



PHOTOMETRIC LIGHT REPORT

**Ground spot | 195mm |
18.8W | asymmetrical |
3000K**

Article number: 140-075



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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 140-075. 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 140-075 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 140-075 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
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

8 planes – 45°
5°
1.14 m
22°C +/- 10% – RH 50% +/- 20%
20.0 W – PF 0.95 – DPF 0.98
50 Hz
Lamp stabilized in 15 min 1 sec --0.8%

Tested light source

Manufacturer and Order Code
Product Description

Tronix Lighting – 140-075
Ground spot | 195mm | 18.8W | asymmetrical | 3000K

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_{vw}
Colour Rendering Index
Colour Rendering TM30-18
Television Lighting Consistency Index
Flicker

1216 lm – 0% / 100%
61 lm/W
G
1045 cd – 58.9°
CCT = 3147 K
Duv 0.0027
CRI 85.5
 R_f 87.8 – R_g 95.7
TLCI = 75
SVM 0.02 – PstLM 0.1

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Electrical measurement details

Input Power

RMS Input voltage feed. V_{RMS}

RMS Input current feed. I_{RMS}

Total input power

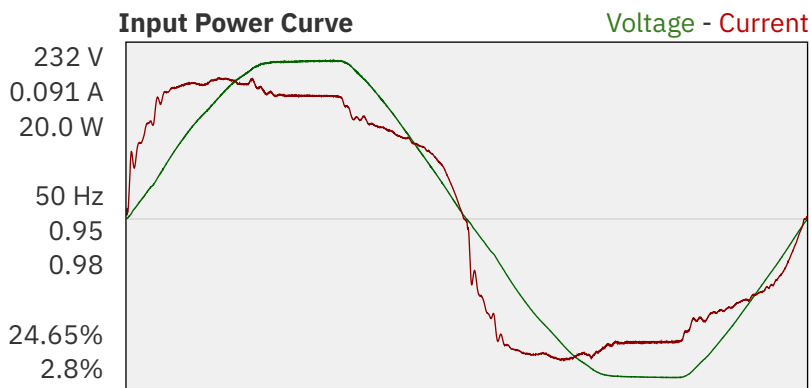
Frequency of input power

Power factor

Displacement power factor

Total harmonic distortion of the current

Total harmonic distortion of the voltage



Efficiency

Radiated power efficiency: 18.6%

Lumen efficiency: 61 lm/W

Harmonics

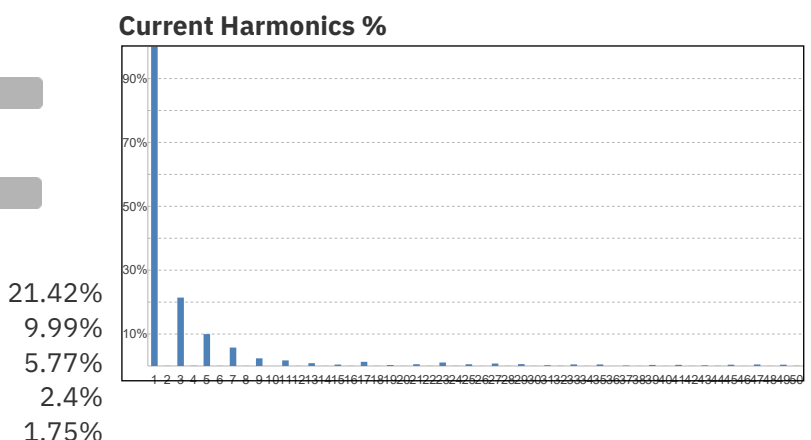
3rd Harmonic

5th Harmonic

7th Harmonic

9th Harmonic

11th Harmonic



Stabilization Details

Warm-up Conditions

Stable period

Stable change max

Minimum warm-up time

Colour temperature change during warm-up

15 min CCT start

2.0% CCT shift

15 min CCT end

3148 K

-1 K

3147 K

Warm-up Results

Total warmup time

Warmup variation

Lamp stabilized in 15 min 1 sec

-0.8%

Output intensity change during warm-up

Output start

Output change

Output end

1224 lm

-8 lm

1216 lm

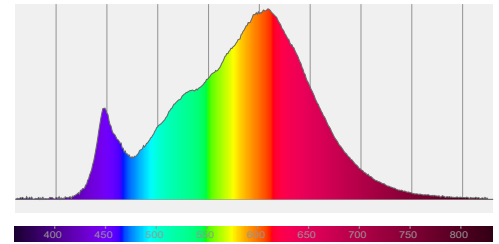
140-075 Ground spot | 195mm | 18.8W | asymmetrical | 3000K

