



PHOTOMETRIC LIGHT REPORT

**LED spot | 50mm | white |
5 watt | 38° | 2700K |
dimmable**

Article number: 175-550



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Lighting



TRONIX



175-550 LED spot | 50mm | white | 5 watt | 38° | 2700K | dimmable

Introduction

Purpose of this Document

This document provides accurate and objective photometric data for Tronix Lighting item 175-550. 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 175-550 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 175-550 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.

175-550 LED spot | 50mm | white | 5 watt | 38° | 2700K | dimmable

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	2.5°
Test Distance	0.66 m
Room Temperature and Humidity	22°C +/- 10% – RH 50% +/- 20%
Input Power. Power and Displacement Factors	6.4 W – PF 0.98 – DPF 1.0
Frequency of Input Power	50 Hz
Warm-up Time and Variation	Lamp stabilized in 30 min 34 sec --6.7%

Tested light source

Manufacturer and Order Code	Tronix Lighting – 175-550
Product Description	LED spot 50mm white 5 watt 38° 2700K dimmable

Main Light Measurement Results

Output – Total Lumen (Up% / Down%)	464 lm – 0.03% / 99.97%
Efficiency	73 lm/W
Energy efficiency class	G
Peak Intensity and Beam Angle	254 cd – 76.6°
Correlated Colour Temperature	CCT = 2736 K
Colour Shift. CIE duv	Duv -0.0034
Colour Rendering Index	CRI 84.1
Colour Rendering TM30-18	R _f 85.2 – R _g 94.2
Television Lighting Consistency Index	TLCI = 73
Flicker	SVM 0.39 – PstLM 0.12

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Electrical measurement details

Input Power

RMS Input voltage feed. V_{RMS}

RMS Input current feed. I_{RMS}

Total input power

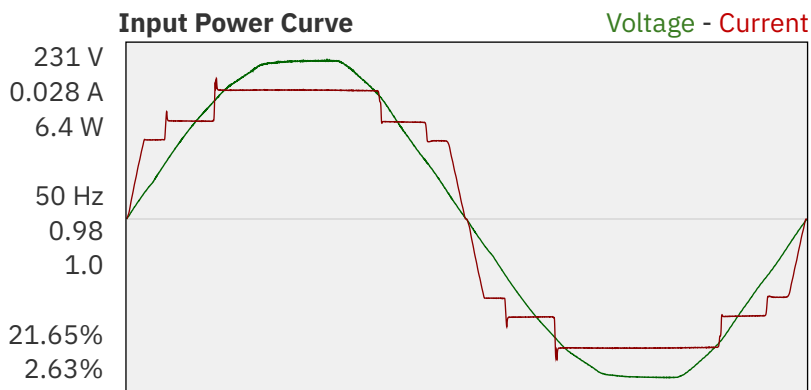
Frequency of input power

Power factor

Displacement power factor

Total harmonic distortion of the current

Total harmonic distortion of the voltage



Efficiency

Radiated power efficiency: 23.2%

Lumen efficiency: 73 lm/W

Harmonics

3rd Harmonic

5th Harmonic

7th Harmonic

9th Harmonic

11th Harmonic

17.1%

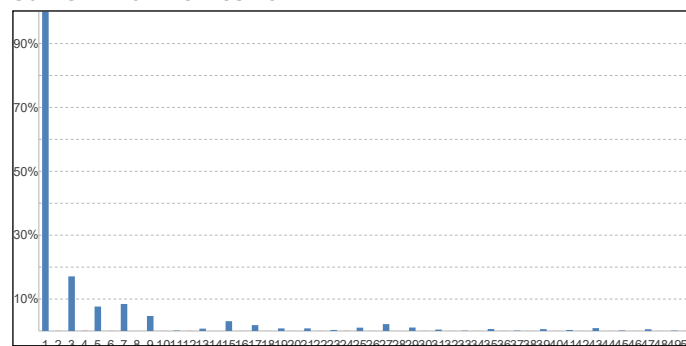
7.65%

8.46%

4.71%

0.15%

Current Harmonics %



Stabilization Details

Warm-up Conditions

Stable period

Stable change max

Minimum warm-up time

15 min CCT start

2.0% CCT shift

15 min CCT end

Colour temperature change during warm-up

2702 K

+34 K

2736 K

Warm-up Results

Total warmup time

Lamp stabilized in 30 min 34

sec

Warmup variation

-6.7%

Output intensity change during warm-up

Output start

489 lm

Output change

-25 lm

Output end

464 lm

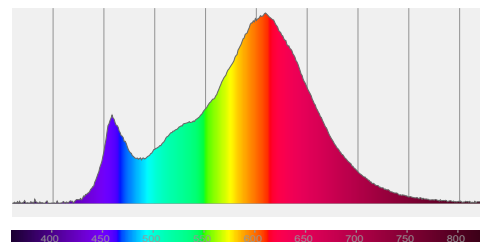
175-550 LED spot | 50mm | white | 5 watt | 38° | 2700K | dimmable

