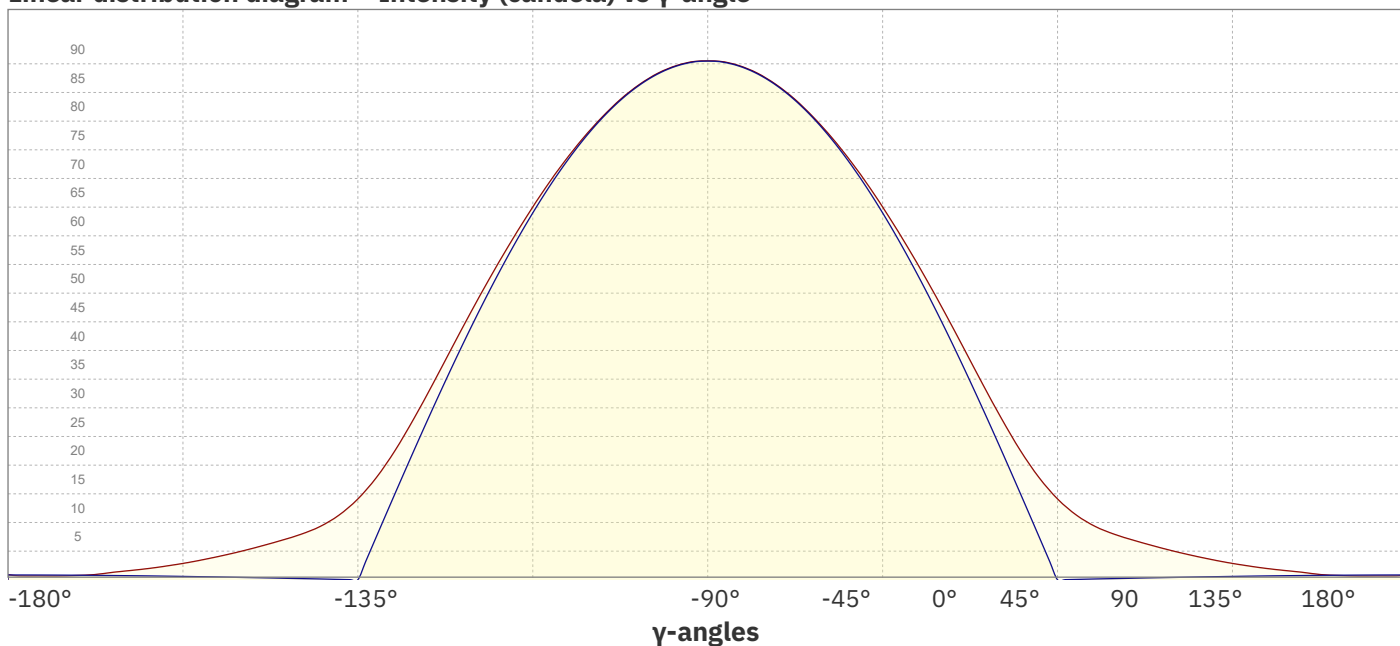
Intensity Ratio

In 120° cone	68.2%
In 90° cone	45.3%

C planes

C000-C180
C090-C270

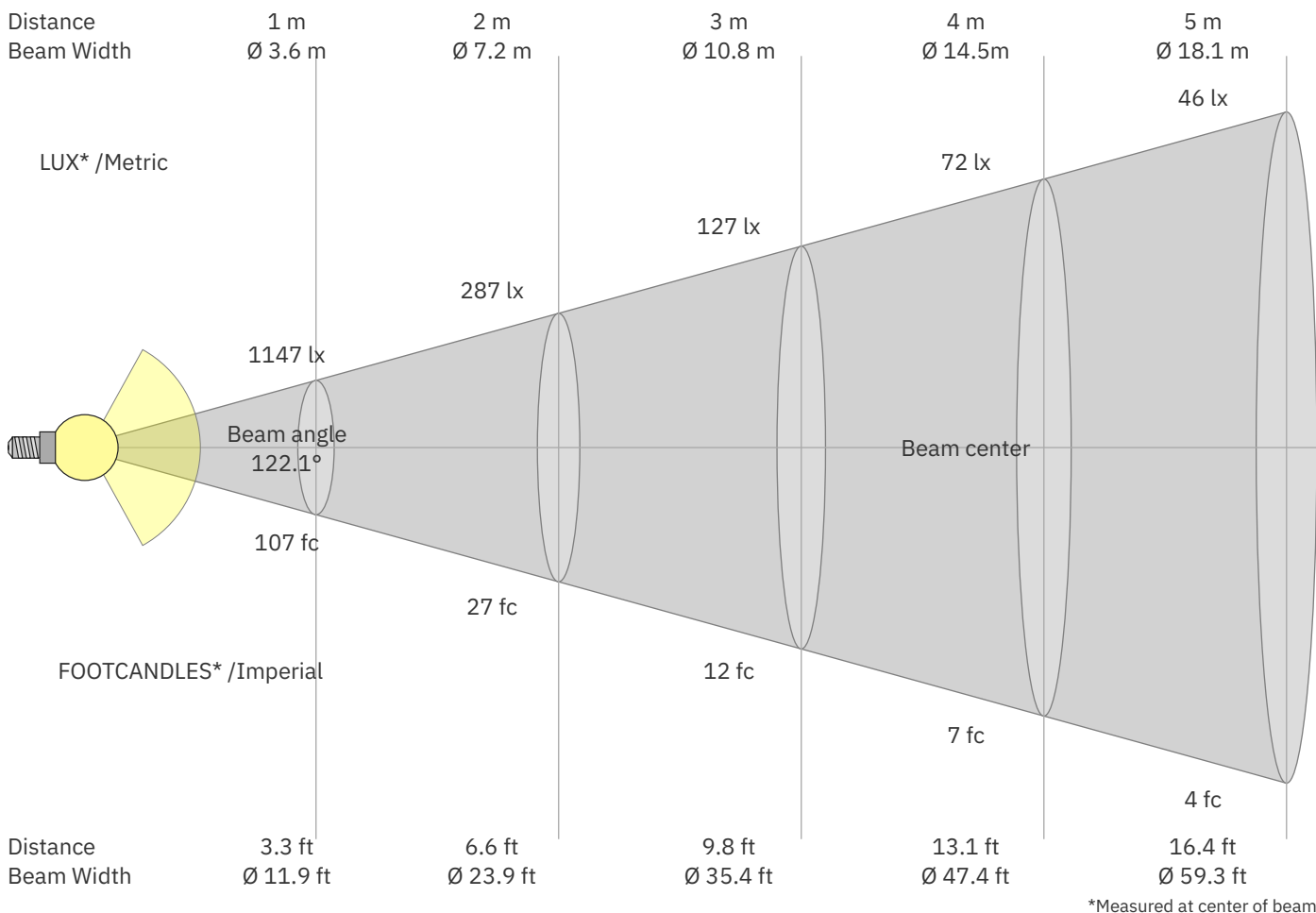
Linear distribution diagram - Intensity (candela) vs γ-angle



Document revision date: 1-7-2025 Measurement serial: VFR-250403-5244-MS

136-311 Batten light flat | 1200mm | 30W | IP20 | 3-CCT

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
1147	287	127	72	46	32	23	18	14	11	9	8	7	6	5	4	4	4	3	3	lux
106.6	26.6	11.8	6.7	4.3	3	2.2	1.7	1.3	1.1	0.9	0.7	0.6	0.5	0.5	0.4	0.4	0.3	0.3	0.3	fc

Intensities in 0° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°	γ
1147	1134	1093	1025	935	824	698	559	413	279	179	122	92	70	51	36	25	17	10	9	cd
100%	99%	95%	89%	81%	72%	61%	49%	36%	24%	16%	11%	8%	6%	4%	3%	2%	1%	1%	1%	of 0°val

Intensities in 90° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°	γ
1147	1134	1092	1023	929	812	675	521	355	180	0	2	3	5	6	8	9	9	10	10	cd
100%	99%	95%	89%	81%	71%	59%	45%	31%	16%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	of 0°val

Intensities in 180° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°	γ
