Test report

Light measurement results

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experts in led-stripes

Laboratory and Equipment

Test lab	Viso LightSpion - Seriennummer: 1435906163
Spectrometer Manufacturer and Model	LightSpion – Type C, horizontal
Measurement date	08.04.2026

Measurement Conditions

Tested c-planes	4 planes – 90°
Tested gamma resolution	7.5°
Input Power	19.9 W
Input RMS Voltage and Current	24.0 V – 0.828 A

Tested Light Source

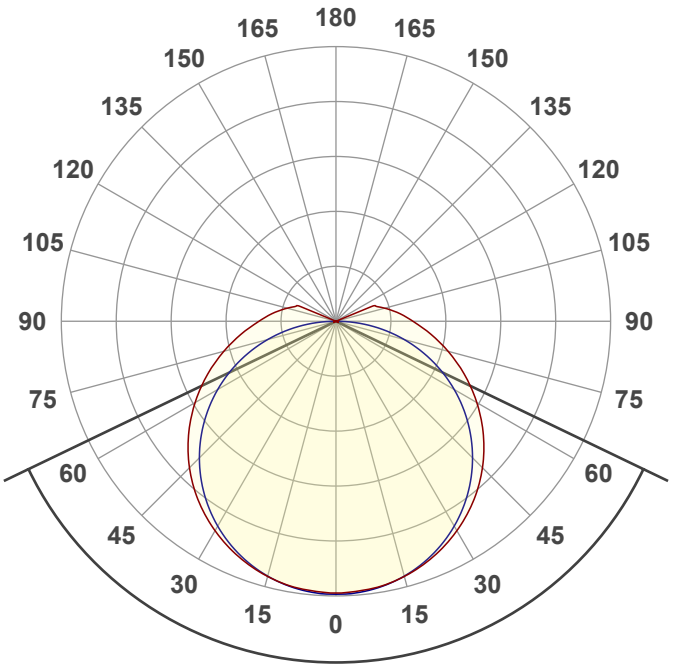
Luminaire	FLEX STRIP HEP-COB 288 MONO CW 1m 260327
Item No.	AS2COB28804
Manufacturer	awLed by audiowerk GmbH
Measured length	1000mm
Dimension (Lamp w x h) | (Light w x h)	10mm x 1000mm | 6mm x 3mm
Description	Charge: 260327

Main Light Measurement Results

Output – Total Lumen (Up% / Down%)	2965 lm – 7% / 93%
Efficiency	149 lm/W
Peak Intensity	793 cd
Correlated Color Temperature, CCT	6500 K
Color Rendering Index	CRI 94.6
Ecodesign Energy Class	D

Polar light distribution diagram

Unit: 0-100% of peak intensity



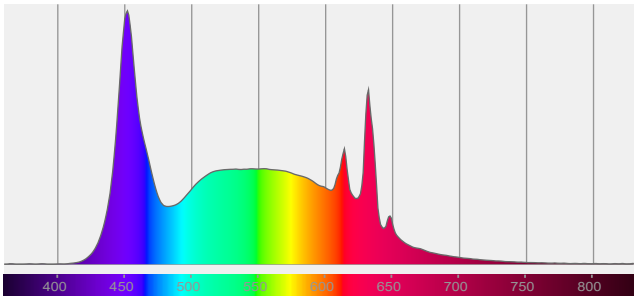
128.6°

C0 - C180
C90 - C270

η = 100.0%

Product photo

Spectral power distribution



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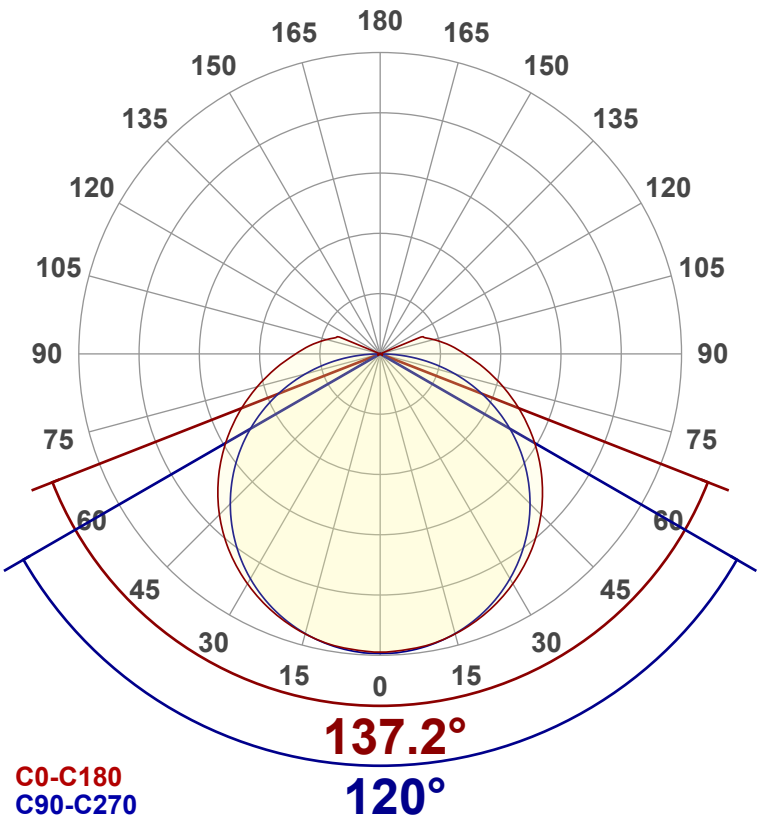
Luminous Intensity diagram