Colour measurement details

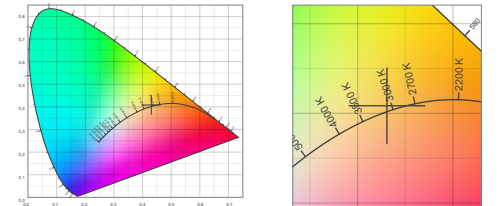
Total lumen output 1216 lm
 Correlated Colour Temperature 3147 K
 Colour coordinates CIE 1931 (x;y) = (0.431;0.408)
 Colour deviation from BBL Duv = 0.0027

TM30-18 Colour Fidelity Index R_f 87.8
 TM30-18 Colour Gamut Index R_g 95.7
 Colour Rendering Index (Ra) CRI 85.5
 Colour Rendering Index. (red component) $R_9 = 15.9$

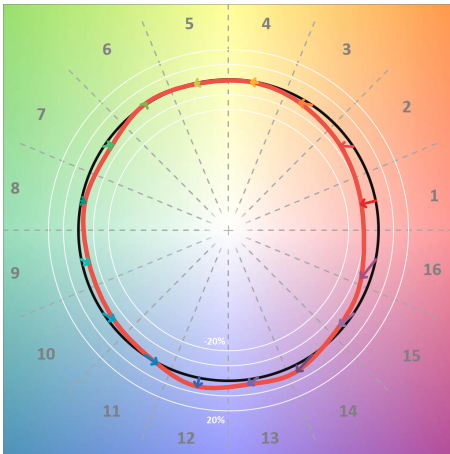
Colour Quality Scale CQS = 85.3
 Television Lighting Consistency Index TLCI = 75



Relative spectral power distribution



TM30 details

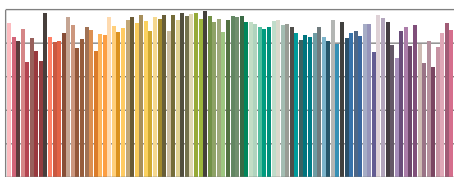


TM30 Colour vectors per hue bin

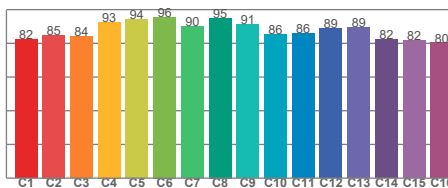


TM30 Colour distortion

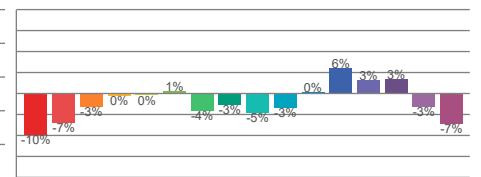
Hue Bin	R_f	Shifts (%)	
		Chroma	Hue
C1	82	-10%	0%
C2	85	-7%	5%
C3	84	-3%	8%
C4	93	0%	4%
C5	94	0%	3%
C6	96	1%	-1%
C7	90	-4%	-4%
C8	95	-3%	0%
C9	91	-5%	4%
C10	86	-3%	7%
C11	86	0%	10%
C12	89	6%	0%
C13	89	3%	-7%
C14	82	3%	-14%
C15	82	-3%	-12%
C16	80	-7%	-14%



TM30-18 R_f -values per reference colour

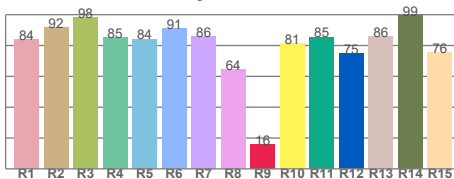


TM30-18 R_f -values per hue bin

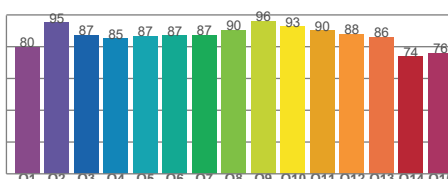


TM30 Chroma shift

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)

