

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
18/09/2026

Measurement Conditions

Tested c-planes
Tested gamma resolution
Input Power

72 planes - 5,00°
0,36°
34,34 W

Tested Light Source

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

VAGO L 3000K 25D PGY
SPOT
43802900302511
ELECTRUM
H/D = 0, W = 0, L = 3,7, Shape = SPOT
H/D = 29, W = 0, L = 8,4

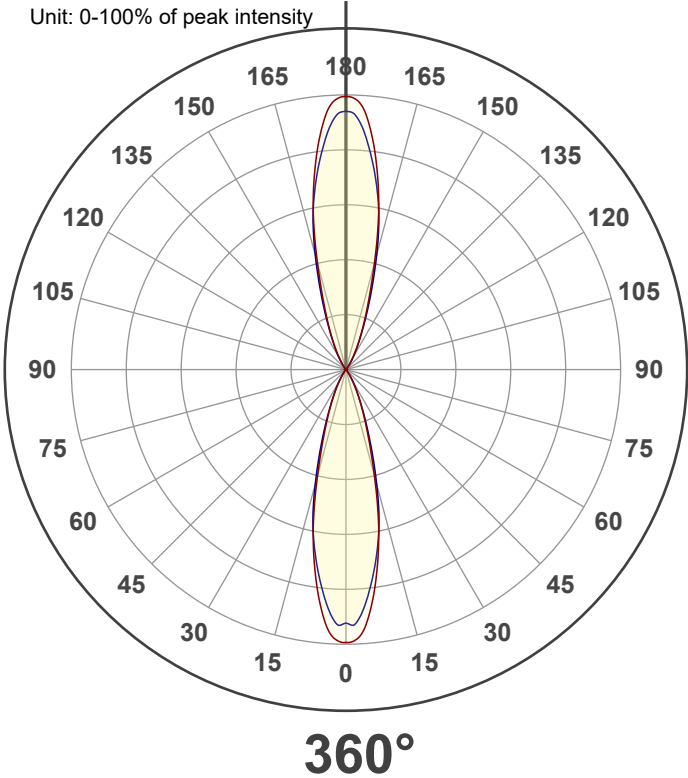
Main Light Measurement Results

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

3753 lm - 50% / 50%
109,3 lm/W
7252 cd
3000 K
CRI 91,9 TM30Rf 89,2 TM30 Rg 103,9