Unit: 0-100% of peak intensity



Main Values

Output (total Lumen)	2965 lm
Lumen Up% / Down%	6.79% / 93.21%
Peak Intensity	793 cd
Beam Angle (50%-FWHM)	128.63°

EU Ecodesign parameters

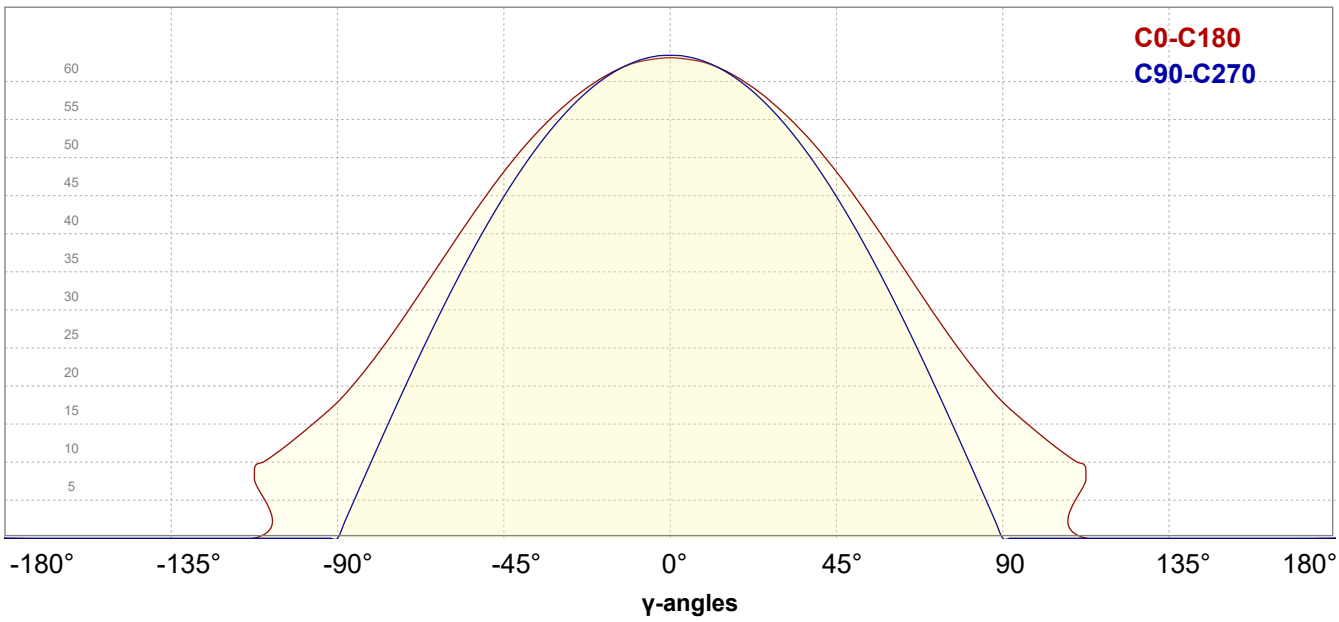
Directionality (DLS or NDLS)	NDLS
Ecodesign Useful Luminous	2965 lm
Ecodesign Energy Class	D

Intensity Ratio

In 120° cone	64.8%
In 90° cone	42.5%

Linear distribution diagram

Intensity [cd]



