



PHOTOMETRIC LIGHT REPORT

Corn lamp | E27 | AC100-240V | IP64 | 18W | 3000K

Article number: 175-536



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TRONIX



175-536 Corn lamp | E27 | AC100-240V | IP64 | 18W | 3000K

Introduction

Purpose of this Document

This document provides accurate and objective photometric data for Tronix Lighting item 175-536. 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 175-536 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 175-536 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	2 planes – 180°
γ (gamma)-Resolution	5°
Test Distance	0.66 m
Room Temperature and Humidity	22°C +/- 10% – RH 50% +/- 20%
Input Power. Power and Displacement Factors	17.1 W – PF 0.97 – DPF 0.98
Frequency of Input Power	50 Hz
Warm-up Time and Variation	Lamp stabilized in 19 min 59 sec --3.7%

Tested light source

Manufacturer and Order Code	Tronix Lighting – 175-536
Product Description	Corn lamp E27 AC100-240V IP64 18W 3000K

Main Light Measurement Results

Output – Total Lumen (Up% / Down%)	2152 lm – 38.12% / 61.88%
Efficiency	126 lm/W
Energy efficiency class	E
Peak Intensity and Beam Angle	241 cd – 265°
Correlated Colour Temperature	CCT = 3022 K
Colour Shift. CIE duv	Duv -0.0039
Colour Rendering Index	CRI 82.5
Colour Rendering TM30-18	R _f 83.9 – R _g 97.1
Television Lighting Consistency Index	TLCI = 65
Flicker	SVM 2 – PstLM 0.2

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Electrical measurement details