Polar light distribution diagram

Unit: 0-100% of peak intensity



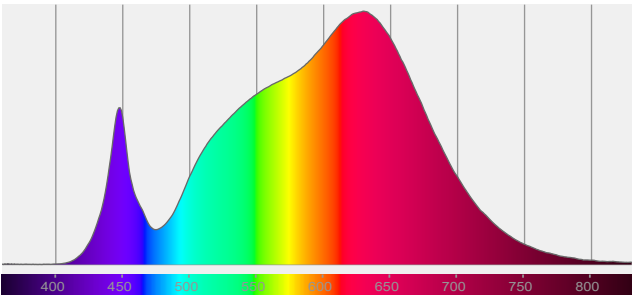
— C0 - C180
— C90 - C270

$\eta = 100\%$

Product photo



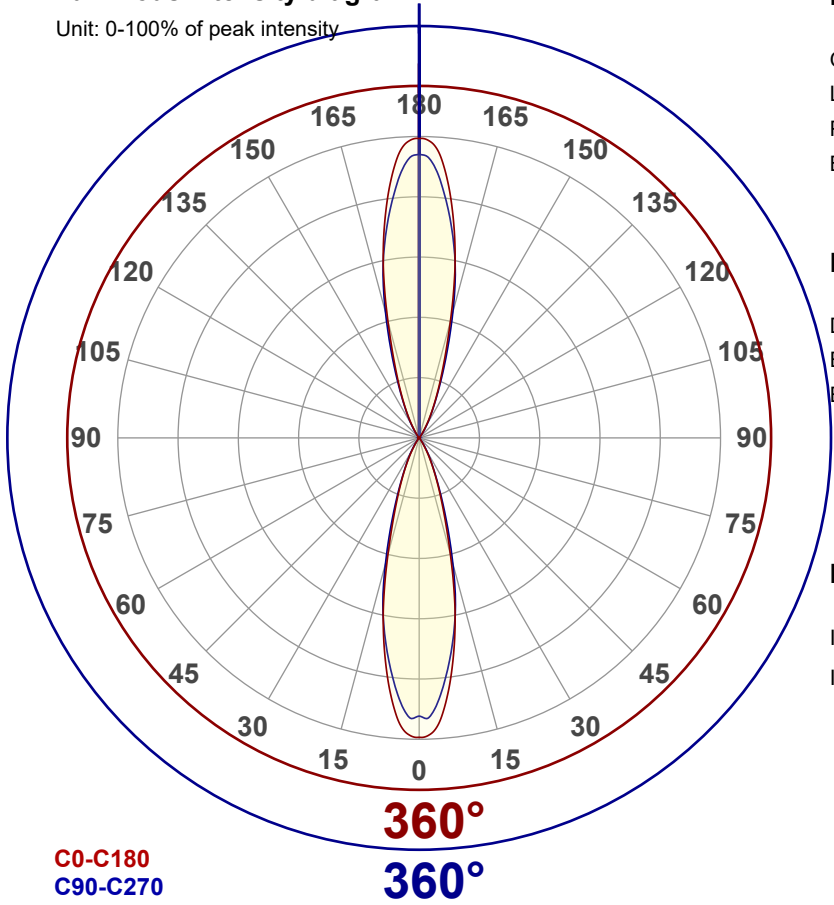
Spectral power distribution



Test report

Luminous Intensity diagram

Unit: 0-100% of peak intensity



Main Values

Output (total Lumen)	3753 lm
Lumen Up% / Down%	50% / 50%
Peak Intensity	7252 cd
Beam Angle (50%-FWHM)	360,0°

EU Ecodesign parameters

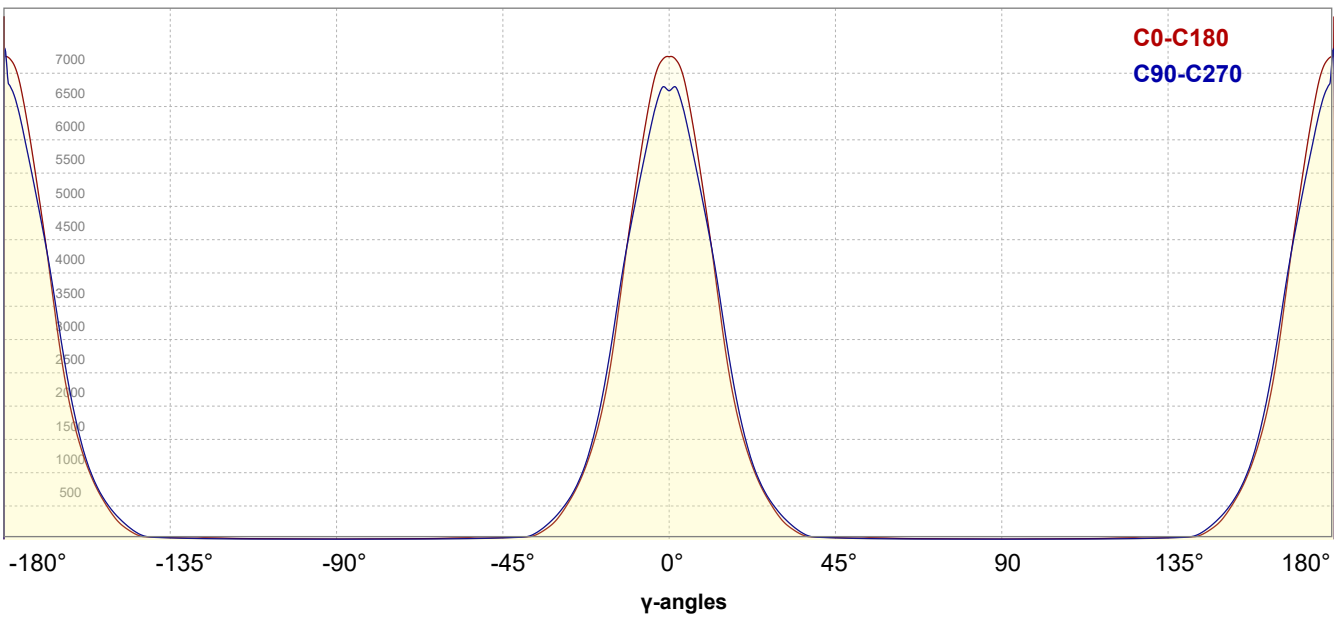
Directionality (DLS or NDLS)	NDLS
Ecodesign Useful Luminous Flux	3753 lm
Ecodesign Energy Class	F

