

Test report

Laboratory and Equipment

Test lab
Spectrometer Manufacturer and Model
Measurement date

Viso LabSpion - serial: 3331725735 sensor serial: 3532797498 - T
LabSpion - Type C, horizontal
31/08/2026

Measurement Conditions

Tested c-planes
Tested gamma resolution
Input Power

72 planes - 5,00°
1,00°
28,98 W

Tested Light Source

Luminaire
Basic Luminous Shape
Item No.
Manufacturer
Description
Dimensions, luminous surface
Dimensions, light source housing

GAMMA 30 3000K 24D WHITE C LENTE
SPOT
04068300302403
ELECTRUM
LED BRIDGELUXline COM LENTE
H/D = -1, W = 0, L = 6,2, Shape = SPOT
H/D = 8,7, W = 0, L = 8

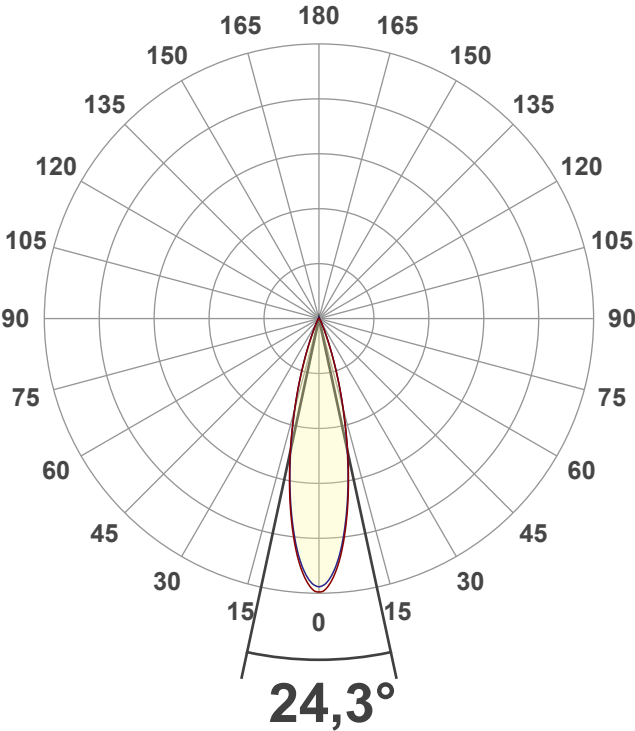
Main Light Measurement Results

Output - Total Lumen (Up% / Down%)
Efficiency
Peak Intensity
Correlated Color Temperature, CCT
Color Rendering Index

4279 lm - 1,157% / 98,84%
147,7 lm/W
20,17 cd
3000 K
CRI 94,9 TM30Rf 91,0 TM30 Rg 102,6

Polar light distribution diagram

Unit: 0-100% of peak intensity



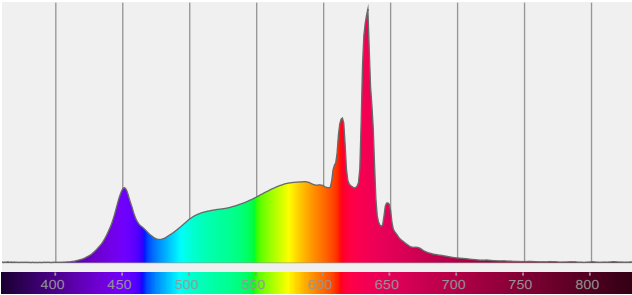
— C0 - C180
— C90 - C270

$\eta = 100\%$

Product photo

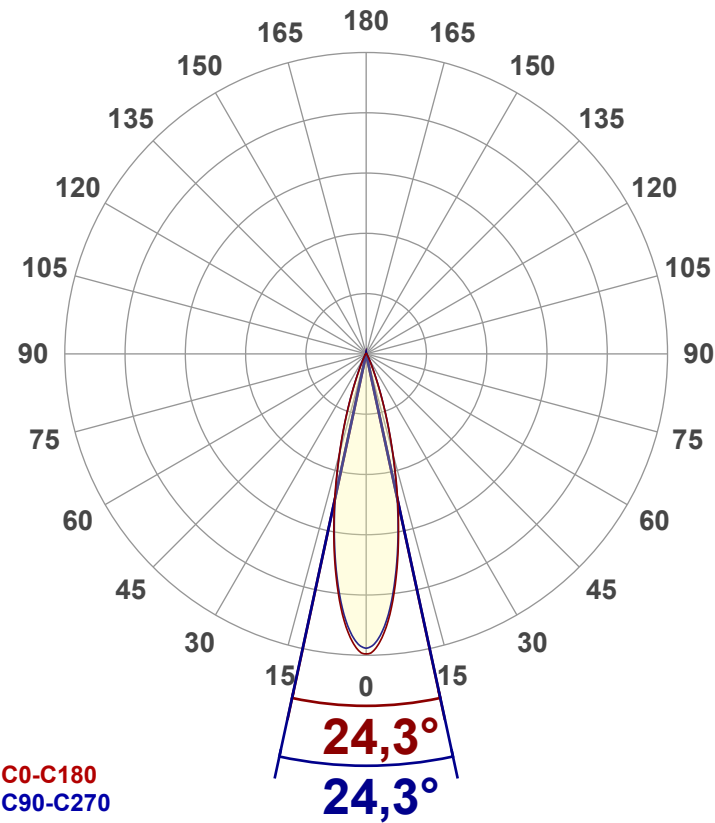


Spectral power distribution



Luminous Intensity diagram

Unit: 0-100% of peak intensity



Main Values

Output (total Lumen)	4279 lm
Lumen Up% / Down%	1,157% / 98,84%
Peak Intensity	20,17 cd
Beam Angle (50%-FWHM)	24,3°