Input Power

RMS Input voltage feed. V_{RMS}

232 V

RMS Input current feed. I_{RMS}

0.076 A

Total input power

17.1 W

Frequency of input power

50 Hz

Power factor

0.97

Displacement power factor

0.98

Total harmonic distortion of the current

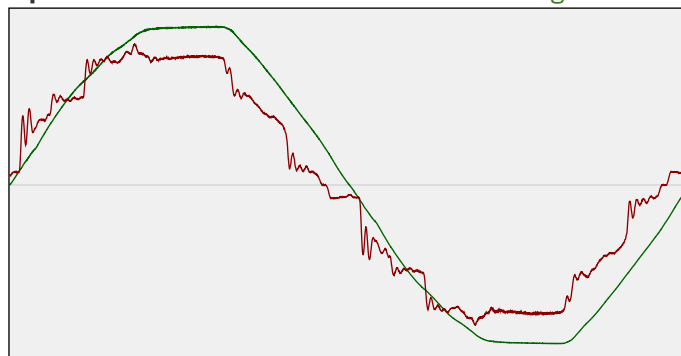
8.79%

Total harmonic distortion of the voltage

2.63%

Input Power Curve

Voltage - Current



Efficiency

Radiated power efficiency: 38.7%



Lumen efficiency: 126 lm/W



Harmonics

3rd Harmonic

1.65%

5th Harmonic

3.98%

7th Harmonic

1.47%

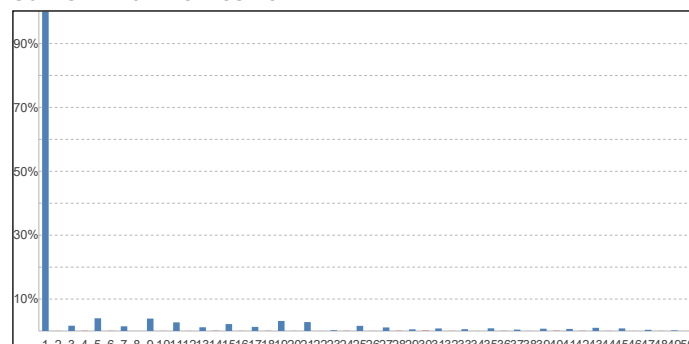
9th Harmonic

3.88%

11th Harmonic

2.7%

Current Harmonics %



Stabilization Details

Warm-up Conditions

Stable period

15 min CCT start

3001 K

Stable change max

2.0% CCT shift

+21 K

Minimum warm-up time

15 min CCT end

3022 K

Colour temperature change during warm-up

Warm-up Results

Total warmup time

Lamp stabilized in 19 min 59 sec

Output intensity change during warm-up

Output start

2230 lm

Warmup variation

-3.7% Output change

-77 lm

Output end

2152 lm

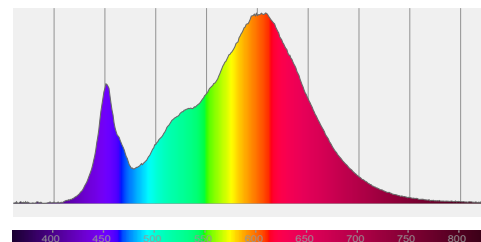
175-536 Corn lamp | E27 | AC100-240V | IP64 | 18W | 3000K

Colour measurement details

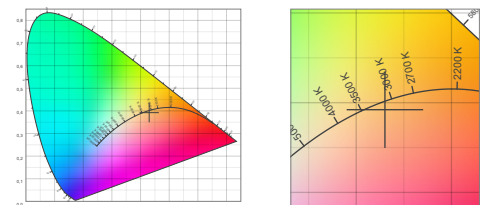
Total lumen output 2152 lm
 Correlated Colour Temperature 3022 K
 Colour coordinates CIE 1931 (x;y) = (0.430;0.392)
 Colour deviation from BBL Duv = -0.0039

TM30-18 Colour Fidelity Index R_f 83.9
 TM30-18 Colour Gamut Index R_g 97.1
 Colour Rendering Index (Ra) CRI 82.5
 Colour Rendering Index. (red component) $R_9 = 5.6$

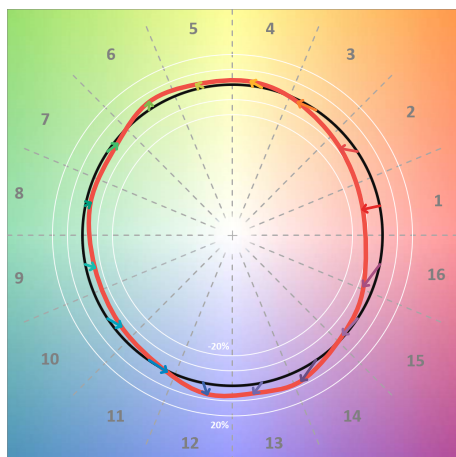
Colour Quality Scale CQS = 80.7
 Television Lighting Consistency Index TLCI = 65



Relative spectral power distribution



TM30 details

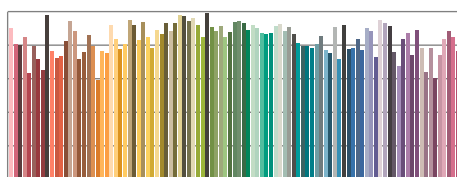


TM30 Colour vectors per hue bin

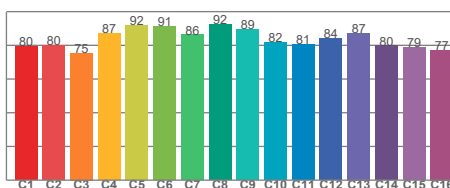


TM30 Colour distortion

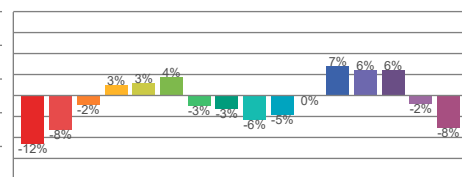
Hue Bin	R_f	Shifts (%)	
		Chroma	Hue
C1	80	-12%	0%
C2	80	-8%	8%
C3	75	-2%	13%
C4	87	3%	8%
C5	92	3%	4%
C6	91	4%	-3%
C7	86	-3%	-8%
C8	92	-3%	-3%
C9	89	-6%	3%
C10	82	-5%	9%
C11	81	0%	14%
C12	84	7%	4%
C13	87	6%	-7%
C14	80	6%	-16%
C15	79	-2%	-14%
C16	77	-8%	-16%



