

Test report

Light measurement results

Laboratory and Equipment

Test lab
Spectrometer Manufacturer and Model
Measurement date

Viso LightSpion - Seriennummer: 1435906163
LightSpion – Type C, horizontal
11.11.2025

Measurement Conditions

Tested c-planes
Tested gamma resolution
Input Power
Input RMS Voltage and Current

2 planes – 180°
7.5°
14.0 W
24.0 V – 0.582 A

Tested Light Source

Luminaire
Item No.
Manufacturer
Measured length
Dimension (Lamp w x h) | (Light w x h)
Description

FLEX STRIP HEP-1200 MONO 14.4W NW 1m 251108
AS12HEP1408
awL^{ed} by audiowerk GmbH
1000mm
10mm x 1000mm | 3.5mm x 2.8mm
Charge: 251108

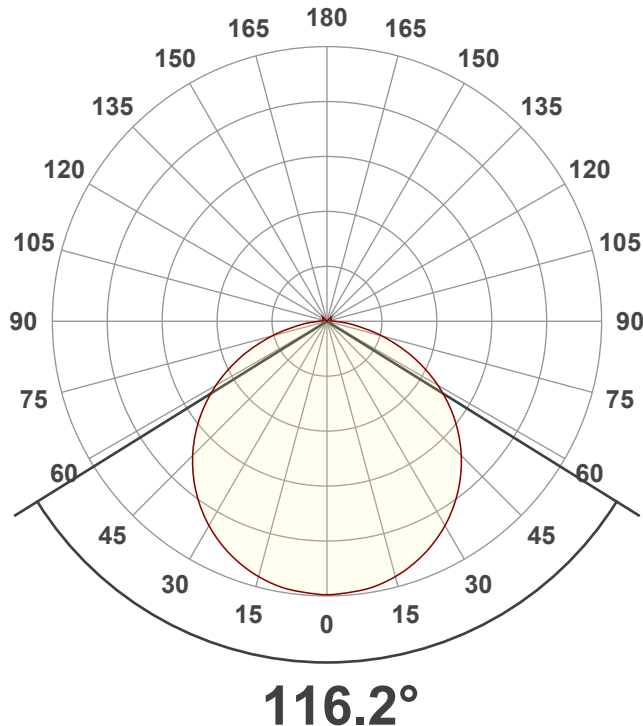
Main Light Measurement Results

Output – Total Lumen (Up% / Down%)
Efficiency
Peak Intensity
Correlated Color Temperature, CCT
Color Rendering Index
Ecodesign Energy Class