EU Ecodesign parameters

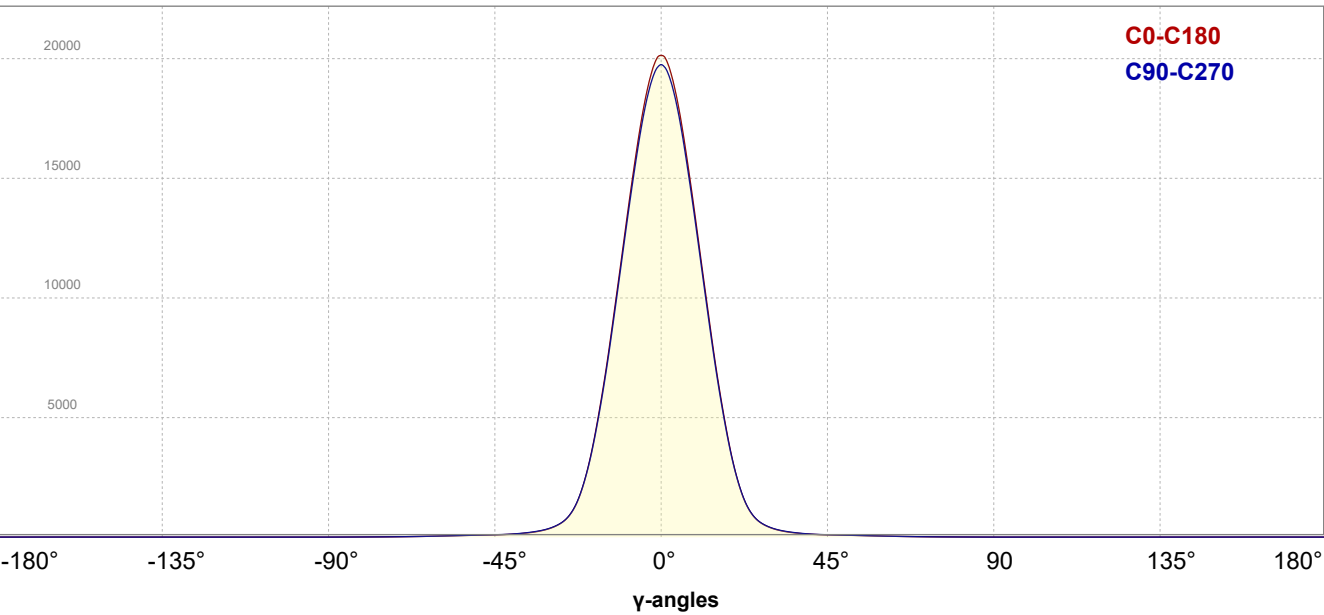
Directionality (DLS or NDLS)	DLS
Ecodesign Useful Luminous Flux	4065 lm
Ecodesign Energy Class	C