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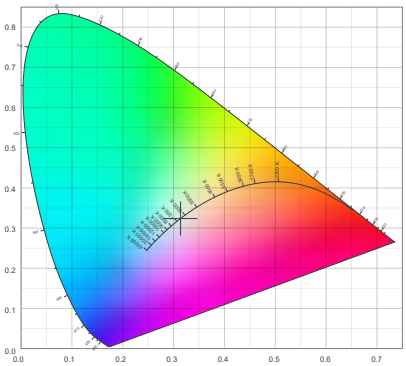
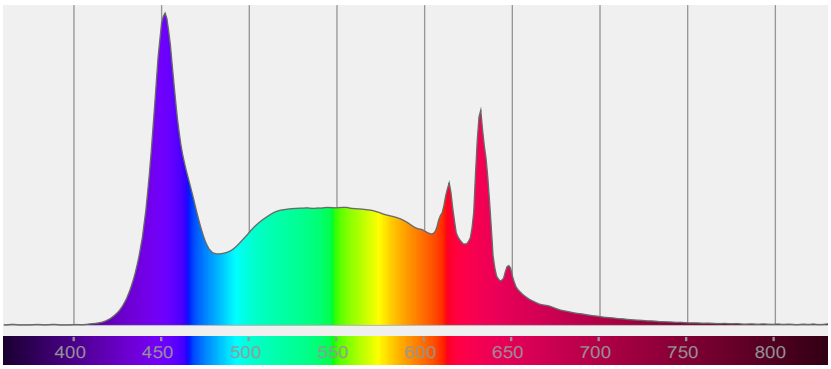
Color details

Correlated Color Temperature, Target	CCT = 6500 K	MacAdam Steps	SDCM = 4.5
Correlated Color Temperature, Measured	CCT = 6613 K	Color deviation from BBL	Duv = -0.0034
Color Rendering Index	CRI 94.6	Color coordinates CIE 1931	(x;y) = (0.314;0.324)
Color Rendering Index, R9 (red)	R9 = 86.8	Color coordinate CIEs 1960	(u;v) = (0.200;0.310)
Color Rendering TM30-18	Rf 88.9	Color coordinate CIEs 1976	(u';v') = (0.200;0.466)
	Rg 100.0	Color Quality Scale	CQS = 89.2

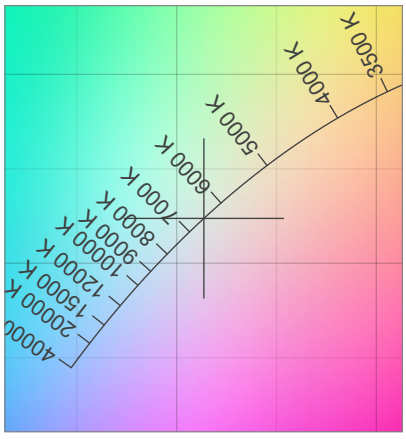
CIE 1931 Chromaticity diagram



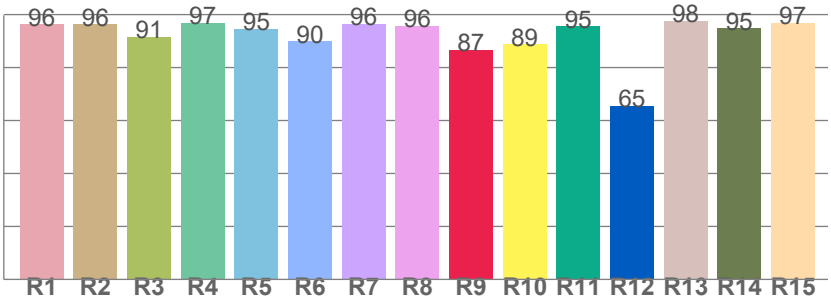
Spectral power distribution



CIE 1931 Chromaticity - zoomed



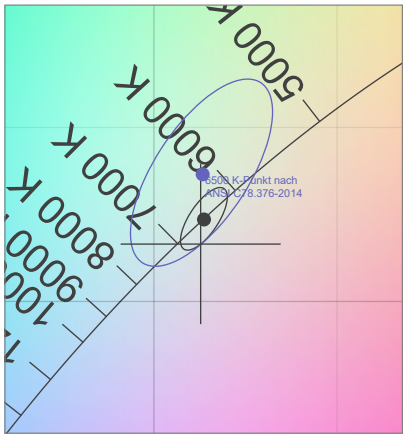
Color Rendering Index per reference color (CIE 1995)



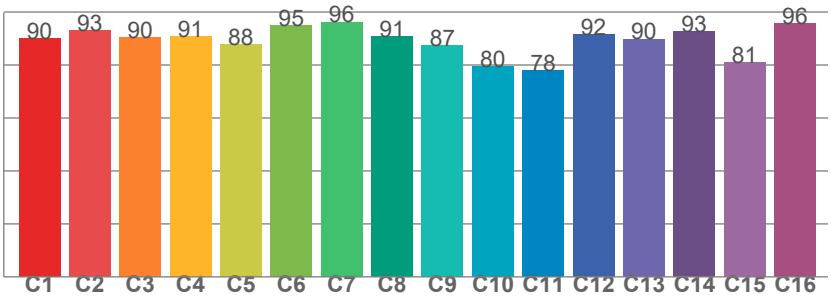
CRI R values, only R1-R8 are used to calculate final CRI value

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
96.2	96.2	91.5	96.9	94.6	89.8	96.3	95.6	86.8	88.7	95.5	65.5	97.6	94.7	96.9