TM30-18 R_f -values per reference colour

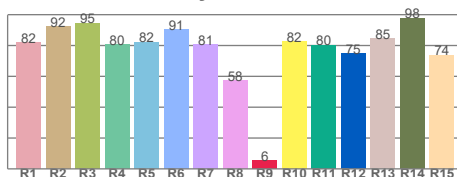


TM30-18 R_f -values per hue bin

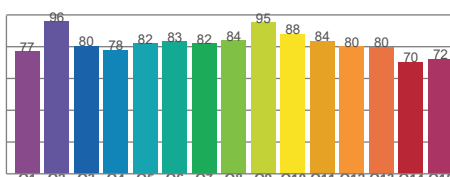


TM30 Chroma shift

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	100 Hz
Percent flicker	51.88 %
Flicker index	0.16

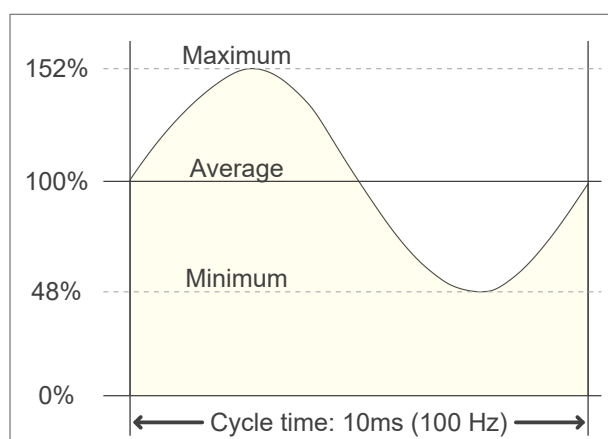
TLA indices (according IEC TR 61547-1, EN 61000-3-3 and EN 61000-4-15)