Intensity Ratio

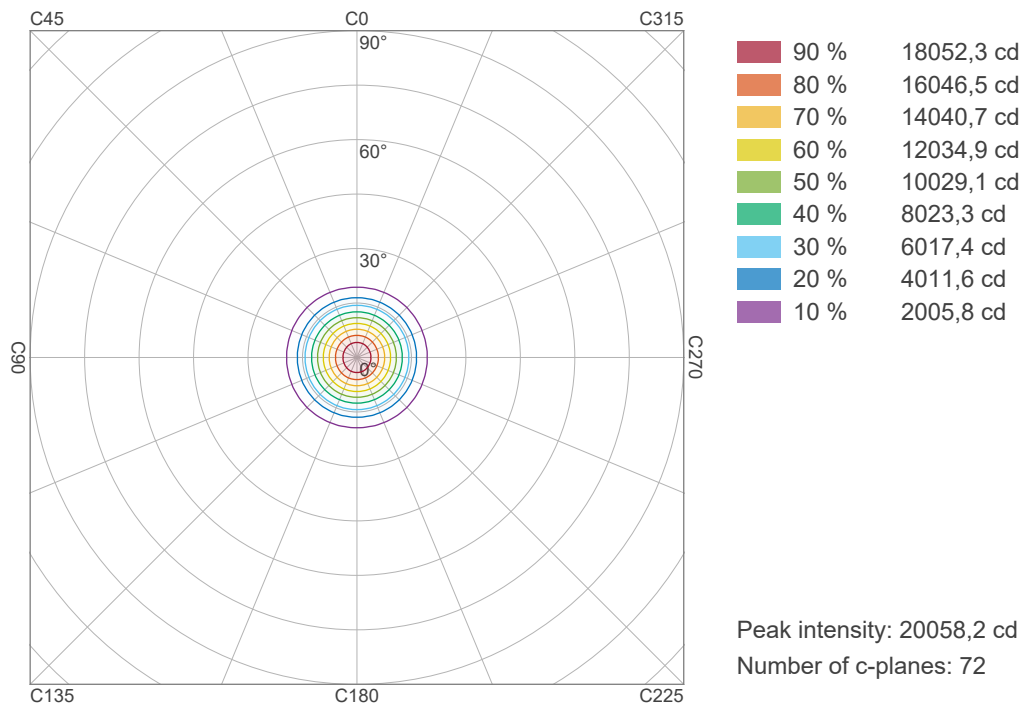
In 120° cone	97,3%
In 90° cone	95%

Linear distribution diagram

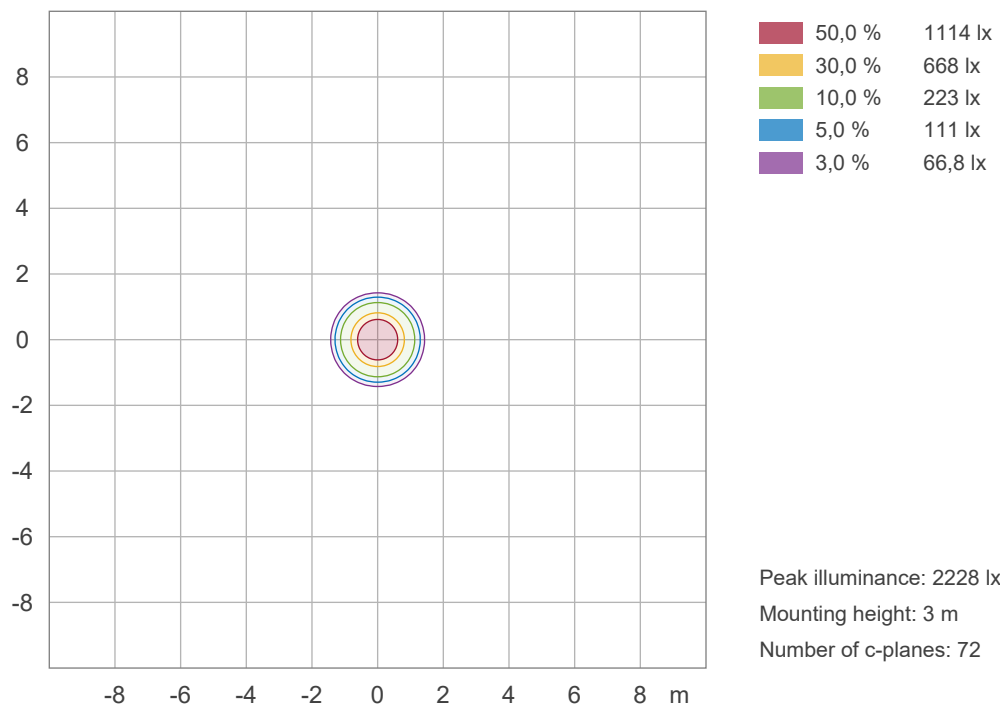
Intensity [cd]



Iso-intensity Diagram (Iso-candela)



Iso-illuminance Diagram (Iso-lux)



Test report

Color details

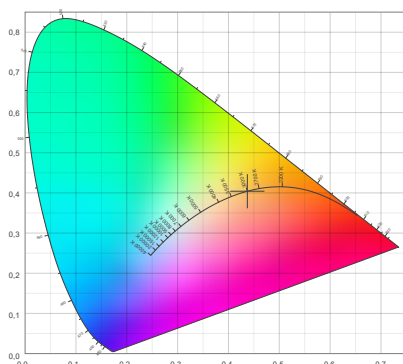
Correlated Color Temperature, Target
Correlated Color Temperature, Measured
Color Rendering Index
Color Rendering Index, R9 (red)
Color Rendering TM30-18

CCT = 3000 K
CCT = 3153 K
CRI 94,9
R9 = 72,0
Rf 91,0
Rg 102,6

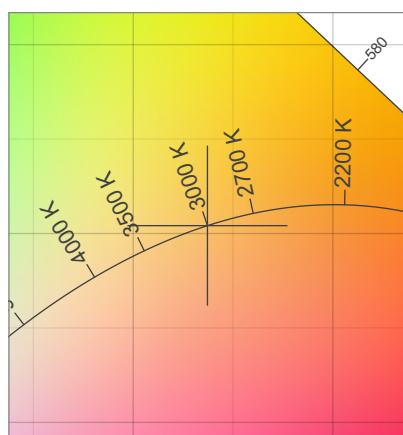
MacAdam Steps
Color deviation from BBL
Color coordinates CIE 1931
Color coordinate CIEs 1960
Color coordinate CIEs 1976
Color Quality Scale

SDCM = 8,0
Duv = -0,0053
(x;y) = (0,4372;0,4042)
(u;v) = (0,2507;0,3476)
(u';v') = (0,2507;0,5215)
CQS = 90,8