Colour measurement details

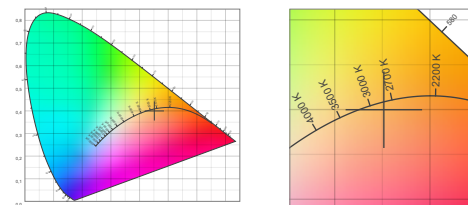
Total lumen output 464 lm
 Correlated Colour Temperature 2736 K
 Colour coordinates CIE 1931 (x;y) = (0.452;0.400)
 Colour deviation from BBL Duv = -0.0034

TM30-18 Colour Fidelity Index R_f 85.2
 TM30-18 Colour Gamut Index R_g 94.2
 Colour Rendering Index (Ra) CRI 84.1
 Colour Rendering Index. (red component) R_9 = 16.2

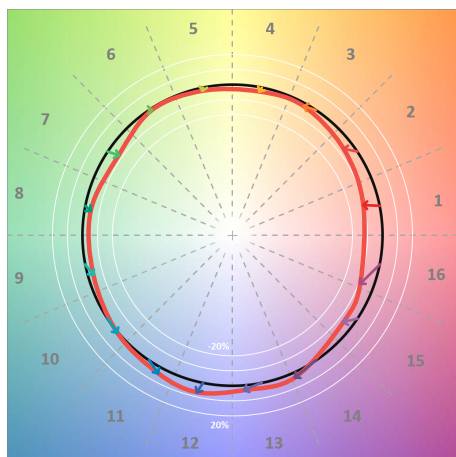
Colour Quality Scale CQS = 83.3
 Television Lighting Consistency Index TLCI = 73



Relative spectral power distribution



TM30 details

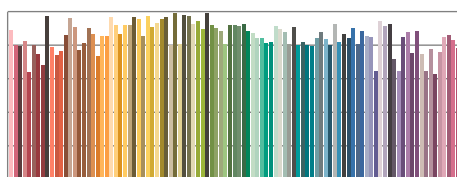


TM30 Colour vectors per hue bin

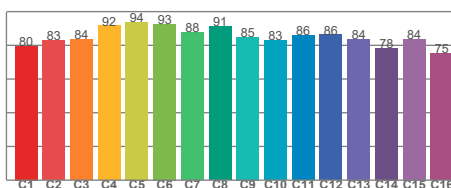


TM30 Colour distortion

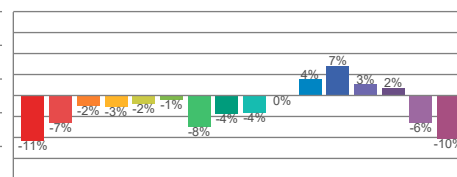
Hue Bin	R_f	Shifts (%)	
		Chroma	Hue
C1	80	-11%	3%
C2	83	-7%	7%
C3	84	-2%	8%
C4	92	-3%	1%
C5	94	-2%	1%
C6	93	-1%	-2%
C7	88	-8%	-2%
C8	91	-4%	3%
C9	85	-4%	8%
C10	83	0%	11%
C11	86	4%	10%
C12	86	7%	-3%
C13	84	3%	-12%
C14	78	2%	-18%
C15	84	-6%	-7%
C16	75	-10%	-15%