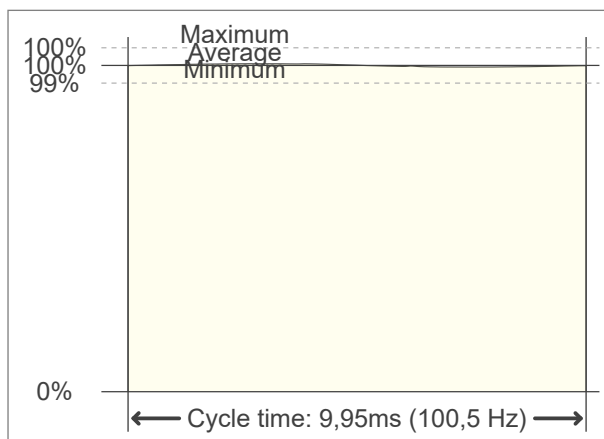
Flicker frequency	100.5 Hz
Percent flicker	0.6 %
Flicker index	0

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

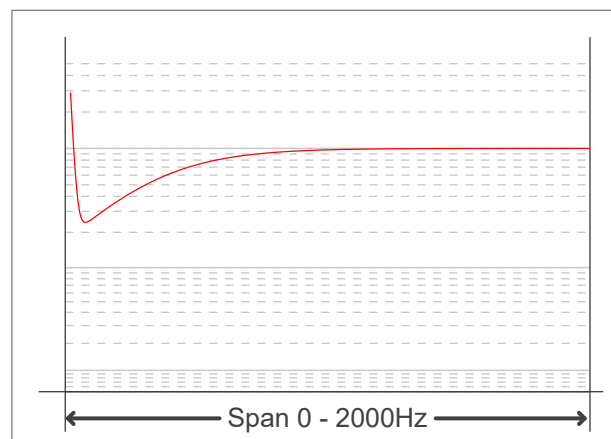
An LED luminaire is considered flicker-free if the SVM value is ≤ 0.4 and if the PstLM value is ≤ 1.0

PstLM value ($F < 80$ Hz)	0.1
SVM value ($80 < F < 2000$ Hz)	0.02

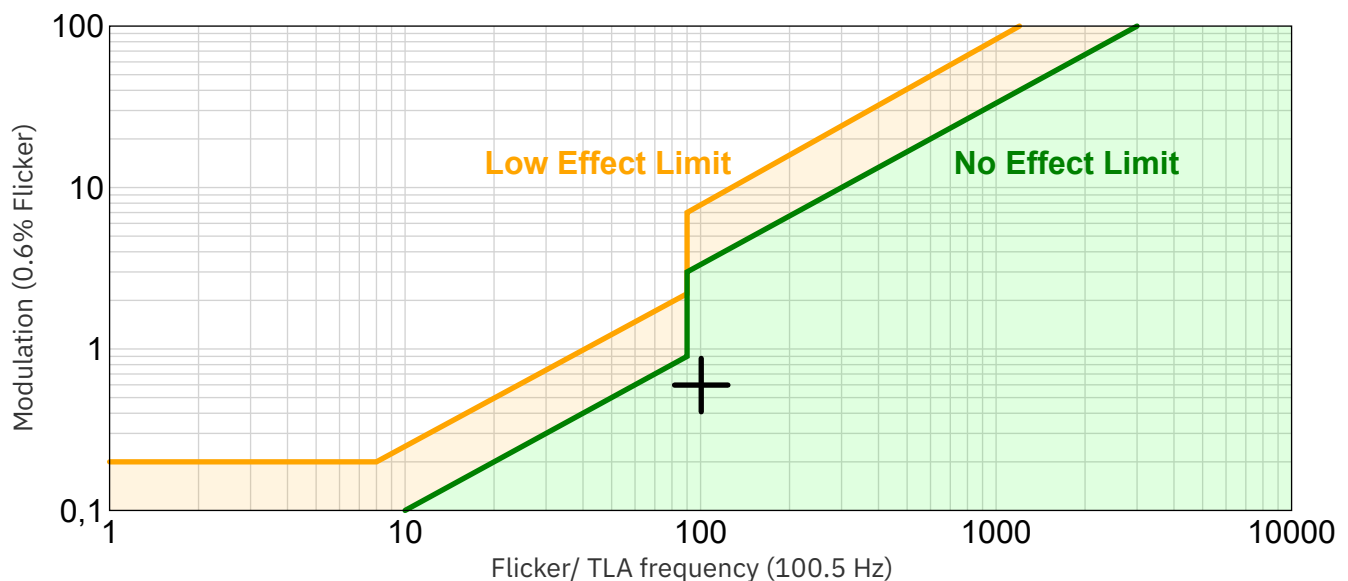
Flicker frame (one flicker period in time domain)