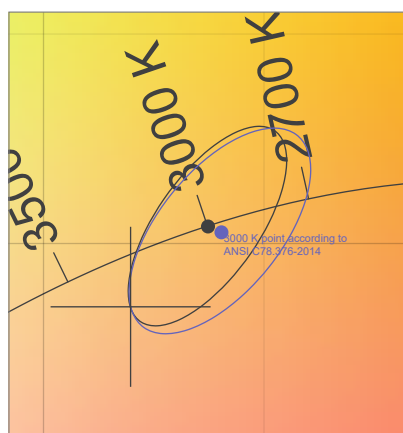
CIE 1931 Chromaticity diagram



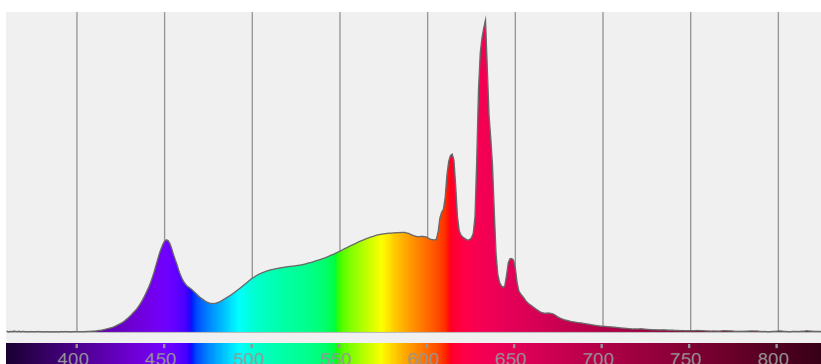
CIE 1931 Chromaticity - zoomed



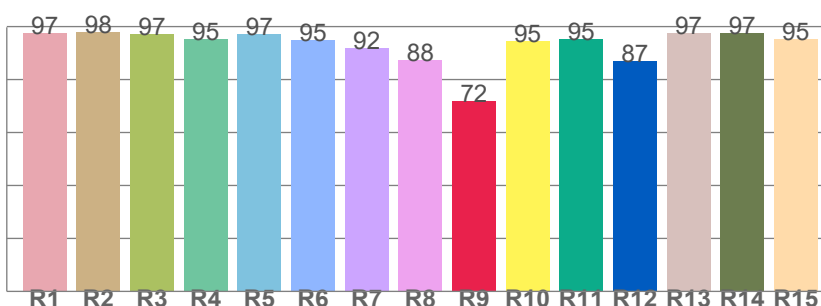
CIE 1931 Chromaticity - SDCM



Spectral power distribution



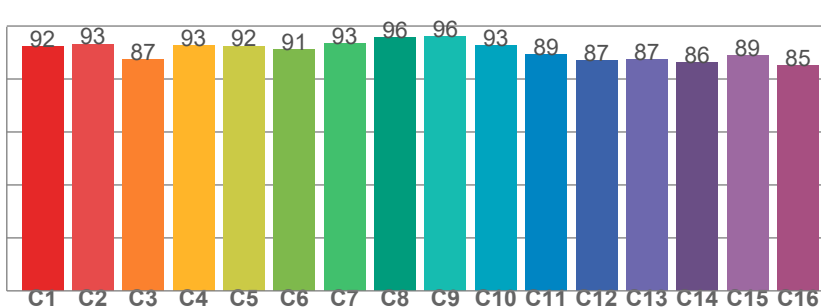
Color Rendering Index per reference color (CIE 1995)



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
97,4	98,1	97,1	95,1	97,3	95,0	91,9	87,5	72,0	94,6	95,4	86,8	97,5	97,5	95,4

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
92,2	93,2	87,4	92,6	92,5	91,2	93,5	95,7	96,0	92,6	89,2	87,0	87,4	86,2	89,0	85,3