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

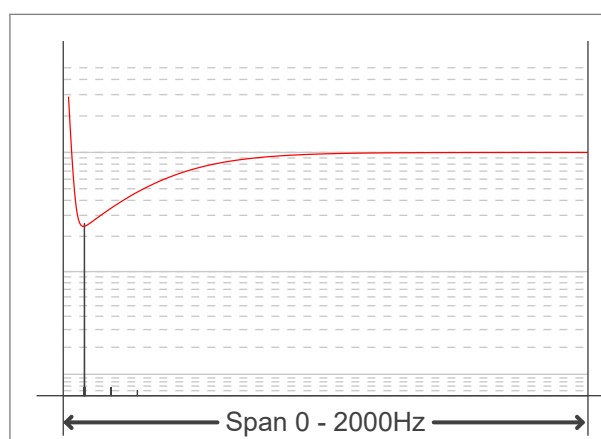
PstLM value ($F < 80$ Hz) 0.2

SVM value ($80 < F < 2000$ Hz) 2

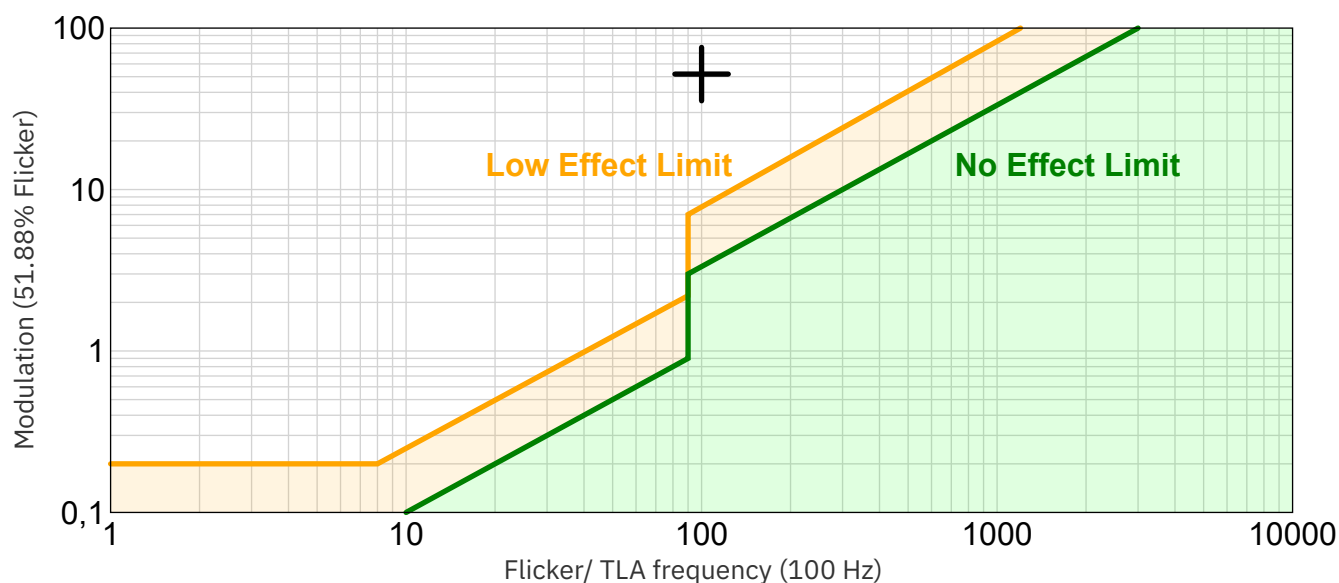
Flicker frame (one flicker period in time domain)



Flicker FFT (flicker curve in frequency domain)



IEEE 1789-2015 Lighting Flicker Risk Zones



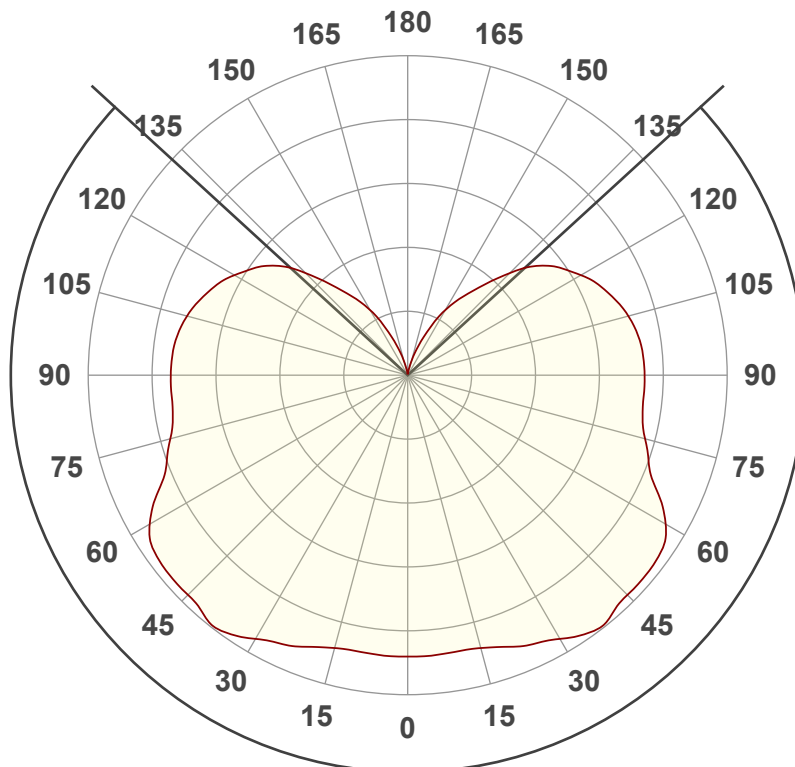
Document revision date: 3-7-2025 Measurement serial: VFR-250630-9960-SW

175-536 Corn lamp | E27 | AC100-240V | IP64 | 18W | 3000K

Beam angle

Luminous Intensity diagram

Unit: 0-100% of peak intensity



265°

Main Values

Output (total Lumen)	2152 lm
Lumen Up/Down	38.12% / 61.88%
Peak Intensity	241 cd
Beam Angle (50%)	265°
Beam Angle (90%)	265°
Beam Angle (10%)	265°

Cut-off Angle

Average 2.5%	337.3°
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Field Angle