Flicker FFT (flicker curve in frequency domain)



IEEE 1789-2015 Lighting Flicker Risk Zones



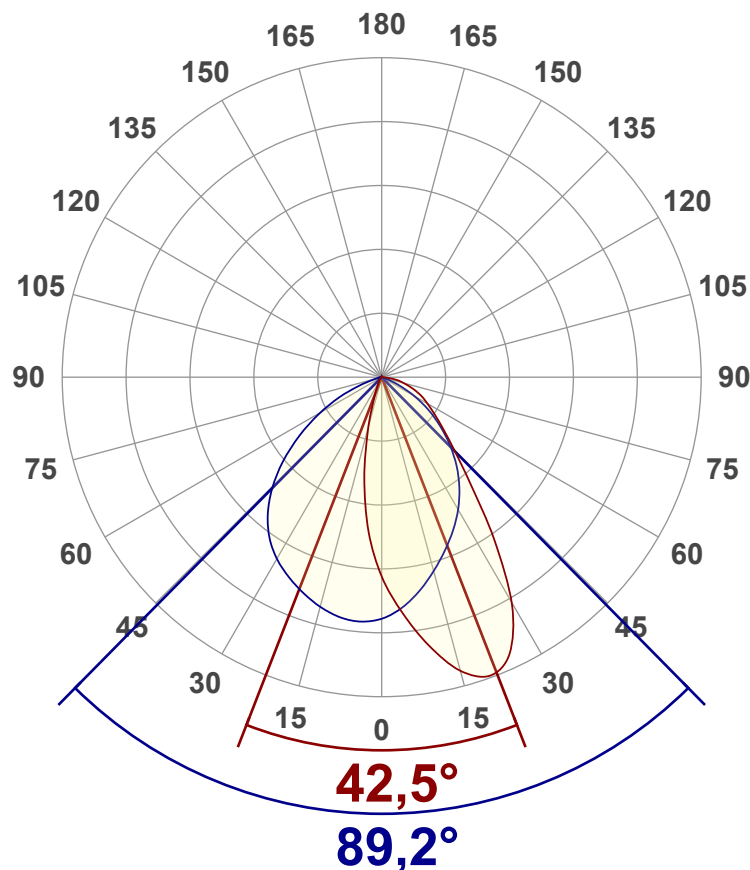
Document revision date: 14-7-2025 Measurement serial: VFR-250714-10458-SW

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Beam angle

Luminous Intensity diagram

Unit: 0-100% of peak intensity



Main Values

Output (total Lumen)	1216 lm
Lumen Up/Down	0% / 100%
Peak Intensity	1045 cd
Beam Angle (50%)	58.9°
Beam Angle (90%)	89.2°
Beam Angle (10%)	42.5°

Cut-off Angle

Average 2.5%	122.8°
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Field Angle