Intensity Ratio

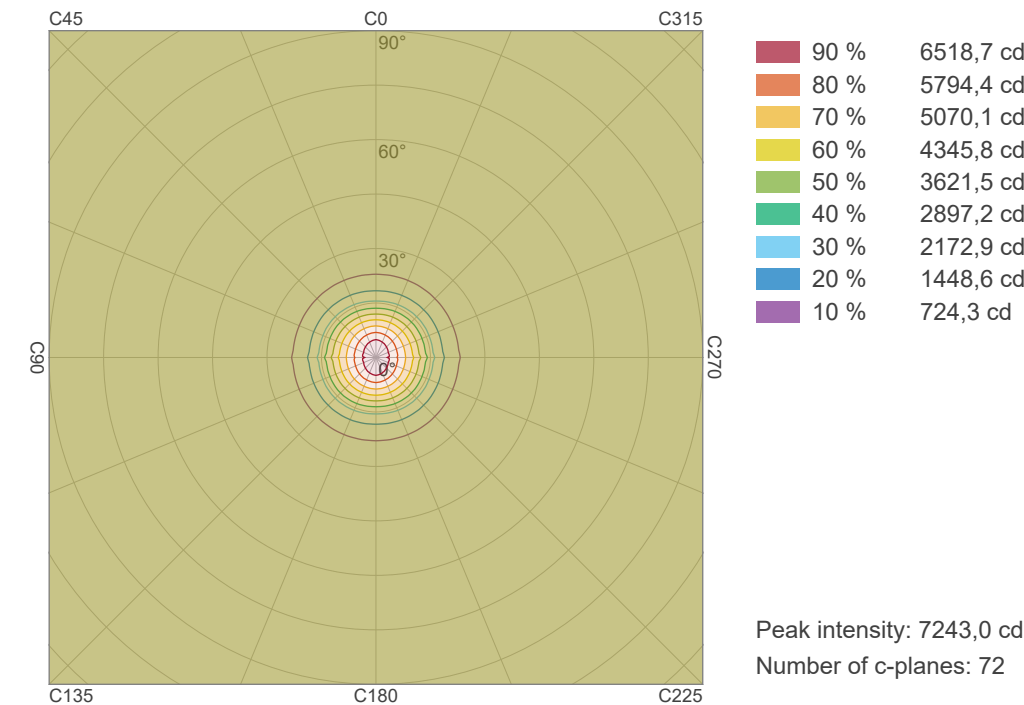
In 120° cone	49,61%
In 90° cone	49,07%

Linear distribution diagram

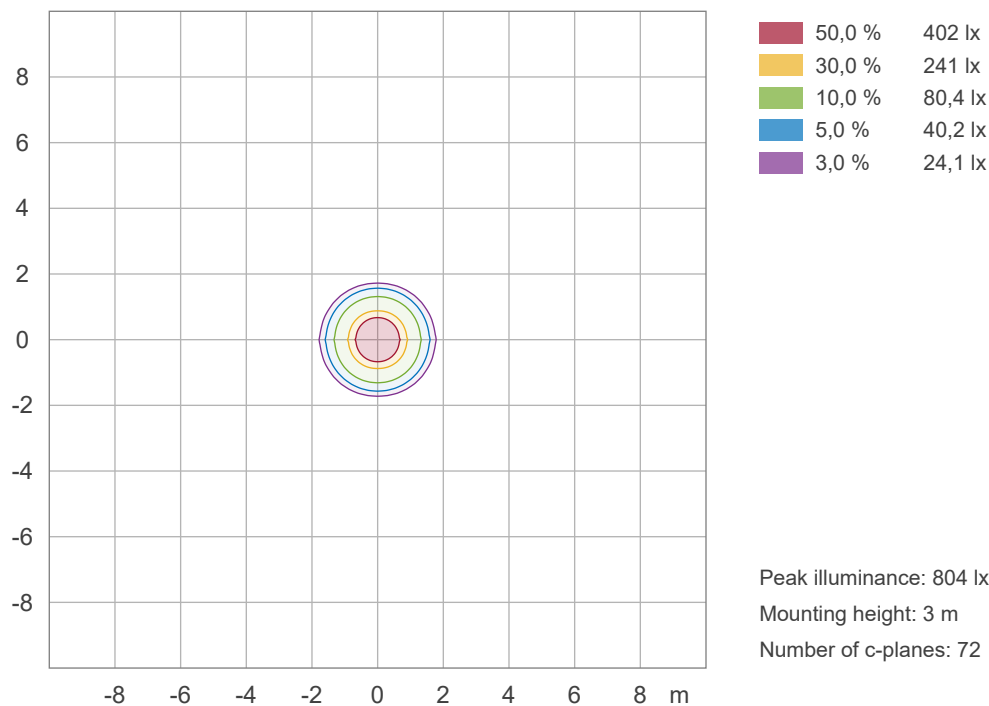
Intensity [cd]