2301 lm – 3% / 97%
165 lm/W
747 cd
3980 K
CRI 93.0
D

Polar light distribution diagram

Unit: 0-100% of peak intensity



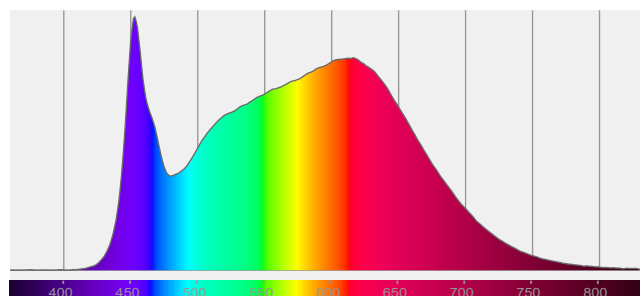
— C0 - C180
— C90 - C270

$\eta = 100.0\%$

Product photo



Spectral power distribution

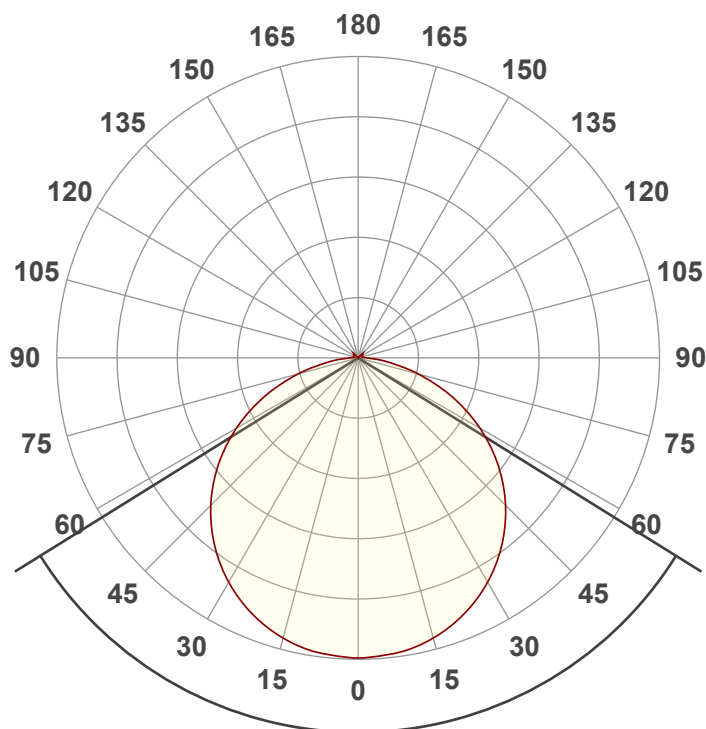


Test report

Light measurement results

Luminous Intensity diagram

Unit: 0-100% of peak intensity



C0-C180
C90-C270

116.2°

Main Values

Output (total Lumen)	2301 lm
Lumen Up% / Down%	2.51% / 97.49%
Peak Intensity	747 cd
Beam Angle (50%-FWHM)	116.18°

EU Ecodesign parameters

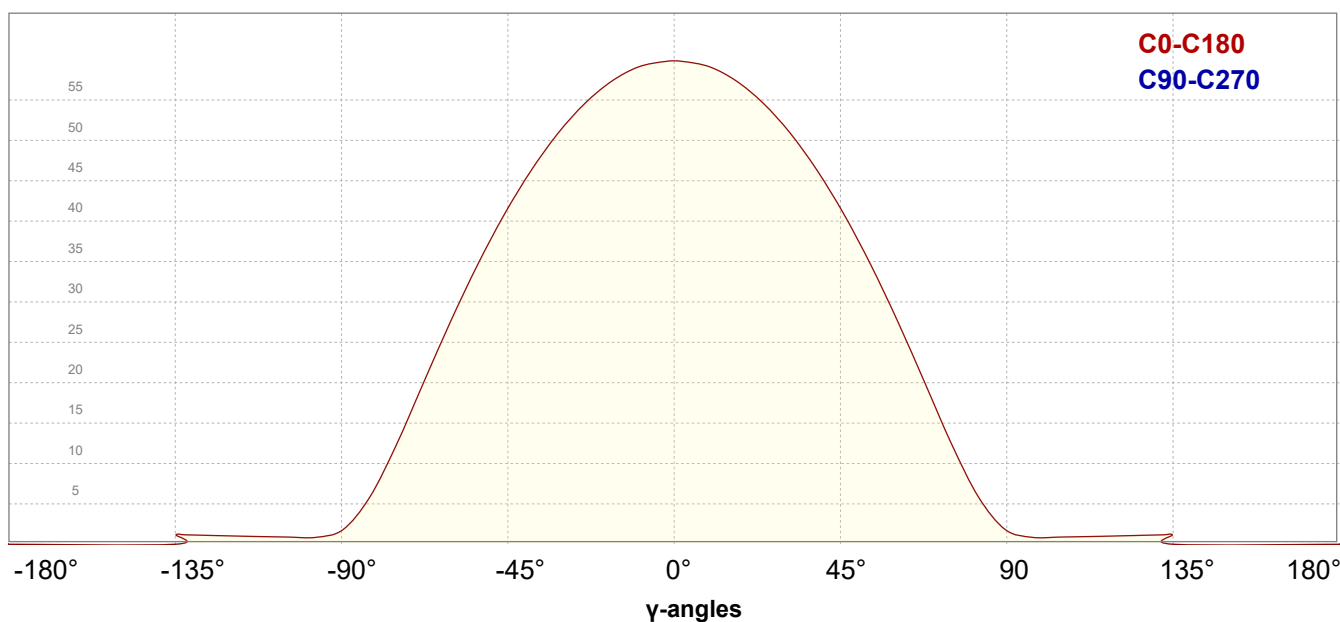
Directionality (DLS or NDLS)	NDLS
Ecodesign Useful Luminous	2301 lm
Ecodesign Energy Class	D

Intensity Ratio

In 120° cone	75.3%
In 90° cone	50.7%

Linear distribution diagram

Intensity [cd]



C0-C180
C90-C270

Test report

Light measurement results

Color details

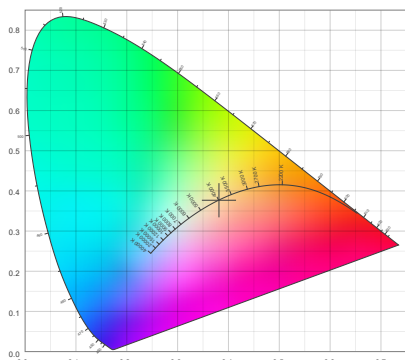
Correlated Color Temperature, Target
Correlated Color Temperature, Measured
Color Rendering Index
Color Rendering Index, R9 (red)
Color Rendering TM30-18