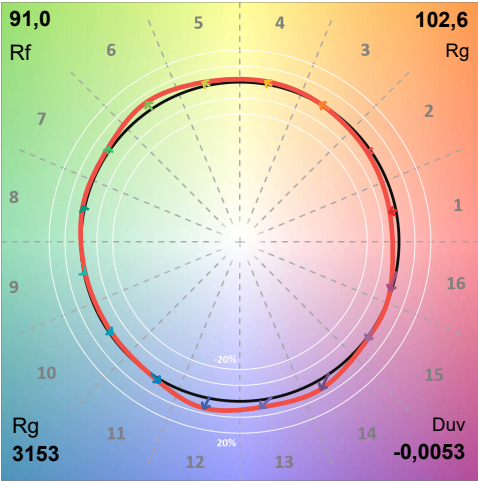
Test report

Light measurement results

Print date 31-08-2026

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

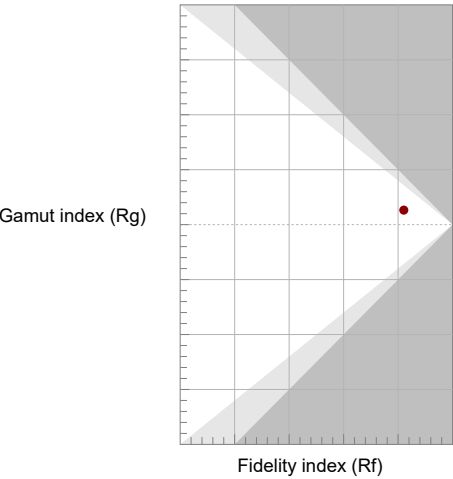
Color Vector Graphic



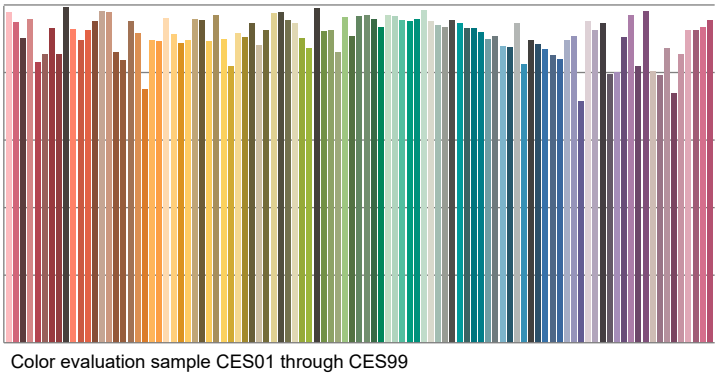
Color Distortion Graphic



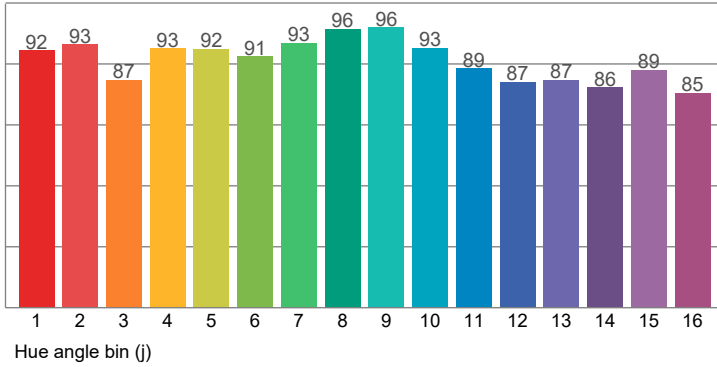
Gamut Index vs. Fidelity Index



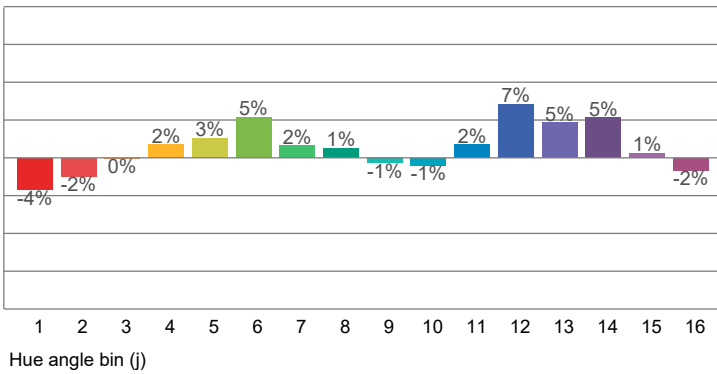
Color Rendition by Color Evaluation Sample (CES)



Local Color Fidelity (per hue bin)



Local Chroma Shift (per hue bin)



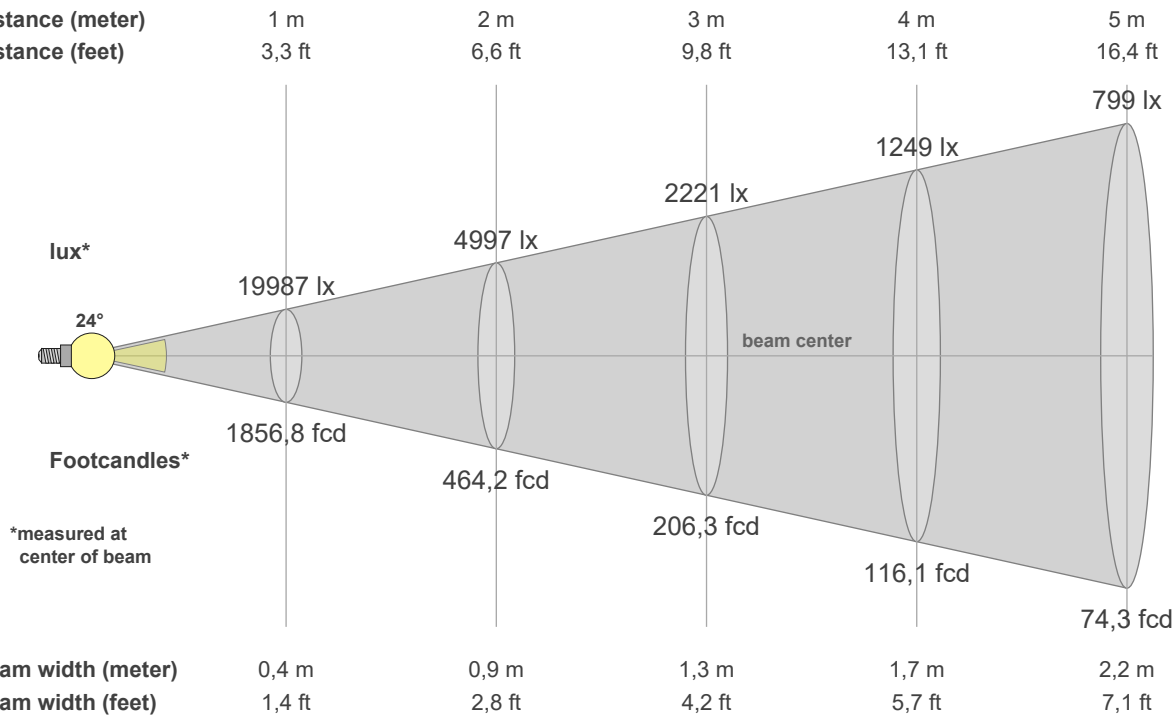
CIE x 0,4372
CIE y 0,4372
CIE u' 0,2507
CIE v' 0,5215