Iso-intensity Diagram (Iso-candela)



Iso-illuminance Diagram (Iso-lux)



Test report

Color details

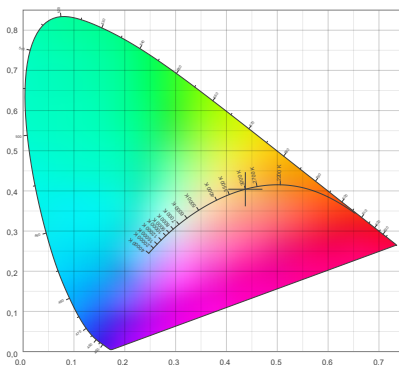
Correlated Color Temperature, Target
Correlated Color Temperature, Measured
Color Rendering Index
Color Rendering Index, R9 (red)
Color Rendering TM30-18

CCT = 3000 K
CCT = 3053 K
CRI 91,9
R9 = 71,9
Rf 89,2
Rg 103,9

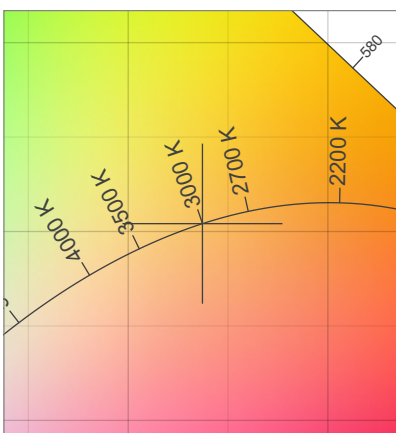
MacAdam Steps
Color deviation from BBL
Color coordinates CIE 1931
Color coordinate CIEs 1960
Color coordinate CIEs 1976
Color Quality Scale

SDCM = 2,2
Duv = -0,0009
(x;y) = (0,4372;0,4042)
(u;v) = (0,2507;0,3476)
(u';v') = (0,2507;0,5215)
CQS = 89,1