1147	1134	1093	1025	935	824	698	559	413	279	179	122	92	70	51	36	25	17	10	9	cd
100%	99%	95%	89%	81%	72%	61%	49%	36%	24%	16%	11%	8%	6%	4%	3%	2%	1%	1%	1%	of 0°val

Intensities in 270° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°	γ
1147	1134	1092	1023	929	812	675	521	355	180	0	2	3	5	6	8	9	9	10	10	cd
100%	99%	95%	89%	81%	71%	59%	45%	31%	16%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	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 (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
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	118	118	118	118	114	114	114	114	108	108	108	102	102	102	97	97	97	94
1	106	100	96	91	102	97	93	89	92	88	85	87	84	81	83	80	78	75
2	96	87	79	73	92	84	77	71	80	74	69	75	71	66	71	68	64	61
3	87	75	67	60	84	73	65	59	69	63	57	66	60	55	63	58	54	51
4	79	66	57	50	76	65	56	49	61	54	48	58	52	47	55	50	46	43
5	73	59	50	43	70	58	49	42	55	47	41	52	45	40	50	44	39	37
6	67	53	44	37	65	52	43	37	49	42	36	47	40	35	45	39	34	32
7	62	48	39	33	60	47	38	32	45	37	32	43	36	31	41	35	30	28
8	58	44	35	29	56	43	34	29	41	33	28	39	32	28	38	32	27	25
9	54	40	32	26	52	39	31	26	38	30	25	36	29	25	35	29	24	22
10	50	37	29	23	49	36	28	23	35	28	23	33	27	22	32	26	22	20