CIE 13.3-1995

Ra 94,9
R9 72,0

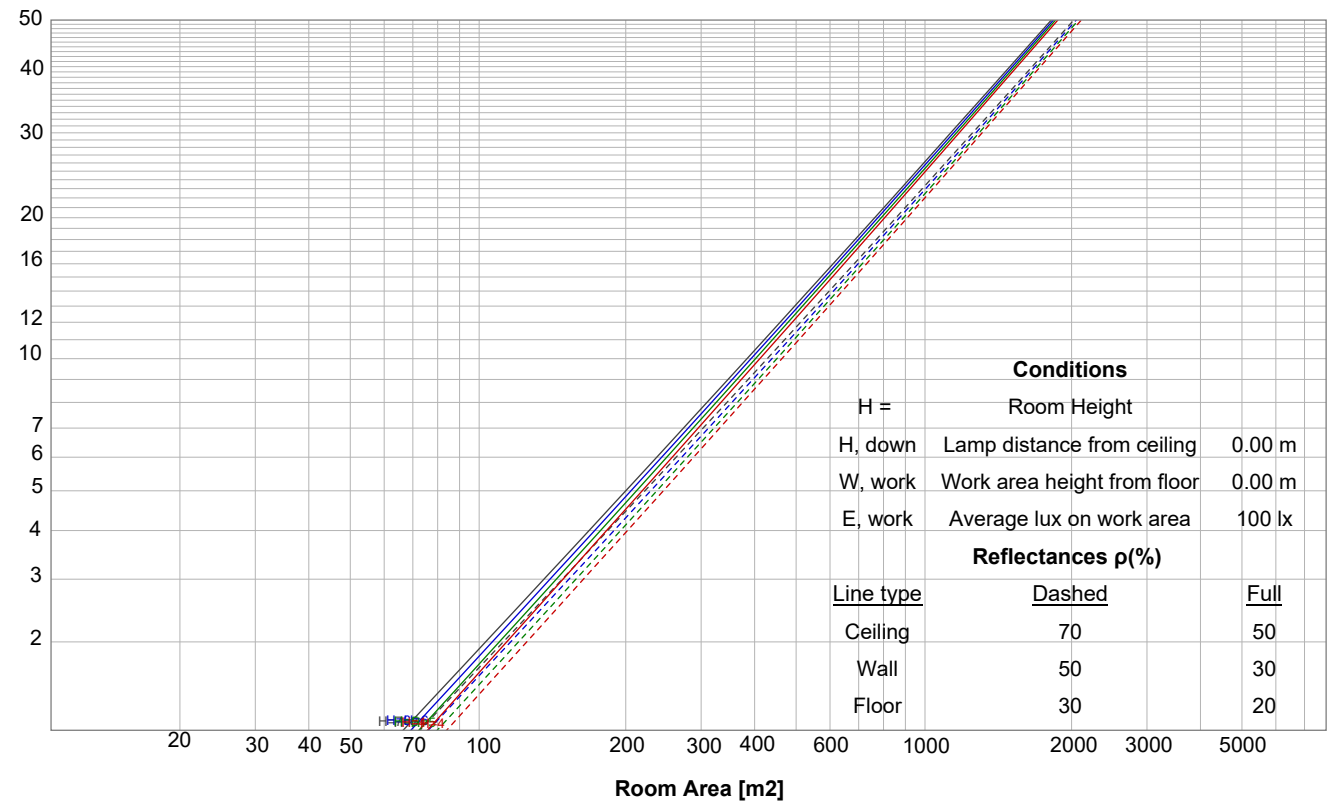
Test report

Beam details



Luminaire budgetary diagram

LAMPS (number of lamps)



Test report

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
19987	4997	2221	1249	799	555	408	312	247	200	165	139	118	102	89	78	69	62	55	50	lux
1856,8	464,2	206,3	116,1	74,3	51,6	37,9	29	22,9	18,6	15,3	12,9	11	9,5	8,3	7,3	6,4	5,7	5,1	4,6	fc

Intensities in 0° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°	γ
20,0k	19,7k	18,5k	16,8k	14,7k	12,5k	10,2k	8,0k	6,0k	4,2k	2,8k	1,8k	1,1k	0,7k	0,5k	0,4k	0,3k	0,2k	0,2k	0,2k	cd
100%	99%	93%	84%	74%	62%	51%	40%	30%	21%	14%	9%	6%	4%	3%	2%	1%	1%	1%	1%	of 0°val

Intensities in 90° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°	γ
20,0k	19,3k	18,2k	16,5k	14,5k	12,3k	10,1k	7,9k	5,9k	4,2k	2,8k	1,8k	1,1k	0,7k	0,5k	0,4k	0,3k	0,2k	0,2k	0,2k	cd
100%	97%	91%	83%	73%	62%	50%	39%	29%	21%	14%	9%	6%	4%	3%	2%	1%	1%	1%	1%	of 0°val

Intensities in 180° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°	γ
20,0k	19,7k	18,5k	16,8k	14,7k	12,5k	10,2k	8,0k	6,0k	4,2k	2,8k	1,8k	1,1k	0,7k	0,5k	0,4k	0,3k	0,2k	0,2k	0,2k	cd
100%	99%	93%	84%	74%	62%	51%	40%	30%	21%	14%	9%	6%	4%	3%	2%	1%	1%	1%	1%	of 0°val

Intensities in 270° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°	γ
20,0k	19,3k	18,2k	16,5k	14,5k	12,3k	10,1k	7,9k	5,9k	4,2k	2,8k	1,8k	1,1k	0,7k	0,5k	0,4k	0,3k	0,2k	0,2k	0,2k	cd
100%	97%	91%	83%	73%	62%	50%	39%	29%	21%	14%	9%	6%	4%	3%	2%	1%	1%	1%	1%	of 0°val