TM30-18 R_f -values per reference colour

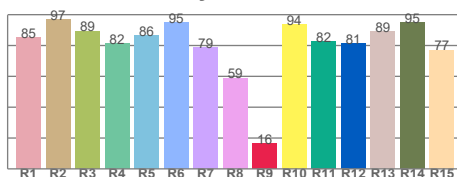


TM30-18 R_f -values per hue bin

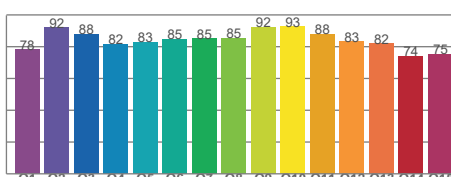


TM30 Chroma shift

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	18.75 %
Flicker index	0.05

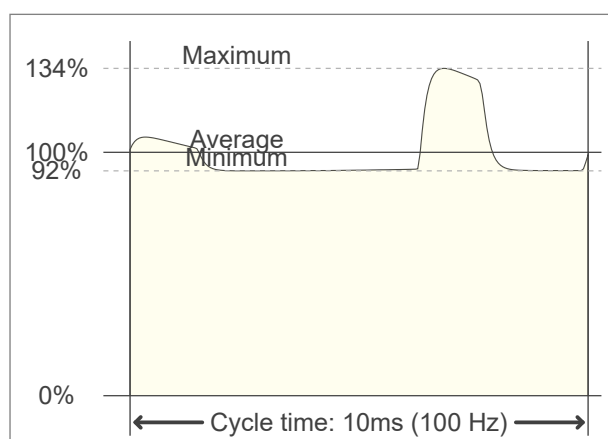
TLA indices (according IEC TR 61547-1, EN 61000-3-3 and EN 61000-4-15)

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

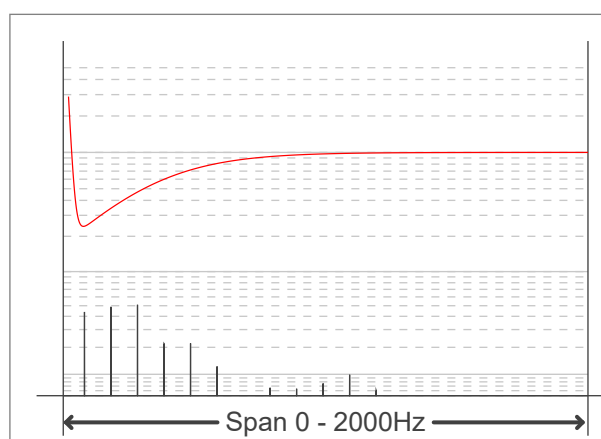
PstLM value ($F < 80$ Hz) 0.12

SVM value ($80 < F < 2000$ Hz) 0.39

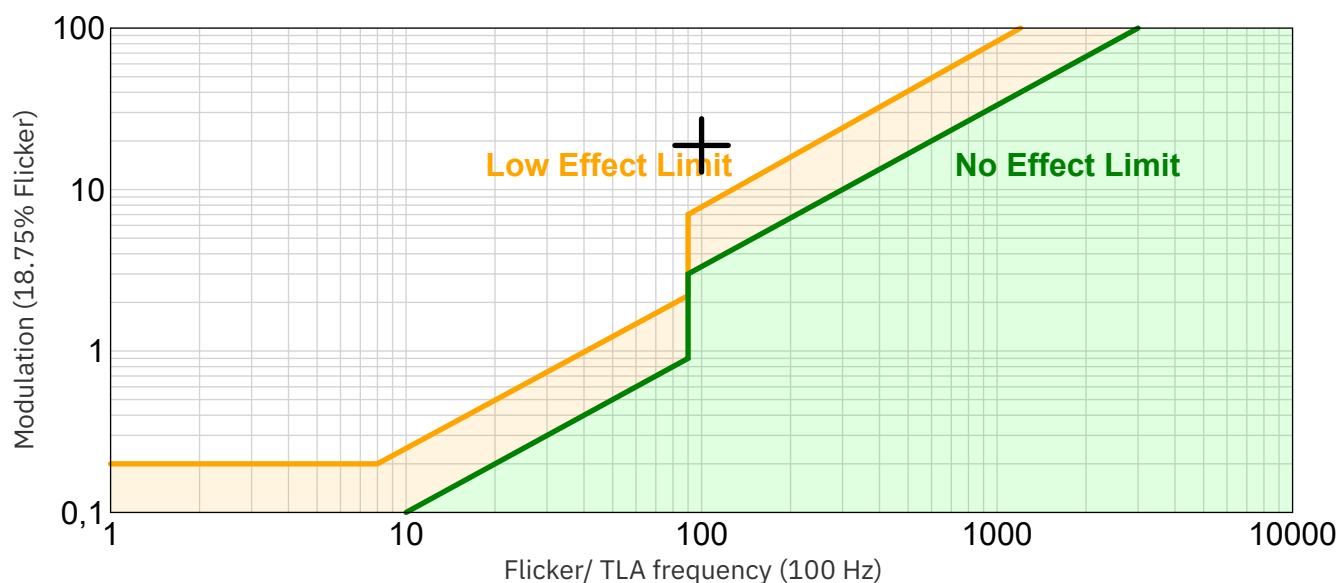
Flicker frame (one flicker period in time domain)