CIE 1931 Chromaticity diagram



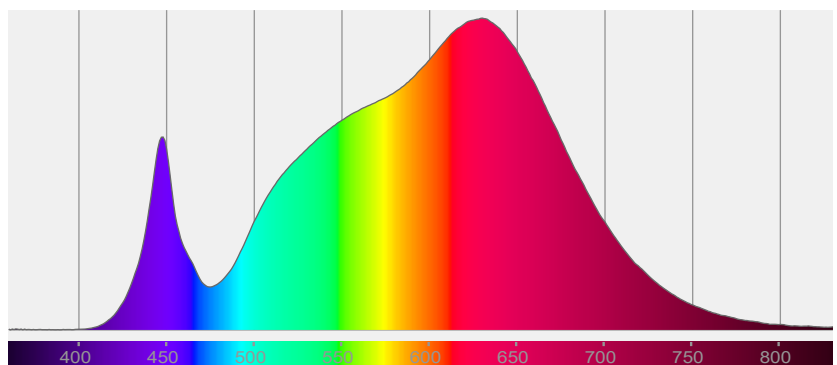
CIE 1931 Chromaticity - zoomed



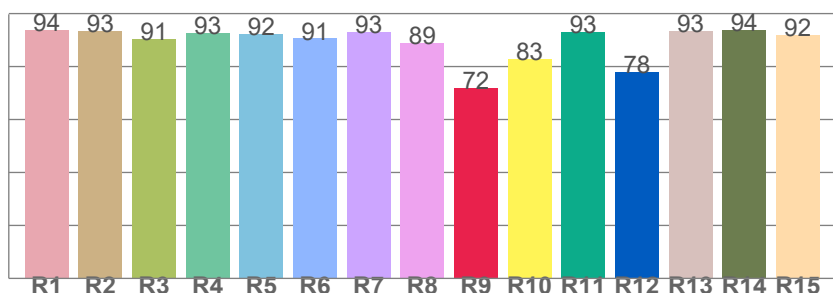
CIE 1931 Chromaticity - SDCM



Spectral power distribution



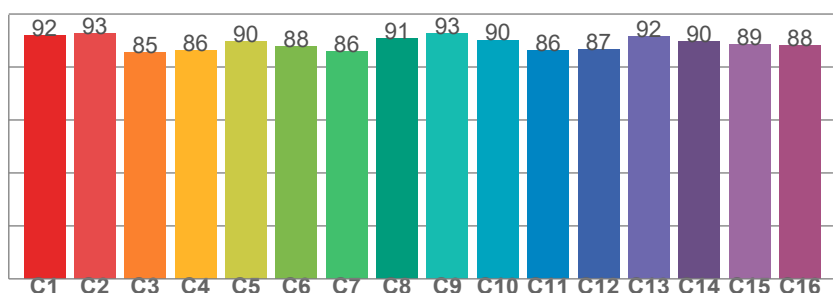
Color Rendering Index per reference color (CIE 1995)



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
93,9	93,3	90,5	92,6	92,4	90,6	93,2	88,8	71,9	82,9	93,2	77,9	93,4	93,8	91,9

TM30-18 Rf-values per hue bin

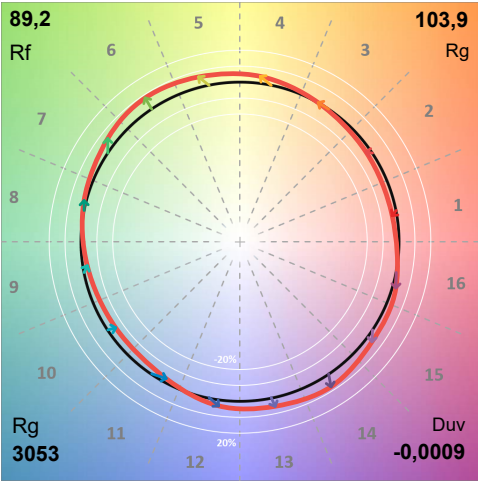


TM30-18 Rf-values per hue bin

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
92,0	92,7	85,4	86,2	89,7	87,7	85,9	90,8	92,6	90,3	86,2	86,5	91,6	89,8	88,6	88,2