Average 10%	319.9°
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Intensity Ratio

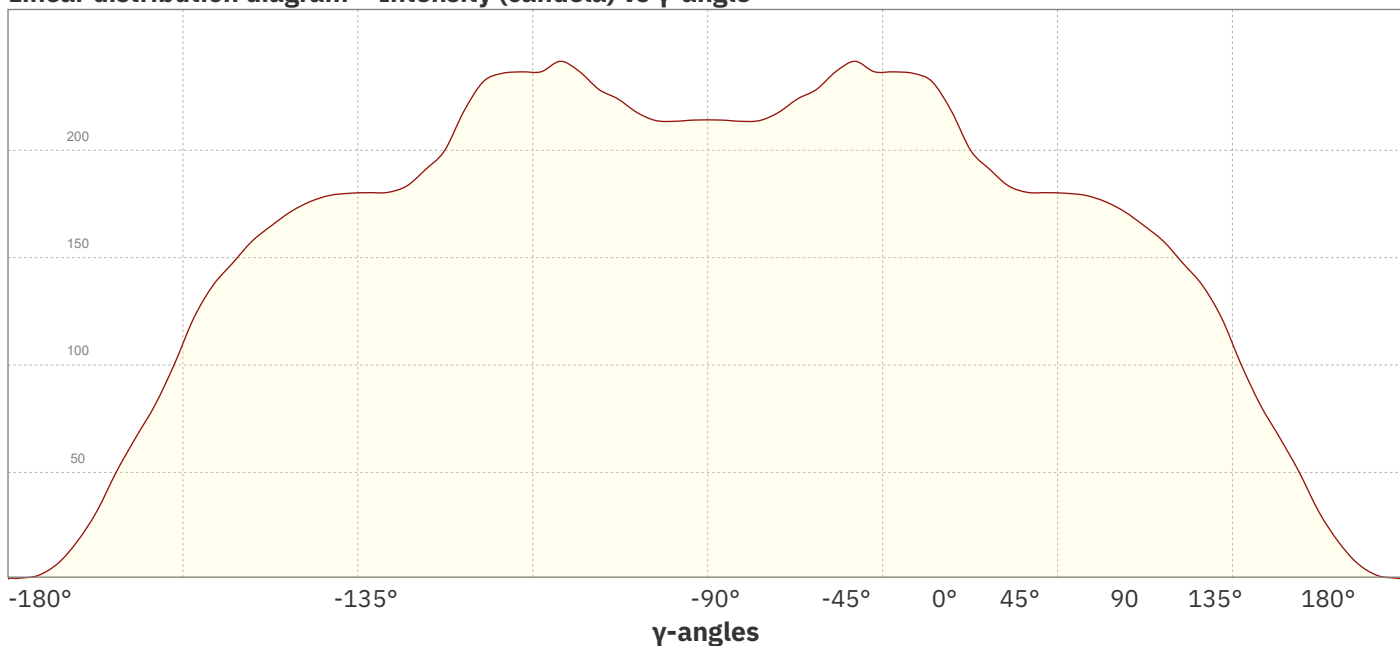
In 120° cone	33.9%
In 90° cone	19.7%

C planes

C000-C180

C090-C270

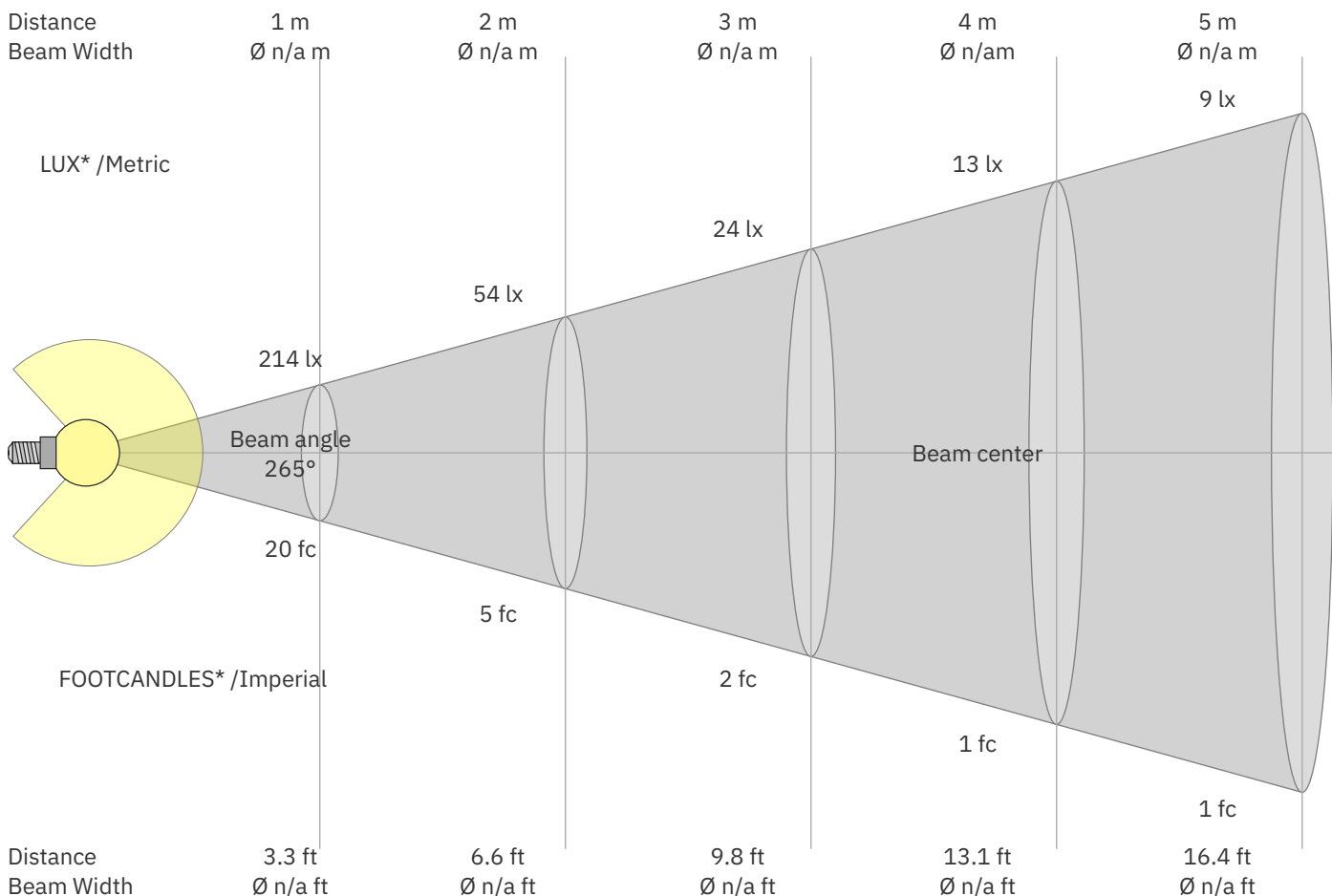
Linear distribution diagram - Intensity (candela) vs γ-angle



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Beam Details



*Measured at center of beam

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
214	54	24	13	9	6	4	3	3	2	2	1	1	1	1	1	1	1	1	1	lux
19.9	5	2.2	1.2	0.8	0.6	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	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
214	214	217	227	240	237	235	217	192	181	180	178	170	158	140	110	76	47	18	3	cd
100%	100%	102%	106%	112%	111%	110%	101%	90%	85%	84%	83%	80%	74%	65%	51%	35%	22%	9%	2%	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
214	214	217	227	240	237	235	217	192	181	180	178	170	158	140	110	76	47	18	3	cd
100%	100%	102%	106%	112%	111%	110%	101%	90%	85%	84%	83%	80%	74%	65%	51%	35%	22%	9%	2%	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
214	214	217	227	240	237	235	217	192	181	180	178	170	158	140	110	76	47	18	3	cd
100%	100%	102%	106%	112%	111%	110%	101%	90%	85%	84%	83%	80%	74%	65%	51%	35%	22%	9%	2%	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
214	214	217	227	240	237	235	217	192	181	180	178	170	158	140	110	76	47	18	3	cd
100%	100%	102%	106%	112%	111%	110%	101%	90%	85%	84%	83%	80%	74%	65%	51%	35%	22%	9%	2%	of 0°val