CIE 1931 Chromaticity - SDCM



TM30-18 Rf-values per hue bin



TM30-18 Rf-values per hue bin

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
89.9	93.0	90.4	90.9	87.9	94.8	96.3	90.7	87.3	79.5	78.1	91.5	89.9	92.8	80.9	95.6

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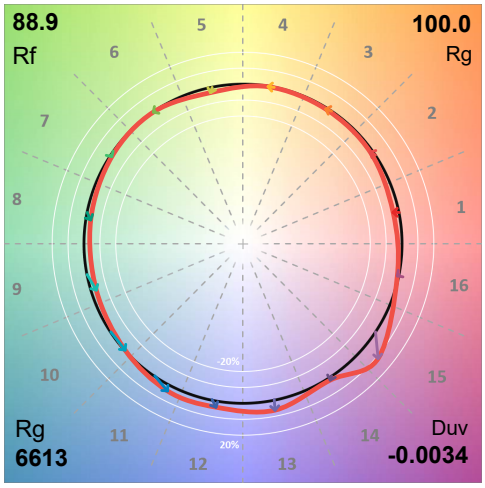
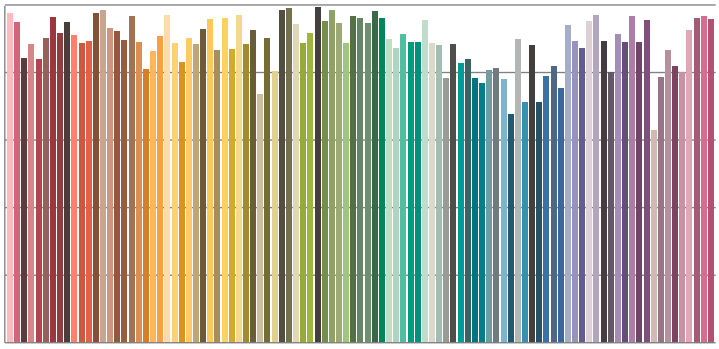
Color details - ANSI/IES TM-30-18 Color Rendition Report

Color Vector Graphic



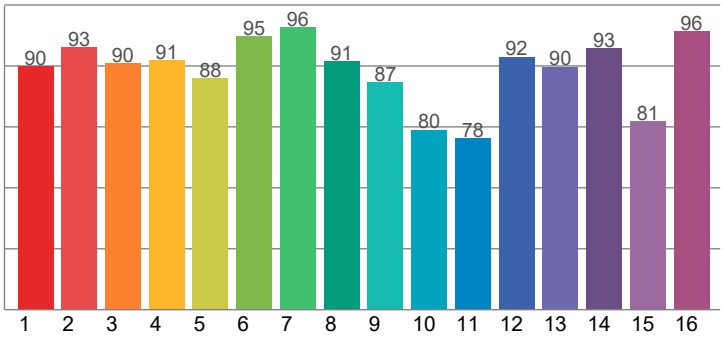
Color Distortion Graphic

Color Rendition by Color Evaluation Sample (CES)

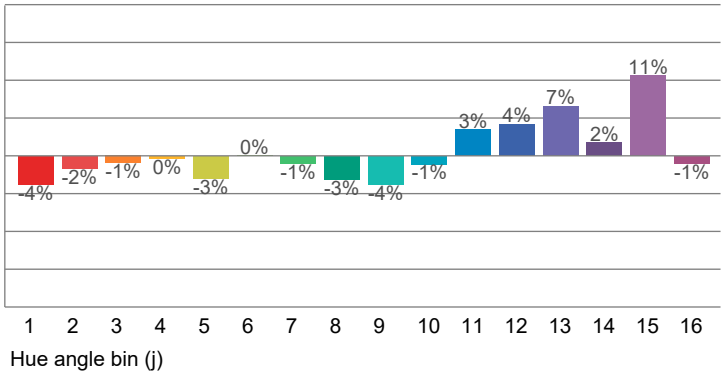


Color evaluation sample CES01 through CES99

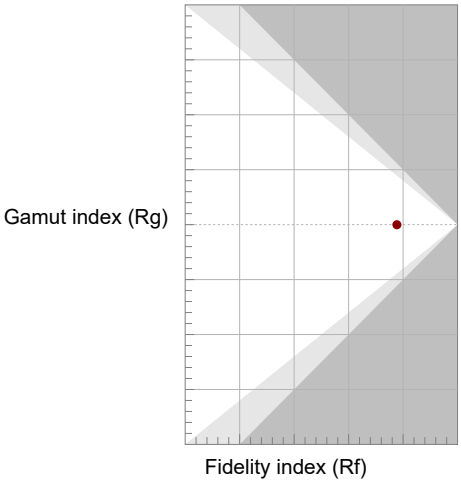
Local Color Fidelity (per hue bin)



Local Chroma Shift (per hue bin)