CCT = 3980 K
CCT = 3980 K
CRI 93.0
R9 = 63.8
Rf 89.2
Rg 96.8

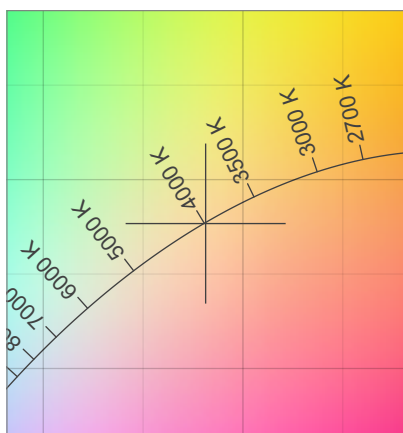
MacAdam Steps
Color deviation from BBL
Color coordinates CIE 1931
Color coordinate CIEs 1960
Color coordinate CIEs 1976
Color Quality Scale

SDCM = n/a
Duv = -0.0003
(x;y) = (0.381;0.377)
(u;v) = (0.226;0.334)
(u';v') = (0.226;0.502)
CQS = 91.2

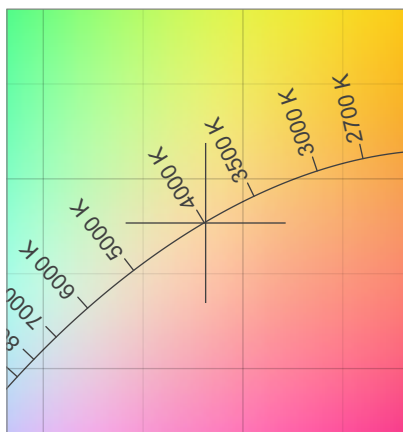
CIE 1931 Chromaticity diagram



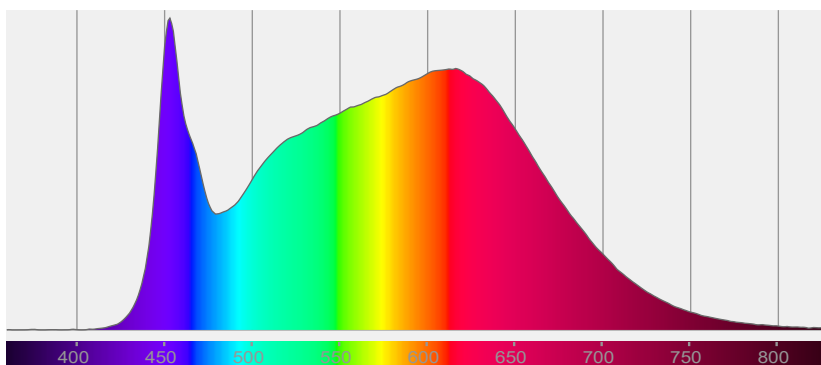
CIE 1931 Chromaticity - zoomed



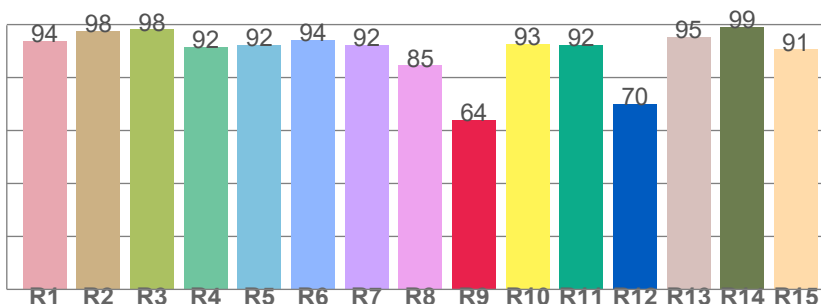
CIE 1931 Chromaticity - SDCM



Spectral power distribution



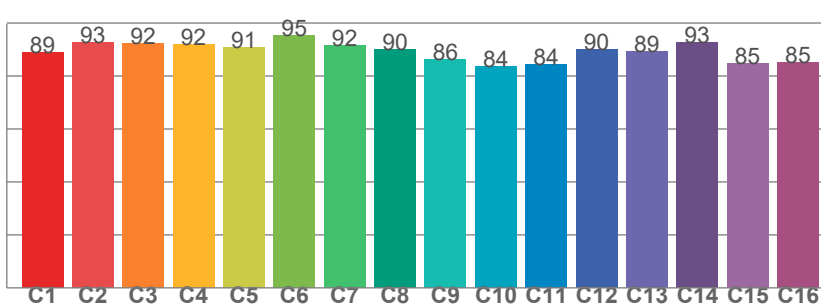
Color Rendering Index per reference color (CIE 1995)



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
93.7	97.6	98.1	91.6	92.3	94.1	92.4	84.5	63.8	92.6	92.3	69.9	95.3	99.2	90.6