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Light Planning – UGR table

Uncorrected, comprehensive UGR table according to CIE 117-1995

Reflectances		70	70	50	50	30	70	70	50	50	30
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		Viewed Crosswise					Viewed Endwise				
H = mounting height above eye level		(Viewing direction orthogonal to lamp length axis)					(Viewing direction parallel to lamp length axis)				
X	Y										
2H	2H	23.4	24.4	24.2	25.2	26.2	23.4	24.4	24.2	25.2	26.2
	3H	25.4	26.4	26.2	27.1	28.1	25.4	26.4	26.2	27.1	28.1
	4H	26.4	27.3	27.2	28.1	29.1	26.4	27.3	27.2	28.1	29.1
	6H	27.5	28.3	28.3	29.1	30.1	27.5	28.3	28.3	29.1	30.1
	8H	28.0	28.9	28.8	29.7	30.7	28.0	28.9	28.8	29.7	30.7
	12H	28.5	29.5	29.4	30.2	31.2	28.5	29.5	29.4	30.2	31.2
4H	2H	24.1	25.0	24.9	25.8	26.8	24.1	25.0	24.9	25.8	26.8
	3H	26.3	27.3	27.1	28.0	29.0	26.3	27.3	27.1	28.0	29.0
	4H	27.4	28.6	28.3	29.1	30.2	27.4	28.6	28.3	29.1	30.2
	6H	28.7	29.4	29.5	30.2	31.2	28.7	29.4	29.5	30.2	31.2
	8H	29.3	29.9	30.2	30.8	31.8	29.3	29.9	30.2	30.8	31.8
	12H	29.9	30.4	30.8	31.4	32.4	29.9	30.4	30.8	31.4	32.4
8H	4H	27.9	28.5	28.8	29.4	30.4	27.9	28.5	28.8	29.4	30.4
	6H	29.4	29.8	30.3	30.8	31.9	29.4	29.8	30.3	30.8	31.9
	8H	30.1	30.6	31.1	31.6	32.7	30.1	30.6	31.1	31.6	32.7
	12H	31.0	31.3	31.9	32.3	33.4	31.0	31.3	31.9	32.3	33.4
12H	4H	28.0	28.5	28.8	29.4	30.4	28.0	28.5	28.8	29.4	30.4
	6H	29.5	30.0	30.5	30.9	32.0	29.5	30.0	30.5	30.9	32.0
	8H	30.4	30.8	31.3	31.7	32.8	30.4	30.8	31.3	31.7	32.8
Variations with the observer position for the luminaire spacings. S:											
S = 1.0H				0.1 / 0.0				0.1 / 0.0			
S = 1.5H				0.1 / -0.1				0.1 / -0.1			
S = 2.0H				0.2 / -0.2				0.2 / -0.2			

Coefficients of Utilization

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	110	110	110	110	103	103	103	103	90	90	90	78	78	78	67	67	67	62
1	96	90	84	79	89	84	79	74	72	68	65	62	59	56	52	50	48	43
2	86	76	68	61	79	71	64	57	61	55	50	52	47	44	44	40	37	33
3	77	65	56	49	71	61	53	46	52	46	40	45	39	35	37	33	30	26
4	70	57	47	40	65	53	44	38	46	39	33	39	33	29	32	28	24	21
5	64	50	41	34	59	47	38	32	40	33	28	34	29	24	29	24	21	17
6	59	45	35	29	54	42	33	27	36	29	24	31	25	21	26	21	18	15
7	54	40	31	25	50	37	29	23	32	26	21	28	22	18	23	19	15	13
8	50	36	27	22	46	34	26	20	29	23	18	25	20	16	21	17	13	11
9	46	33	25	19	43	31	23	18	27	20	16	23	18	14	20	15	12	10
10	43	30	22	17	40	28	21	16	25	18	14	21	16	12	18	14	11	9