Gamut Index vs. Fidelity Index



CIE x	0.314
CIE y	0.324
CIE u'	0.200
CIE v'	0.466

CIE	13.3-1995
Ra	94.6
R9	86.8

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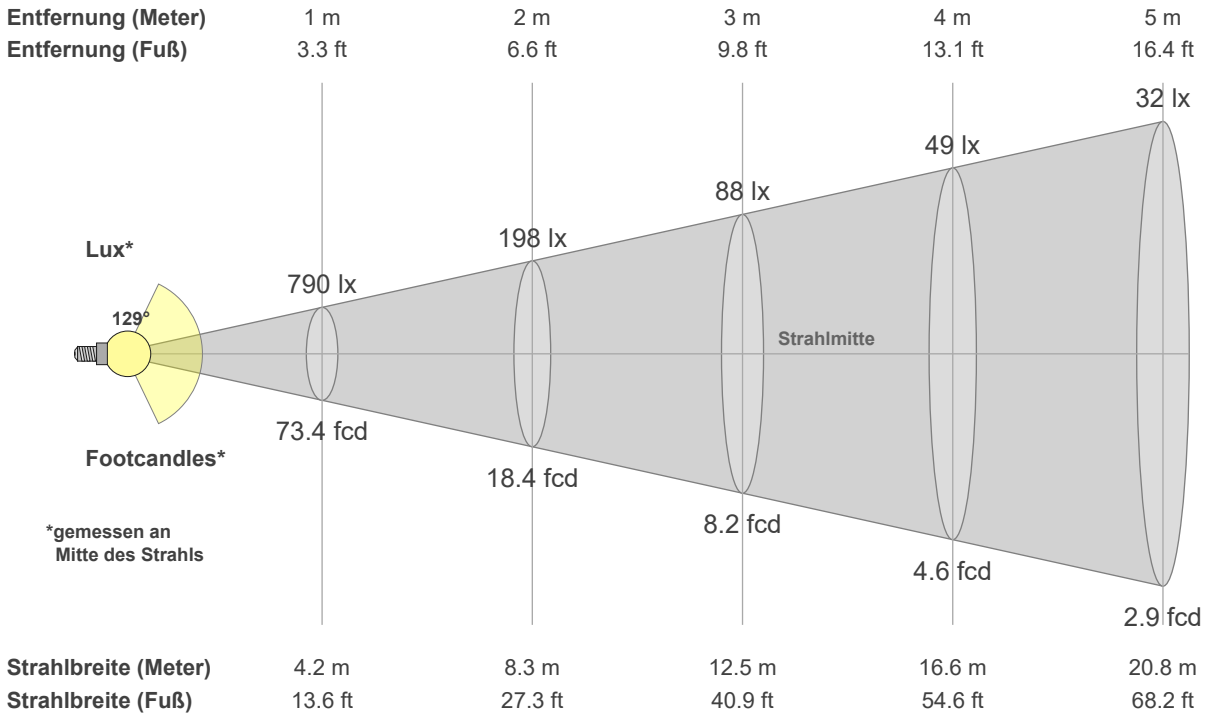
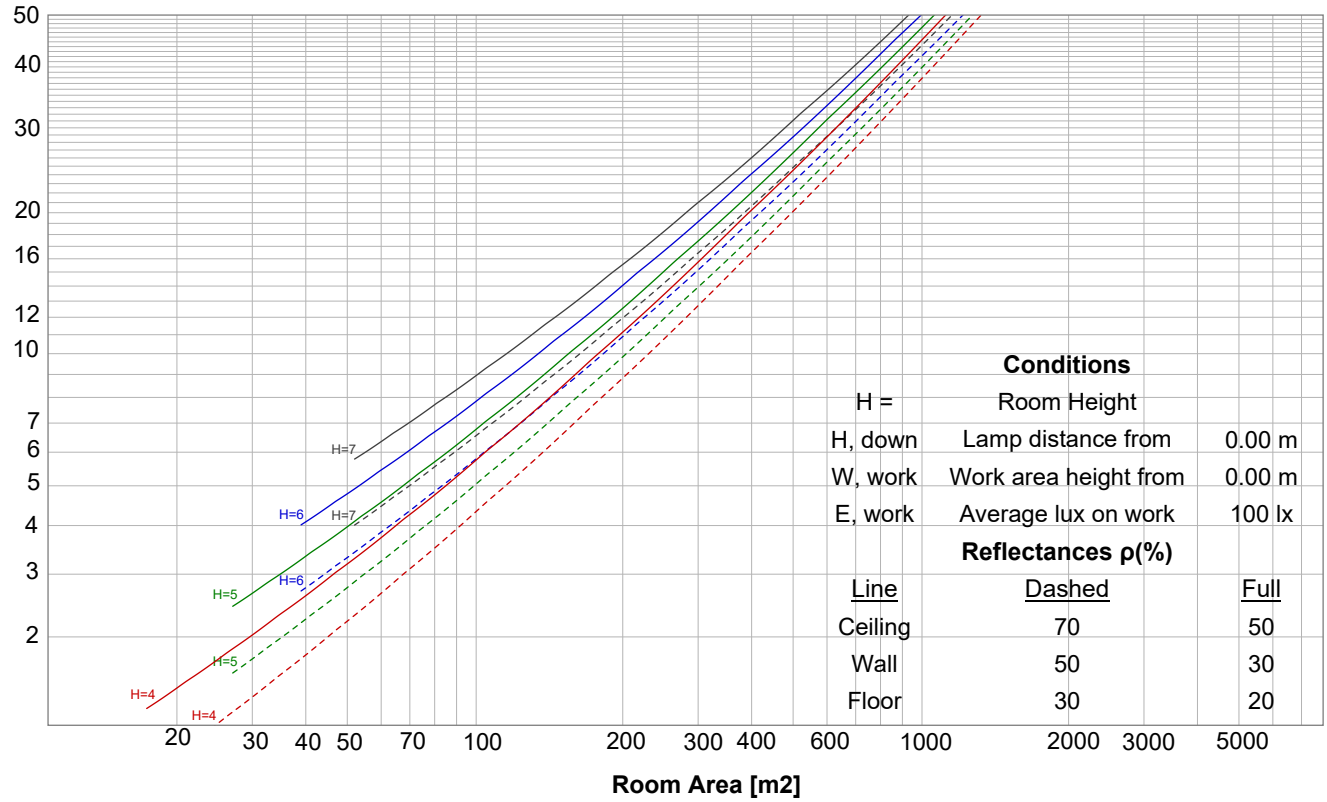
Beam details