TM30-18 Rf-values per hue bin

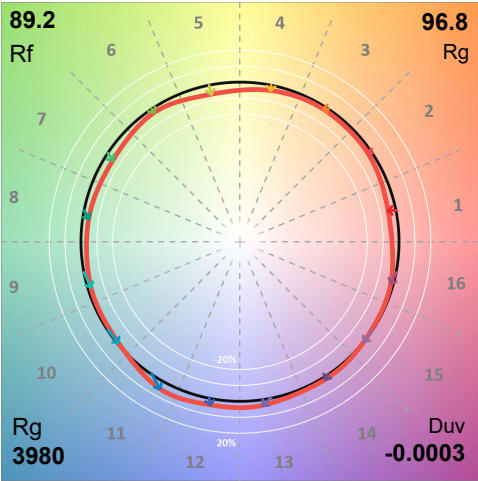


TM30-18 Rf-values per hue bin

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
89.0	92.7	92.3	91.8	91.0	95.2	91.6	90.2	86.4	83.6	84.4	90.1	89.3	92.6	84.9	85.3

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

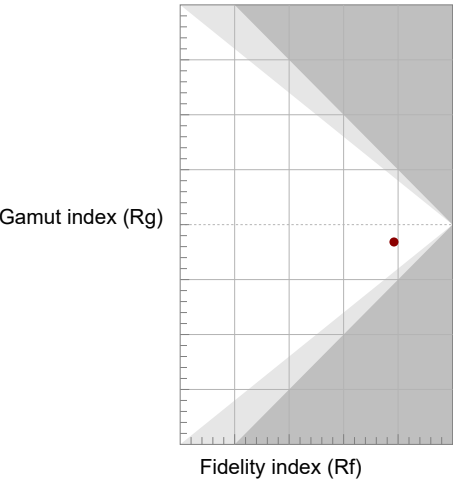
Color Vector Graphic



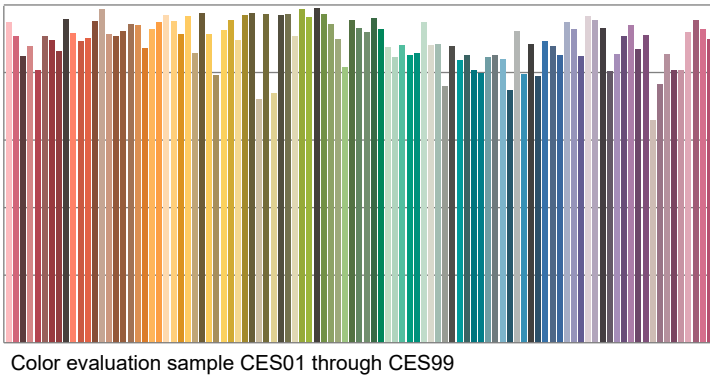
Color Distortion Graphic



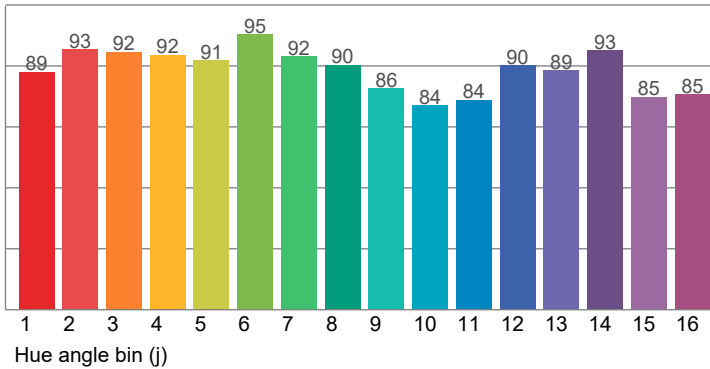
Gamut Index vs. Fidelity Index



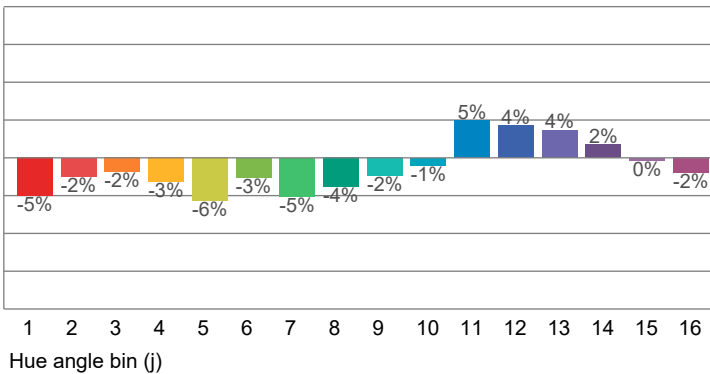
Color Rendition by Color Evaluation Sample (CES)



Local Color Fidelity (per hue bin)



Local Chroma Shift (per hue bin)