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

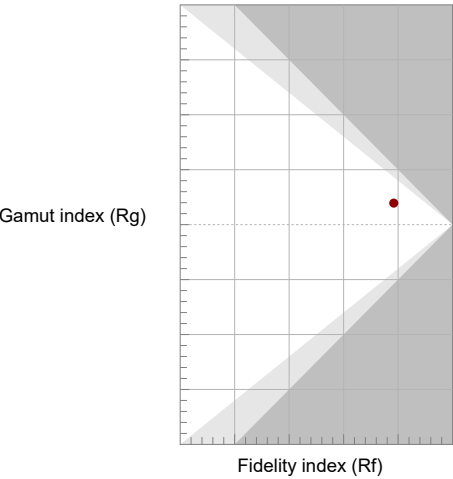
Color Vector Graphic



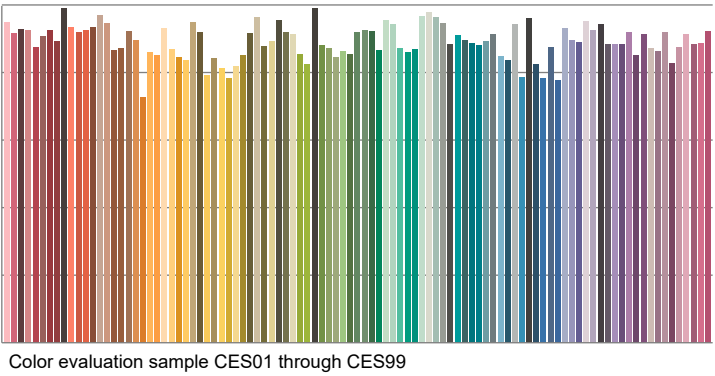
Color Distortion Graphic



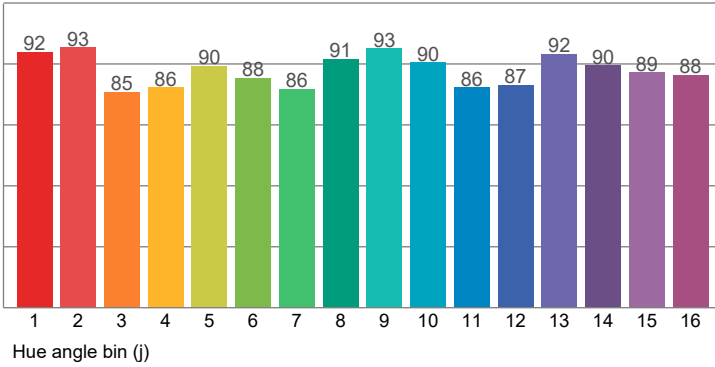
Gamut Index vs. Fidelity Index



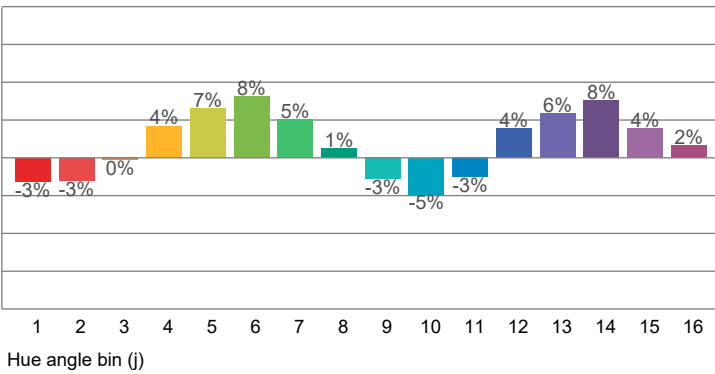
Color Rendition by Color Evaluation Sample (CES)



Local Color Fidelity (per hue bin)



Local Chroma Shift (per hue bin)



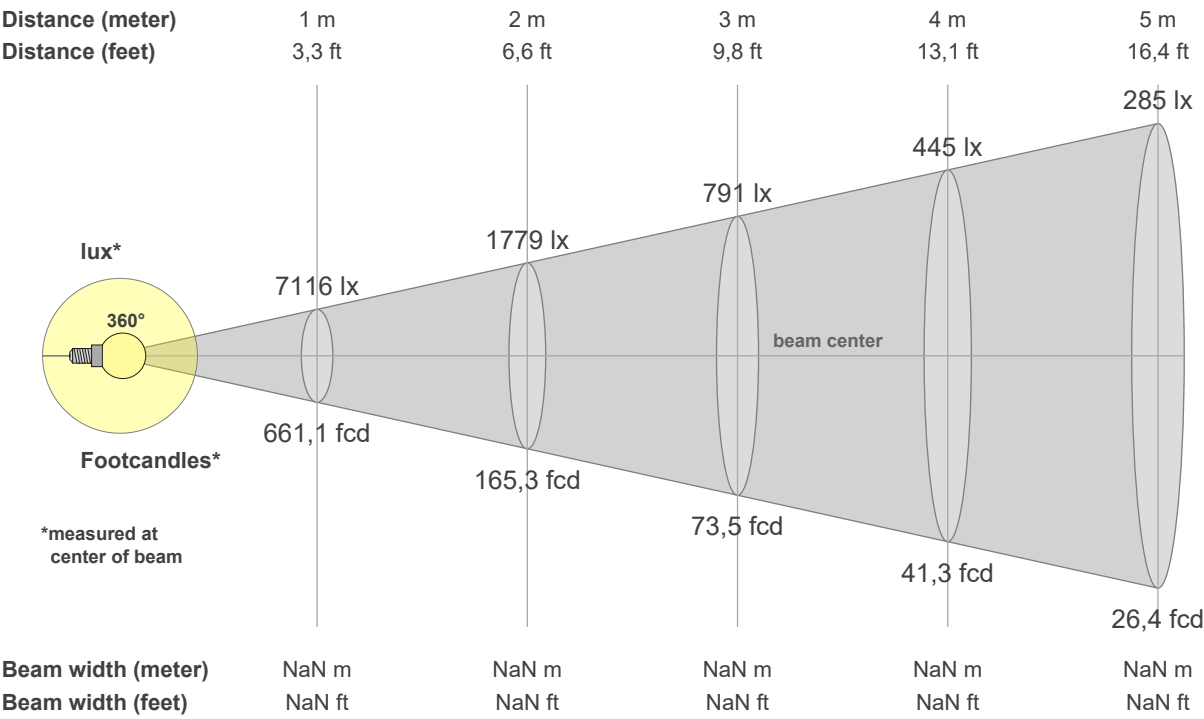
CIE x 0,4372
CIE y 0,4372
CIE u' 0,2507
CIE v' 0,5215