Luminaire budgetary diagram

LAMPS (number of lamps)



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Intensity 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
790	198	88	49	32	22	16	12	10	8	7	5	5	4	4	3	3	2	2	2	lux
73.4	18.4	8.2	4.6	2.9	2	1.5	1.1	0.9	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	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
790	781	757	717	665	601	526	445	364	288	224	176	134	0	0	0	0	0	0	0	cd
100%	99%	96%	91%	84%	76%	67%	56%	46%	36%	28%	22%	17%	0%	0%	0%	0%	0%	0%	0%	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
790	783	754	707	642	561	466	360	245	124	0	0	0	0	0	0	0	0	0	0	cd
100%	99%	95%	89%	81%	71%	59%	46%	31%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	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
790	781	757	717	665	601	526	445	364	288	224	176	134	0	0	0	0	0	0	0	cd
100%	99%	96%	91%	84%	76%	67%	56%	46%	36%	28%	22%	17%	0%	0%	0%	0%	0%	0%	0%	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
790	783	754	707	642	561	466	360	245	124	0	0	0	0	0	0	0	0	0	0	cd
100%	99%	95%	89%	81%	71%	59%	46%	31%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	of 0°val

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UGR Table

Corrected, comprehensive UGR table according to 117-1995, S/H ratio=0.25

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		**Viewed Crosswise**					**Viewed Endwise**				
H = mouting height above eye level		(Viewing direction orthogonal to lamp length axis)					(Viewing direction parallel to lamp length axis)				
X	**Y**										
2H	2H	27.8	29.1	28.2	29.5	29.9	28.4	29.6	28.7	30.0	30.4
	3H	29.6	30.9	30.1	31.3	31.7	30.1	31.4	30.6	31.8	32.1
	4H	30.6	31.8	31.1	32.2	32.6	30.9	32.1	31.4	32.6	33.0
	6H	31.5	32.6	31.9	33.0	33.5	31.7	32.8	32.1	33.2	33.7
	8H	31.9	33.0	32.4	33.4	33.9	32.0	33.0	32.4	33.4	34.0
	12H	32.3	33.4	32.8	33.8	34.4	32.1	33.2	32.6	33.6	34.2
4H	2H	28.5	29.7	29.0	30.1	30.5	28.9	30.1	29.4	30.5	30.9
	3H	30.6	31.6	31.1	32.1	32.6	31.0	32.0	31.4	32.4	33.0
	4H	31.6	32.6	32.1	33.0	33.7	31.8	32.9	32.4	33.3	34.0
	6H	32.6	33.5	33.2	34.0	34.5	32.7	33.6	33.3	34.0	34.5
	8H	33.1	33.9	33.7	34.4	34.9	33.0	33.8	33.6	34.3	34.8
	12H	33.6	34.3	34.2	34.8	35.4	33.3	33.9	33.8	34.5	35.1
8H	4H	31.9	32.7	32.5	33.2	33.8	32.2	33.0	32.8	33.5	34.0
	6H	33.2	33.8	33.8	34.4	35.1	33.2	33.8	33.8	34.4	35.1
	8H	33.8	34.4	34.4	35.0	35.8	33.6	34.2	34.2	34.8	35.6
	12H	34.5	35.0	35.1	35.6	36.3	34.0	34.5	34.7	35.1	35.8
12H	4H	32.0	32.7	32.6	33.2	33.8	32.2	32.9	32.8	33.4	34.0
	6H	33.3	33.9	33.9	34.5	35.2	33.3	33.9	33.9	34.5	35.3
	8H	34.0	34.5	34.6	35.1	35.8	33.8	34.3	34.5	34.9	35.6
Variations with the observer position for the luminaire spacings, S:											
S = 1.0H		0.1 / -0.1					0.0 / 0.0				
S = 1.5H		0.1 / -0.1					0.1 / -0.1				
S = 2.0H		0.2 / -0.3					0.3 / -0.4				