Average 10%	101.5°
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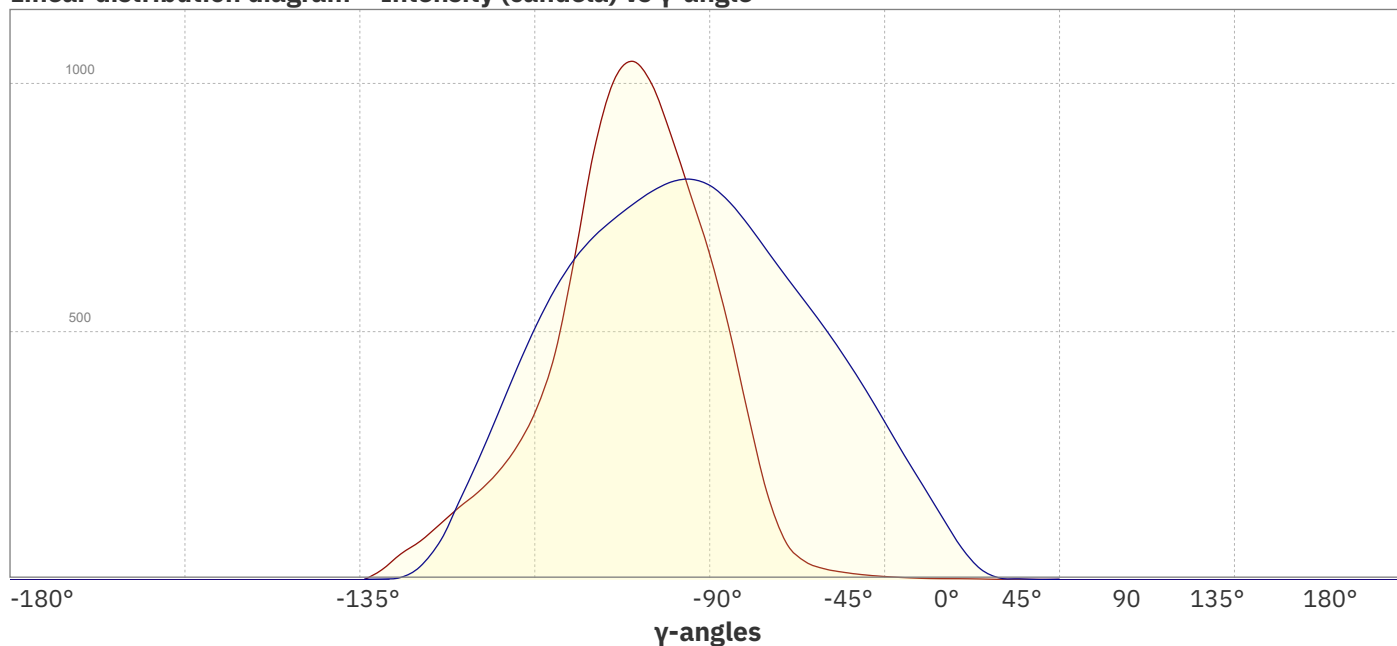
Intensity Ratio