Test report

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	17,6	18,0	17,6	18,2	18,4	17,7	18,1	17,8	18,3	18,5
		3H	18,1	18,7	18,5	18,9	19,1	18,3	18,8	18,6	19,0	19,2
		4H	18,4	19,0	18,8	19,2	19,5	18,5	19,1	18,9	19,3	19,6
		6H	18,8	19,3	19,1	19,6	19,9	18,9	19,3	19,2	19,7	20,0
		8H	19,0	19,4	19,3	19,8	20,2	19,1	19,5	19,4	19,9	20,2
		12H	19,2	19,7	19,6	20,0	20,5	19,3	19,7	19,6	20,1	20,5
	4H	2H	17,7	18,3	18,2	18,6	18,8	17,9	18,4	18,3	18,7	18,9
		3H	18,7	19,1	19,0	19,5	19,9	18,8	19,2	19,2	19,6	20,0
		4H	19,0	19,4	19,4	19,9	20,4	19,1	19,5	19,5	20,0	20,5
		6H	19,4	19,9	20,0	20,3	20,6	19,5	20,0	20,0	20,3	20,7
		8H	19,7	20,1	20,2	20,5	20,9	19,8	20,2	20,3	20,6	20,9
		12H	20,0	20,4	20,6	20,8	21,3	20,1	20,4	20,6	20,8	21,3
	8H	4H	19,1	19,6	19,7	19,9	20,3	19,2	19,7	19,8	20,0	20,4
		6H	19,8	20,0	20,3	20,5	21,1	19,8	20,1	20,4	20,6	21,1
		8H	20,2	20,4	20,7	21,0	21,6	20,3	20,5	20,8	21,0	21,7
		12H	20,7	20,9	21,3	21,4	22,0	20,8	20,9	21,4	21,5	22,1
	12H	4H	19,1	19,4	19,6	19,9	20,3	19,2	19,5	19,7	20,0	20,4
		6H	19,9	20,1	20,4	20,6	21,3	19,9	20,1	20,5	20,7	21,3
		8H	20,3	20,5	20,9	21,0	21,6	20,4	20,6	21,0	21,1	21,7
Variations with the observer position for the luminaire spacings, S:												
S = 1.0H			0,4 / -0,3					0,5 / -0,3				
S = 1.5H			1,1 / -0,5					1,1 / -0,6				
S = 2.0H			1,7 / -1,0					1,8 / -1,0				

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	118,8	118,8	118,8	118,8	115,9	115,9	115,9	115,9	110,5	110,5	110,5	105,5	105,5	105,5	101,0	101,0	101,0	98,8
1	114,4	112,1	110,0	108,2	111,9	109,8	108,0	106,4	105,6	104,2	102,9	101,8	100,7	99,7	98,2	97,4	96,6	94,8
2	110,3	106,4	103,2	100,5	108,1	104,7	101,8	99,3	101,3	99,0	97,0	98,3	96,4	94,8	95,5	94,0	92,7	91,2
3	106,5	101,6	97,8	94,7	104,6	100,2	96,7	93,9	97,5	94,7	92,3	95,1	92,7	90,7	92,8	90,9	89,3	87,9
4	103,1	97,4	93,2	90,0	101,4	96,2	92,4	89,5	94,1	90,9	88,3	92,1	89,4	87,2	90,2	88,0	86,1	84,9
5	99,8	93,7	89,3	86,1	98,4	92,7	88,7	85,7	91,0	87,5	84,9	89,3	86,4	84,1	87,8	85,3	83,3	82,1
6	96,9	90,4	86,0	82,8	95,5	89,6	85,5	82,5	88,1	84,6	81,9	86,8	83,7	81,3	85,5	82,8	80,7	79,6
7	94,1	87,4	83,0	80,0	92,9	86,7	82,6	79,7	85,5	81,9	79,3	84,4	81,2	78,8	83,3	80,5	78,4	77,3
8	91,5	84,7	80,4	77,4	90,4	84,1	80,1	77,2	83,1	79,5	76,9	82,1	78,9	76,5	81,2	78,3	76,2	75,2
9	89,0	82,2	78,0	75,1	88,1	81,7	77,7	75,0	80,8	77,2	74,7	80,0	76,8	74,4	79,2	76,3	74,2	73,2
10	86,8	79,9	75,8	73,0	85,9	79,5	75,6	72,9	78,7	75,2	72,7	78,0	74,8	72,5	77,3	74,4	72,3	71,3

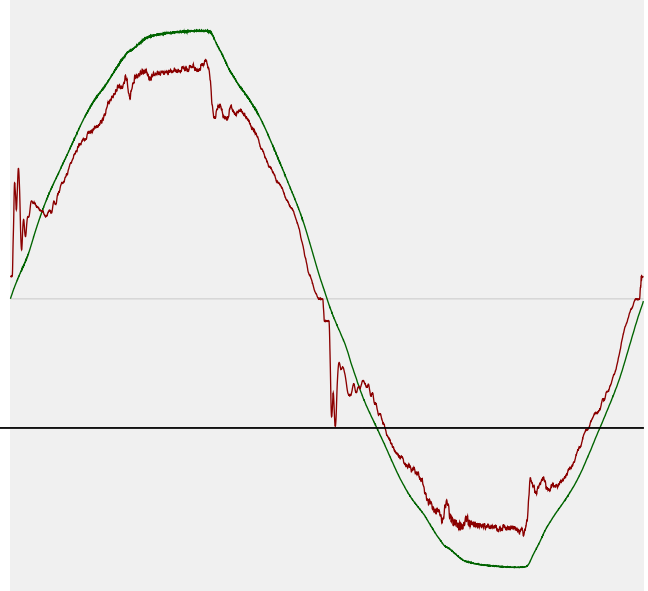
Test report

Power details

Input power

Frequency of input power	50,0 Hz
Power feed to light source	28,98 W
RMS Input voltage feed V,RMS	236,2 V
RMS Input current feed I,RMS	0,12 A
Volt-Amp or apparent power = V,RMS*I,RMS	29,2 VA
Displacement factor of AC power feed	1,00
Power factor of AC current feed	0,99
Total harmonic distortion of the current	10,41%
Total harmonic distortion of the voltage	2,985%