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	20
RCR	(Room Cavity Ratio)	Room values are expressed as percentage of Lumen delivered to the task surface																
0	117.4	117.4	117.4	117.4	113.9	113.9	113.9	113.9	107.3	107.3	107.3	101.3	101.3	101.3	95.8	95.8	95.8	93.2
1	104.8	99.1	93.9	89.3	101.3	96.1	91.4	87.2	90.5	86.7	83.1	85.4	82.2	79.4	80.6	78.1	75.8	73.1
2	94.4	85.0	77.3	70.8	91.0	82.5	75.4	69.4	77.7	71.8	66.7	73.4	68.5	64.1	69.3	65.3	61.7	59.0
3	85.5	73.9	64.9	57.8	82.3	71.7	63.5	56.8	67.7	60.7	54.9	64.0	58.0	53.0	60.5	55.5	51.3	48.6
4	77.9	65.0	55.5	48.3	75.0	63.2	54.4	47.6	59.7	52.1	46.1	56.5	50.0	44.8	53.5	48.0	43.4	40.9
5	71.4	57.7	48.2	41.1	68.7	56.2	47.2	40.6	53.2	45.4	39.5	50.5	43.7	38.4	47.9	42.1	37.4	34.9
6	65.8	51.8	42.3	35.6	63.4	50.4	41.6	35.1	47.9	40.1	34.3	45.5	38.7	33.4	43.3	37.3	32.6	30.3
7	60.9	46.8	37.6	31.2	58.7	45.6	37.0	30.8	43.4	35.7	30.1	41.3	34.5	29.4	39.4	33.4	28.7	26.6
8	56.6	42.5	33.7	27.6	54.6	41.5	33.2	27.3	39.6	32.1	26.8	37.8	31.1	26.2	36.1	30.1	25.6	23.5
9	52.8	38.9	30.5	24.7	51.0	38.1	30.0	24.5	36.4	29.1	24.0	34.8	28.2	23.5	33.3	27.4	23.0	21.1
10	49.4	35.9	27.7	22.3	47.8	35.1	27.3	22.1	33.6	26.5	21.7	32.2	25.8	21.3	30.9	25.1	20.8	19.0

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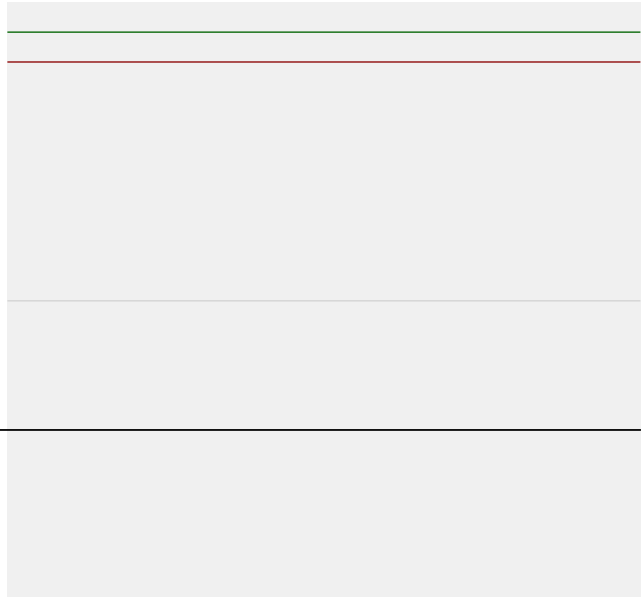
Power details

Input power

Frequency of input power	0 Hz
Power feed to light source	19.9 W
RMS Input voltage feed V,RMS	24.0 V
RMS Input current feed I,RMS	0.828 A
Volt-Amp or apparent power = V,RMS*I,RMS	19.88 VA
Displacement factor of AC power feed	0.0
Power factor of AC current feed	1.0
Total harmonic distortion of the current	0%
Total harmonic distortion of the voltage	0%