In 120° cone	90.6%
In 90° cone	71.2%

C planes

C000-C180
C090-C270

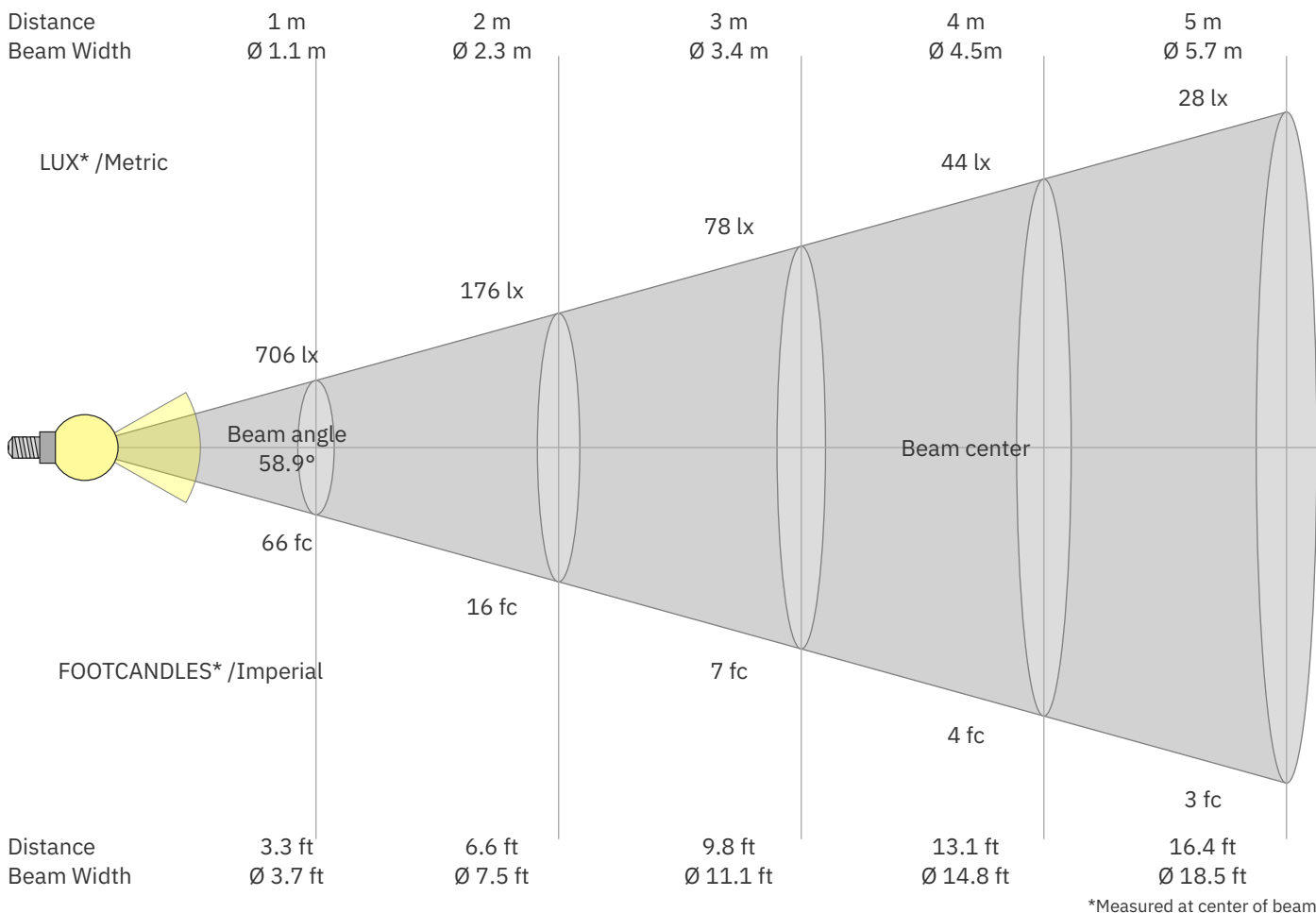
Linear distribution diagram - Intensity (candela) vs γ-angle



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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
706	176	78	44	28	20	14	11	9	7	6	5	4	4	3	3	2	2	2	2	lux
65.6	16.4	7.3	4.1	2.6	1.8	1.3	1	0.8	0.7	0.5	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	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
706	777	897	999	1044	997	854	640	451	337	264	213	174	142	108	75	49	17	0	0	cd
100%	110%	127%	142%	148%	141%	121%	91%	64%	48%	37%	30%	25%	20%	15%	11%	7%	2%	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
706	761	714	660	607	556	503	446	384	318	252	188	124	63	21	3	2	1	1	0	cd
100%	108%	101%	94%	86%	79%	71%	63%	54%	45%	36%	27%	18%	9%	3%	0%	0%	0%	0%	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
706	505	330	171	72	35	21	15	10	7	4	3	2	2	2	1	1	1	1	0	cd
100%	72%	47%	24%	10%	5%	3%	2%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	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
706	807	801	782	755	724	689	643	582	506	418	324	233	148	72	24	4	1	0	0	cd
100%	114%	113%	111%	107%	103%	98%	91%	82%	72%	59%	46%	33%	21%	10%	3%	1%	0%	0%	0%	of 0°val

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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
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	106	106	106	102	102	102	100	
1	111	107	104	101	108	105	102	99	101	98	96	97	95	93	94	92	90	88
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77
3	95	86	80	74	93	85	79	74	82	77	72	80	75	71	77	73	70	68
4	88	78	71	65	86	77	70	65	75	68	64	72	67	63	70	66	62	60
5	82	71	63	57	80	70	63	57	68	62	57	66	60	56	64	59	56	54
6	77	65	57	51	75	64	57	51	62	56	51	61	55	50	59	54	50	48
7	72	60	52	46	70	59	51	46	57	51	46	56	50	46	55	49	45	43
8	67	55	47	42	66	54	47	42	53	46	42	52	46	41	51	45	41	40
9	63	51	43	38	62	50	43	38	49	43	38	48	42	38	47	42	38	36
10	59	47	40	35	58	47	40	35	46	39	35	45	39	35	44	39	35	33