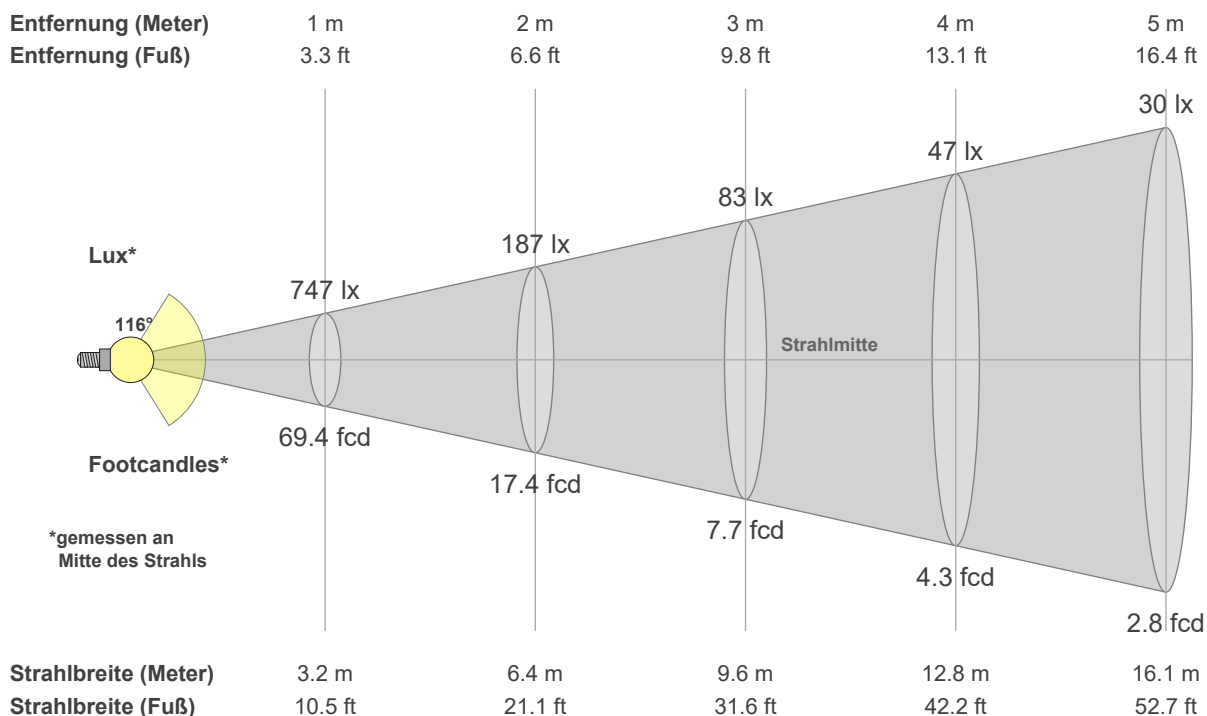
CIE x 0.381
CIE y 0.377
CIE u' 0.226
CIE v' 0.502