Input power curve



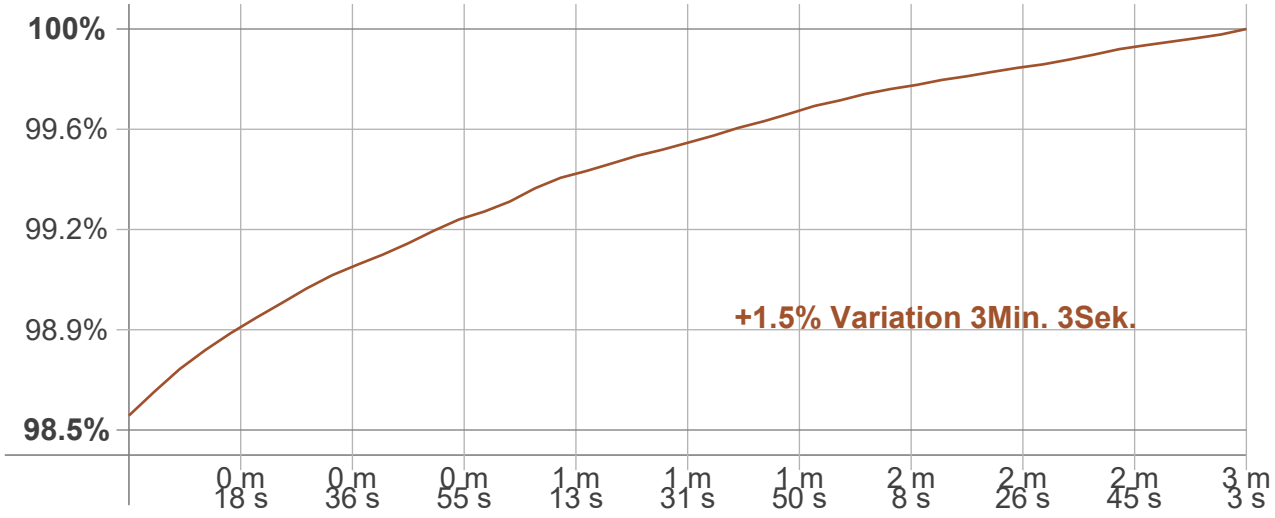
Efficiency

Radiated power efficiency	49.9%
Lumen efficiency	149 lm/W

Stabilization details

Warmup Conditions		Color Temperature Change	
Stable period	3 Min	CCT start	6492 K
Stable change max	3.0%	CCT shift	+8 K
Minimum time	3 Min	CCT end	6500 K
Warmup Result		**Output Change**	
Total warmup time	Lampe	Output start	2926 lm
Warmup variation	+1.5%	Output change	+39 lm
		Output end	2965 lm

Stabilization Curve



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Flicker TLA details

Flicker Meter Type	Viso Systems LabFlicker
Frequency of input power	0 Hz
Flicker/TLA sample rate	n/a samples/s

Measurement time

PstLM	180 sec.
All other indices	1,5 sec,

Flicker indices according to Illuminating Engineering Society

Flicker frequency	n/a Hz
Percent Flicker	n/a %
Flicker index	n/a

Flicker indices according to California Energy Commission (CEC)

JA8/10 40 Hz	n/a %
JA8/10 90 Hz	n/a %
JA8/10 200 Hz	n/a %
JA8/10 400 Hz	n/a %
JA8/10 1000 Hz	n/a %

TLA indices (re IEC TR 61547-1, IEC 61000-3-3 and IEC

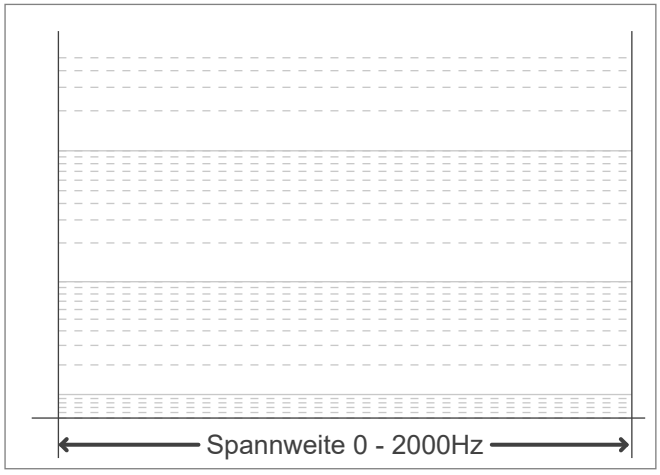
PstLM value (F < 80 Hz)	n/a
SVM value (80 < F < 2000 Hz)	n/a

Flicker indices according to Lighting Research Center (2015)

Perception metric, Assist Mp	n/a

Flicker frame (frame of one flicker period in time domain)

Flicker FFT (flicker curve in frequency domain)



IEEE 1789 Frequency/modulation plot