Flicker FFT (flicker curve in frequency domain)



IEEE 1789-2015 Lighting Flicker Risk Zones



Document revision date: 27-10-2025 Measurement serial: VFR-251024-12226-SW

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Beam angle

Luminous Intensity diagram

Unit: 0-100% of peak intensity

Main Values

Output (total Lumen)	464 lm
Lumen Up/Down	0.03% / 99.97%
Peak Intensity	254 cd
Beam Angle (50%)	76.6°
Beam Angle (90%)	76.6°
Beam Angle (10%)	76.6°

Cut-off Angle

Average 2.5%	163.3°
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Field Angle

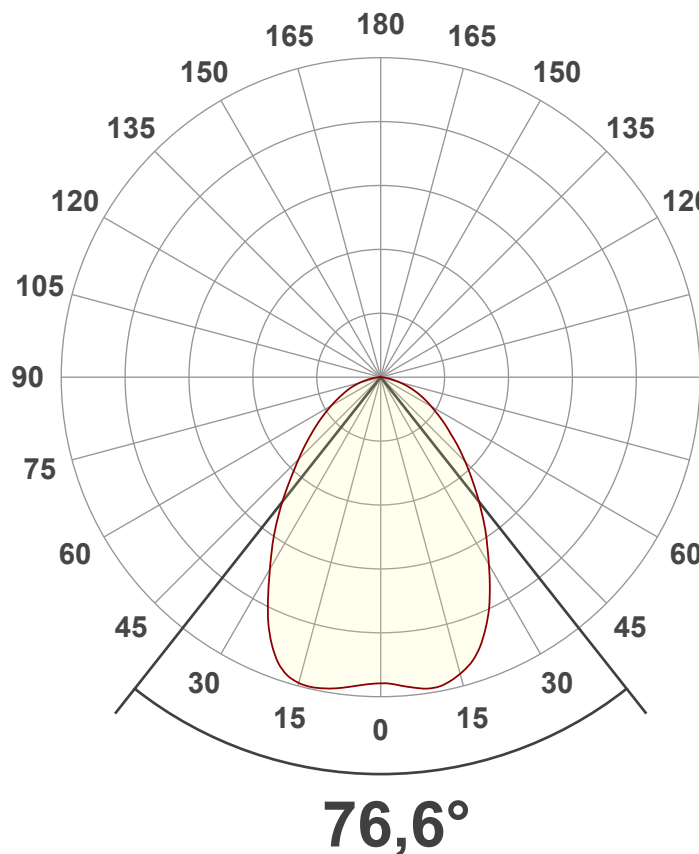
Average 10%	140.5°
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Intensity Ratio