CIE 13.3-1995
Ra 93.0
R9 63.8

Test report

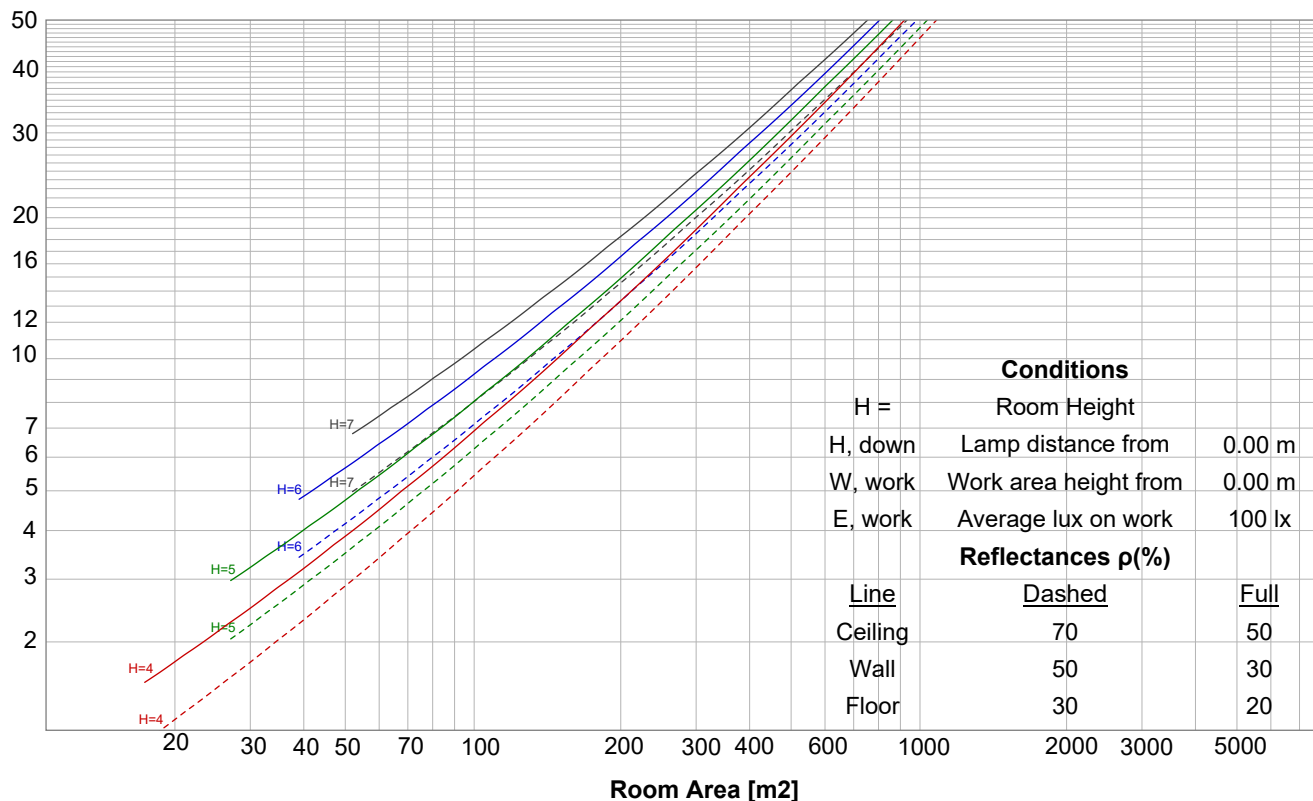
Light measurement results

Beam details



Luminaire budgetary diagram

LAMPS (number of lamps)



Test report

Light measurement results

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
747	187	83	47	30	21	15	12	9	7	6	5	4	4	3	3	3	2	2	2	lux
69.4	17.4	7.7	4.3	2.8	1.9	1.4	1.1	0.9	0.7	0.6	0.5	0.4	0.4	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
747	744	737	722	702	677	645	608	566	519	467	411	351	286	221	156	99	55	22	14	cd
100%	100%	99%	97%	94%	91%	86%	81%	76%	70%	62%	55%	47%	38%	30%	21%	13%	7%	3%	2%	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
747	744	737	722	702	677	645	608	566	519	467	411	351	286	221	156	99	55	22	14	cd
100%	100%	99%	97%	94%	91%	86%	81%	76%	70%	62%	55%	47%	38%	30%	21%	13%	7%	3%	2%	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
747	744	737	722	702	677	645	608	566	519	467	411	351	286	221	156	99	55	22	14	cd
100%	100%	99%	97%	94%	91%	86%	81%	76%	70%	62%	55%	47%	38%	30%	21%	13%	7%	3%	2%	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
747	744	737	722	702	677	645	608	566	519	467	411	351	286	221	156	99	55	22	14	cd
100%	100%	99%	97%	94%	91%	86%	81%	76%	70%	62%	55%	47%	38%	30%	21%	13%	7%	3%	2%	of 0°val

Test report

Light measurement results

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 = mounting height above eye level			(Viewing direction orthogonal to lamp length axis)					(Viewing direction parallel to lamp length axis)				
X Y												
2H	2H	28.5	29.7	28.7	30.0	30.3	30.0	31.2	30.3	31.5	31.8	
	3H	29.5	30.8	30.0	31.1	31.4	31.5	32.7	31.9	33.1	33.3	
	4H	29.9	31.1	30.4	31.5	31.8	32.1	33.3	32.6	33.6	33.9	
	6H	30.3	31.3	30.6	31.6	32.0	32.7	33.7	33.1	34.1	34.5	
	8H	30.3	31.3	30.7	31.7	32.1	32.9	33.9	33.2	34.2	34.7	
	12H	30.3	31.3	30.7	31.7	32.2	33.0	34.0	33.4	34.4	34.9	
4H	2H	29.1	30.3	29.5	30.6	30.9	30.3	31.5	30.7	31.8	32.1	
	3H	30.4	31.4	30.8	31.8	32.3	32.0	33.0	32.5	33.4	33.9	
	4H	30.8	31.8	31.3	32.2	32.8	32.7	33.6	33.2	34.1	34.7	
	6H	31.2	32.0	31.7	32.4	32.9	33.3	34.2	33.8	34.6	35.0	
	8H	31.3	32.0	31.8	32.5	32.9	33.5	34.3	34.1	34.7	35.2	
	12H	31.3	32.0	31.8	32.4	32.9	33.7	34.4	34.2	34.8	35.4	
8H	4H	31.1	31.9	31.6	32.3	32.7	32.8	33.6	33.3	34.0	34.4	
	6H	31.5	32.1	32.1	32.7	33.2	33.5	34.1	34.0	34.6	35.2	
	8H	31.7	32.2	32.2	32.8	33.5	33.8	34.3	34.3	34.9	35.6	
	12H	31.8	32.2	32.4	32.8	33.4	34.0	34.5	34.6	35.0	35.7	
12H	4H	31.1	31.8	31.6	32.2	32.8	32.8	33.4	33.3	33.9	34.4	
	6H	31.6	32.1	32.1	32.7	33.4	33.5	34.1	34.1	34.6	35.3	
	8H	31.7	32.2	32.4	32.8	33.4	33.8	34.3	34.4	34.8	35.5	
Variations with the observer position for the luminaire spacings, S:												
S = 1.0H		0.1 / -0.2					0.1 / -0.1					
S = 1.5H		0.3 / -0.4					0.3 / -0.4					
S = 2.0H		0.6 / -0.9					0.8 / -0.9					