CIE 13.3-1995

Ra 91,9
R9 71,9

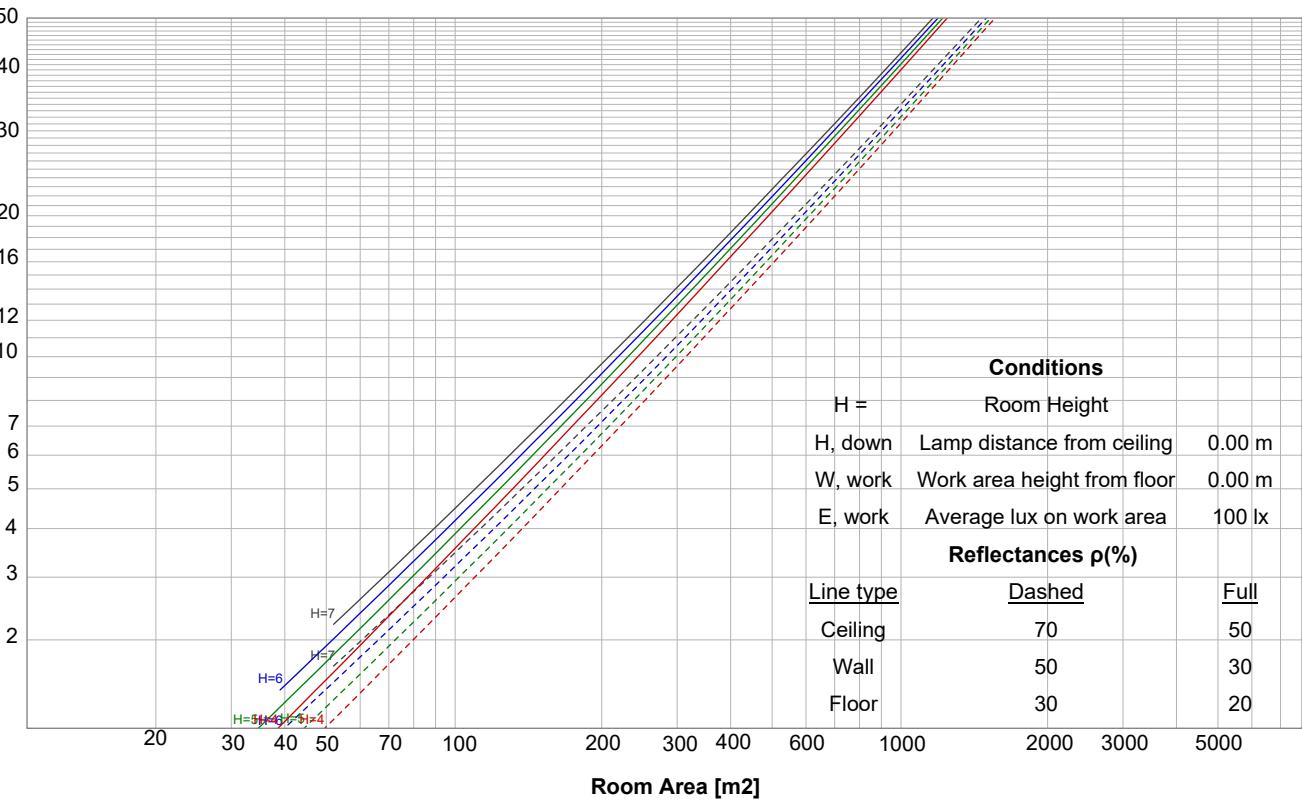
Test report

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
7116	1779	791	445	285	198	145	111	88	71	59	49	42	36	32	28	25	22	20	18	lux
661,1	165,3	73,5	41,3	26,4	18,4	13,5	10,3	8,2	6,6	5,5	4,6	3,9	3,4	2,9	2,6	2,3	2	1,8	1,7	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
7116	5315	1973	573	67	24	23	12	8	5	3	5	8	12	23	24	67	573	1973	5315	cd
100%	75%	28%	8%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	8%	28%	75%	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
7116	5096	2171	611	97	21	10	4	2	2	1	2	2	4	10	21	99	611	2177	5083	cd
100%	72%	31%	9%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	9%	31%	71%	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
7116	5315	1973	573	67	24	23	12	8	5	3	5	8	12	23	24	67	573	1973	5315	cd
100%	75%	28%	8%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	8%	28%	75%	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
7116	5096	2171	611	97	21	10	4	2	2	1	2	2	4	10	21	99	611	2177	5083	cd
100%	72%	31%	9%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	9%	31%	71%	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	13,2	13,7	14,0	14,5	15,5	12,9	13,4	13,7	14,2	15,2
		3H	13,5	14,0	14,5	14,8	15,9	12,7	13,2	13,7	14,0	15,1
		4H	13,8	14,3	14,8	15,1	16,2	12,7	13,2	13,7	14,0	15,1
		6H	14,2	14,6	15,1	15,5	16,6	12,8	13,2	13,7	14,1	15,2
		8H	14,5	14,9	15,4	15,8	16,9	12,8	13,3	13,7	14,1	15,2
		12H	14,8	15,3	15,7	16,1	17,2	12,8	13,4	13,8	14,2	15,3
	4H	2H	12,9	13,4	13,8	14,2	15,3	12,6	13,1	13,5	13,9	15,0
		3H	13,4	14,0	14,4	14,8	15,9	12,6	13,2	13,5	14,0	15,0
		4H	13,8	14,6	14,8	15,2	16,3	12,6	13,5	13,6	14,0	15,1
		6H	14,4	14,8	15,4	15,7	16,7	12,8	13,2	13,8	14,1	15,2
		8H	14,8	15,1	15,8	16,0	17,1	12,9	13,2	13,9	14,1	15,2