Input power curve



Efficiency

Radiated power efficiency 44,39

Lumen efficiency 147,7 lm/W

Stabilization details

Warmup Conditions

Stable period	15 min
Stable change max	2%
Minimum time	15 min

Color Temperature Change

CCT start	3049 K
CCT shift	-49 K
CCT end	3000 K

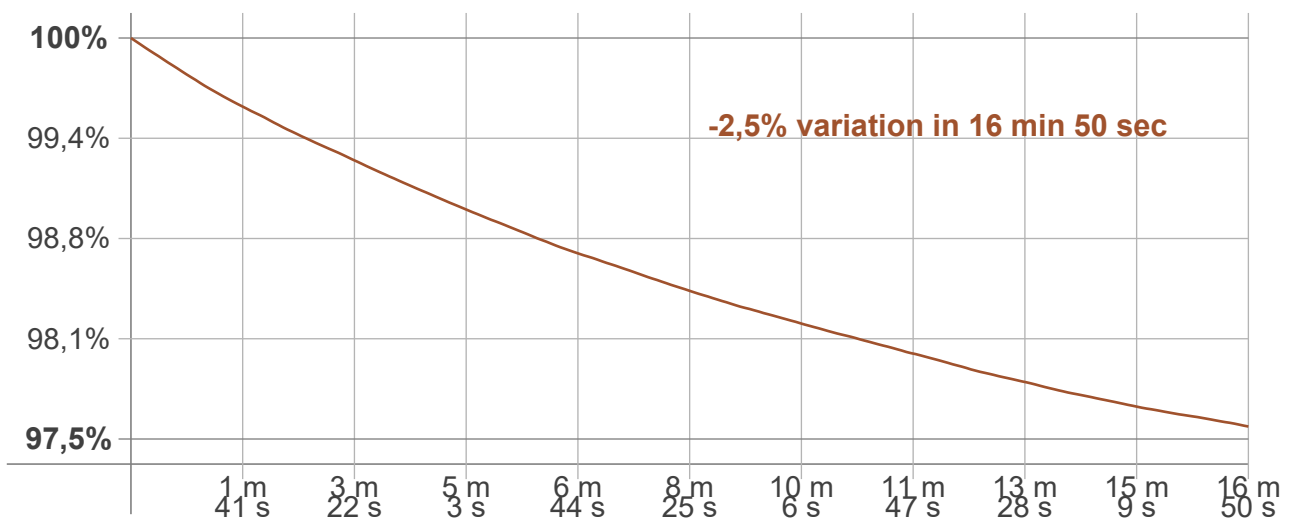
Warmup Result

Total warmup time	Lamp stabilized in
Warmup variation	-2,4768%

Output Change

Output start	4385 lm
Output change	-106,12 lm
Output end	4279 lm

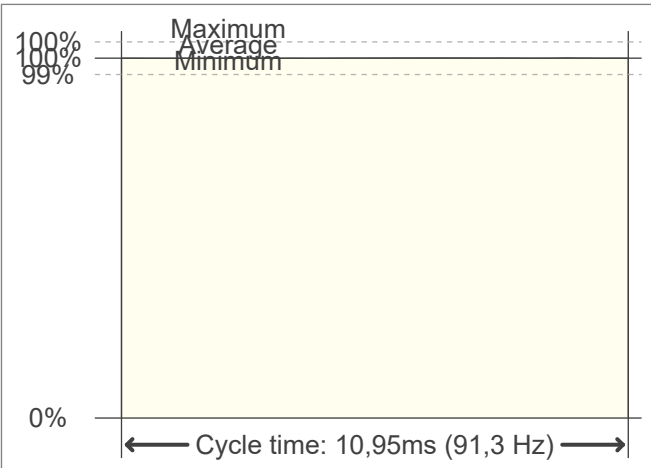
Stabilization Curve



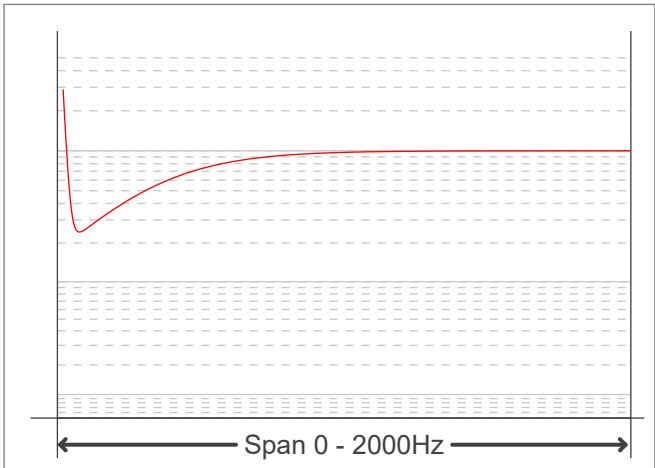
Flicker TLA details

Flicker Meter Type	Viso Systems LabFlicker	Measurement time	
Frequency of input power	50,0 Hz	PstLM	180 sec.
Flicker/TLA sample rate	20,0 samples/s	All other indices	1,5 sec,
Flicker indices according to Illuminating Engineering Society (IES)		Flicker indices according to California Energy Commission (CEC) 2016b	
Flicker frequency	91,3 Hz	JA8/10 40 Hz	0,0666 %
Percent Flicker	0,162 %	JA8/10 90 Hz	0,0699 %
Flicker index	0,0	JA8/10 200 Hz	0,1264 %
		JA8/10 400 Hz	0,1305 %
		JA8/10 1000 Hz	0,1487 %
TLA indices (re IEC TR 61547-1, IEC 61000-3-3 and IEC 61000-4-15)		Flicker indices according to Lighting Research Center (2015)	
PstLM value (F < 80 Hz)	0,02	Perception metric, Assist Mp	0,01
SVM value (80 < F < 2000 Hz)	0,00		

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



Flicker FFT (flicker curve in frequency domain)



IEEE 1789 Frequency/modulation plot