UGR-Daten konnten aufgrund fehlender/falscher Symmetrie nicht berechnet werden. Gehen Sie zu Bearbeiten -> Photometrisch ->

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	118.4	118.4	118.4	118.4	115.4	115.4	115.4	115.4	109.7	109.7	109.7	104.5	104.5	104.5	99.7	99.7	99.7	97.5
1	107.7	102.8	98.4	94.4	104.7	100.3	96.2	92.6	95.5	92.2	89.2	91.2	88.5	86.0	87.2	85.0	83.0	80.7
2	97.7	89.3	82.3	76.4	94.8	87.2	80.7	75.3	83.2	77.8	73.1	79.5	75.0	71.1	76.1	72.4	69.1	66.8
3	88.9	78.2	69.8	63.2	86.2	76.4	68.7	62.4	73.0	66.4	61.0	69.9	64.3	59.6	67.0	62.3	58.3	55.9
4	81.3	69.1	60.1	53.3	78.8	67.6	59.2	52.8	64.7	57.5	51.8	62.1	55.8	50.8	59.6	54.3	49.8	47.5
5	74.7	61.6	52.5	45.7	72.4	60.3	51.8	45.4	57.9	50.4	44.6	55.6	49.1	43.9	53.5	47.8	43.2	41.0
6	68.9	55.4	46.3	39.8	66.8	54.3	45.7	39.5	52.2	44.6	38.9	50.3	43.5	38.4	48.4	42.5	37.9	35.7
7	63.8	50.1	41.3	35.0	61.9	49.2	40.8	34.8	47.4	39.9	34.4	45.7	39.0	34.0	44.2	38.1	33.5	31.5
8	59.4	45.7	37.1	31.2	57.6	44.9	36.7	31.0	43.3	35.9	30.6	41.9	35.2	30.3	40.5	34.5	30.0	28.0
9	55.4	41.9	33.6	28.0	53.9	41.2	33.3	27.8	39.8	32.6	27.6	38.6	32.0	27.3	37.4	31.4	27.0	25.1
10	51.9	38.6	30.6	25.3	50.5	38.0	30.3	25.2	36.8	29.8	25.0	35.7	29.3	24.7	34.7	28.8	24.5	22.7

Test report

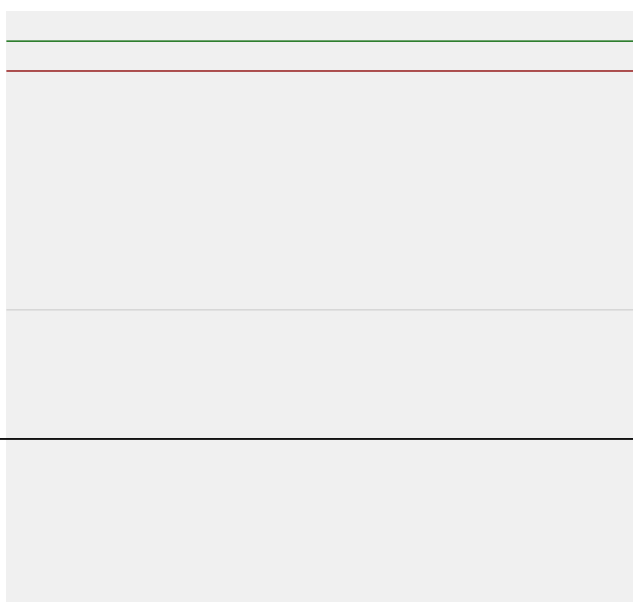
Light measurement results

Power details

Input power

Frequency of input power	0 Hz
Power feed to light source	14.0 W
RMS Input voltage feed V,RMS	24.0 V
RMS Input current feed I,RMS	0.582 A
Volt-Amp or apparent power = V,RMS*I,RMS	13.95 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 55.8%