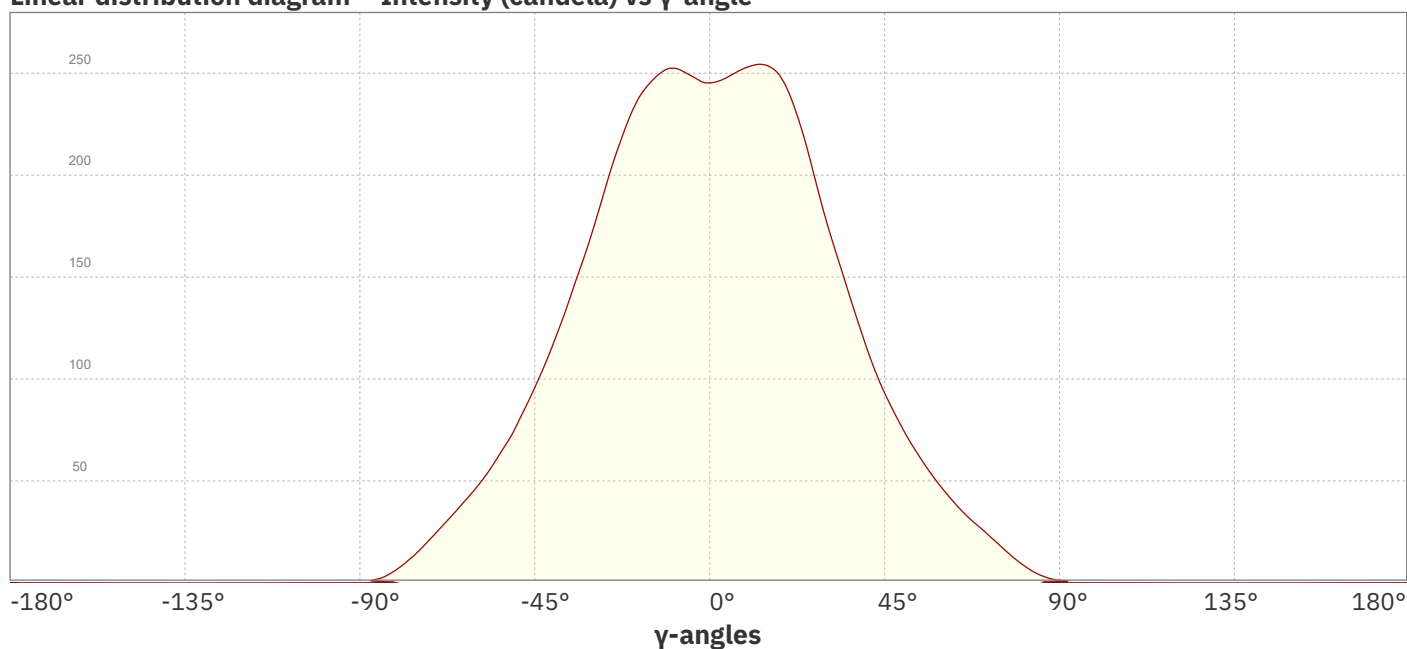
In 120° cone	87.7%
In 90° cone	68.9%

C planes

C000-C180
C090-C270

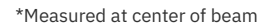


Linear distribution diagram - Intensity (candela) vs γ-angle



Document revision date: 27-10-2025 Measurement serial: VFR-251024-12226-SW

Beam Details

[illegible]

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°	γ
245	249	252	246	231	205	173	145	119	96	76	60	47	36	25	15	7	2	0	0	cd
100%	101%	103%	100%	94%	84%	71%	59%	48%	39%	31%	25%	19%	15%	10%	6%	3%	1%	0%	0%	of 0°val

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°	γ
245	249	252	246	231	205	173	145	119	96	76	60	47	36	25	15	7	2	0	0	cd
100%	101%	103%	100%	94%	84%	71%	59%	48%	39%	31%	25%	19%	15%	10%	6%	3%	1%	0%	0%	of 0°val

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°	γ
245	249	253	254	242	213	178	147	118	93	74	59	46	35	26	18	10	4	1	0	cd
100%	101%	103%	103%	99%	87%	72%	60%	48%	38%	30%	24%	19%	14%	11%	7%	4%	2%	1%	0%	of 0°val

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°	γ
245	249	253	254	242	213	178	147	118	93	74	59	46	35	26	18	10	4	1	0	cd
100%	101%	103%	103%	99%	87%	72%	60%	48%	38%	30%	24%	19%	14%	11%	7%	4%	2%	1%	0%	of 0°val







CARE

SHARE

CONNECT

Light Planning – UGR table

Reflectances	70	70	50	50	30	70	70	50	50	30
ρ Ceiling	50	30	50	30	30	50	30	50	30	30
ρ Walls	20	20	20	20	20	20	20	20	20	20
ρ Floor										
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	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	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	103	100	108	104	101	98	100	98	95	96	94	92	93	91	90	88
2	102	95	89	85	100	93	88	84	90	85	82	87	83	80	84	81	78	76
3	95	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	69	67
4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61	59
5	81	70	62	56	79	69	62	56	67	60	55	65	59	55	63	58	54	52
6	76	64	56	50	74	63	56	50	61	55	50	60	54	49	58	53	49	47
7	71	59	51	45	69	58	51	45	57	50	45	55	49	45	54	48	44	43
8	67	54	47	41	65	54	46	41	52	46	41	51	45	41	50	45	40	39
9	63	50	43	38	61	50	43	38	49	42	37	48	42	37	47	41	37	35
10	59	47	40	35	58	46	39	35	45	39	34	44	39	34	44	38	34	33