Lumen efficiency 165 lm/W

Stabilization details

Warmup Conditions

Stable period	3 Min
Stable change max	2.0%
Minimum time	3 Min

Color Temperature Change

CCT start	3975 K
CCT shift	+5 K
CCT end	3980 K

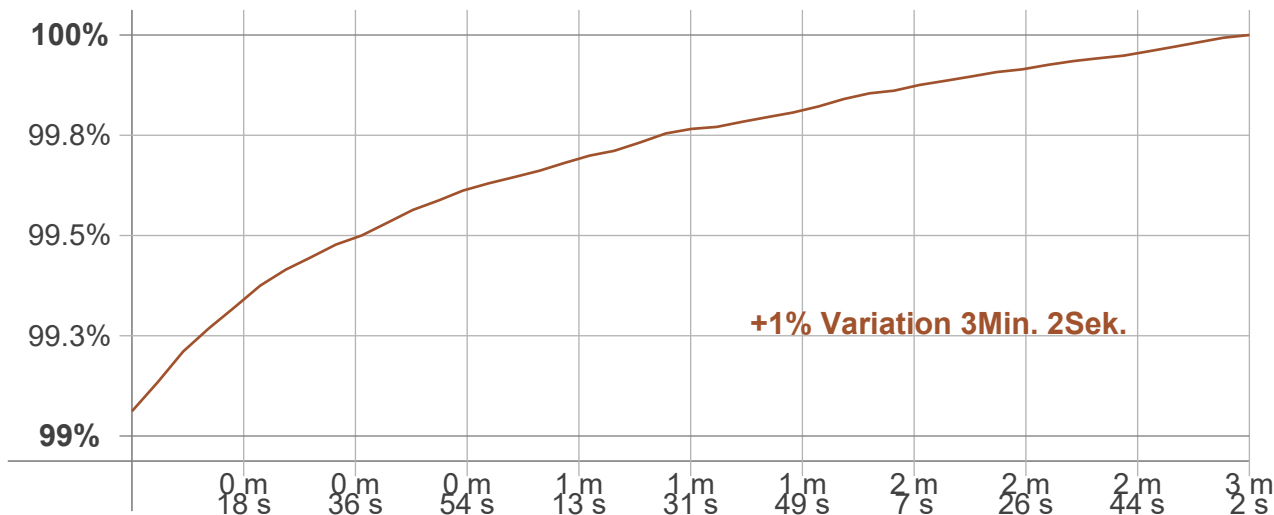
Warmup Result

Total warmup time	Lampe
Warmup variation	+1.0%

Output Change

Output start	2282 lm
Output change	+19 lm
Output end	2301 lm

Stabilization Curve



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 %

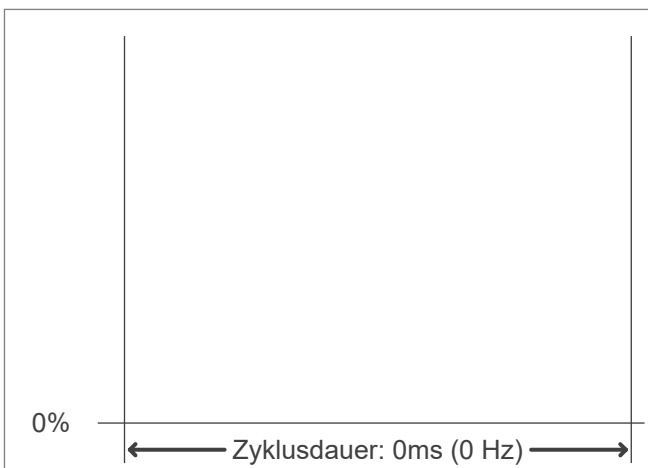
TLA indices (re IEC TR 61547-1, IEC 61000-3-3 and IEC

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

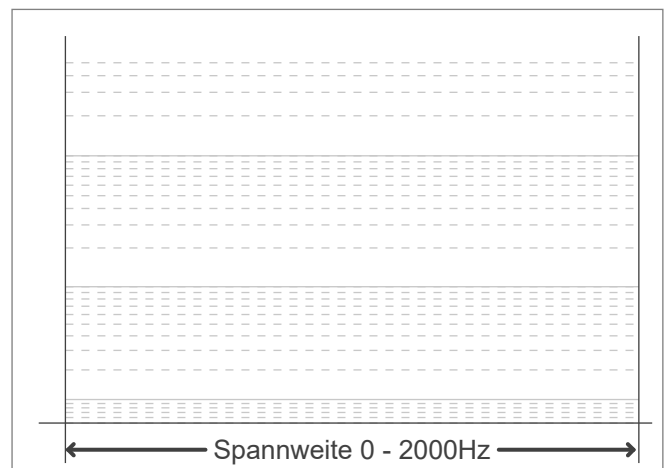
Flicker indices according to Lighting Research Center (2015)

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