		12H	15,3	15,5	16,2	16,5	17,6	13,0	13,3	14,0	14,2	15,3
	8H	4H	13,8	14,1	14,8	15,0	16,1	12,6	12,9	13,6	13,9	15,0
		6H	14,5	14,7	15,5	15,7	16,8	12,9	13,1	13,9	14,2	15,3
		8H	15,0	15,2	16,1	16,2	17,4	13,2	13,3	14,2	14,4	15,5
		12H	15,7	15,9	16,8	16,9	18,0	13,4	13,6	14,5	14,6	15,7
	12H	4H	13,7	13,9	14,7	14,9	16,0	12,6	12,9	13,6	13,9	15,0
		6H	14,5	14,6	15,5	15,7	16,9	13,0	13,1	14,0	14,2	15,4
		8H	15,1	15,2	16,1	16,3	17,4	13,3	13,4	14,3	14,4	15,6
Variations with the observer position for the luminaire spacings, S:												
S = 1.0H			2,1 / -0,7					4,2 / -2,0				
S = 1.5H			3,8 / -0,7					6,6 / -2,3				
S = 2.0H			5,3 / -1,1					8,5 / -2,7				

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	107,1	107,1	107,1	107,1	98,8	98,8	98,8	98,8	83,3	83,3	83,3	69,1	69,1	69,1	56,1	56,1	56,1	50,0
1	100,6	97,5	94,7	92,2	93,1	90,5	88,1	86,0	77,3	75,8	74,3	65,2	64,3	63,4	54,1	53,5	53,0	48,0
2	94,7	89,4	85,0	81,3	87,8	83,4	79,7	76,5	72,1	69,6	67,4	61,7	60,1	58,7	52,1	51,2	50,3	46,0
3	89,2	82,4	77,2	73,0	83,0	77,3	72,8	69,2	67,5	64,4	61,9	58,5	56,5	54,8	50,2	49,0	47,9	44,2
4	84,3	76,5	70,8	66,4	78,6	72,0	67,1	63,4	63,6	60,1	57,3	55,7	53,4	51,5	48,4	47,0	45,8	42,6
5	79,8	71,3	65,4	61,1	74,6	67,4	62,3	58,5	60,0	56,3	53,5	53,1	50,6	48,6	46,7	45,1	43,8	41,1
6	75,7	66,8	60,9	56,7	70,9	63,4	58,3	54,5	56,9	53,1	50,3	50,8	48,2	46,1	45,1	43,4	42,1	39,6
7	72,0	62,9	57,1	52,9	67,6	59,9	54,8	51,1	54,1	50,3	47,5	48,7	46,0	44,0	43,6	41,8	40,5	38,3
8	68,6	59,5	53,7	49,8	64,6	56,8	51,7	48,2	51,6	47,8	45,1	46,8	44,0	42,0	42,2	40,4	39,0	37,1
9	65,6	56,4	50,8	47,0	61,9	54,0	49,0	45,7	49,4	45,6	43,0	45,0	42,3	40,3	40,9	39,0	37,7	35,9
10	62,8	53,7	48,2	44,6	59,4	51,5	46,7	43,4	47,3	43,6	41,1	43,4	40,7	38,7	39,7	37,8	36,4	34,8

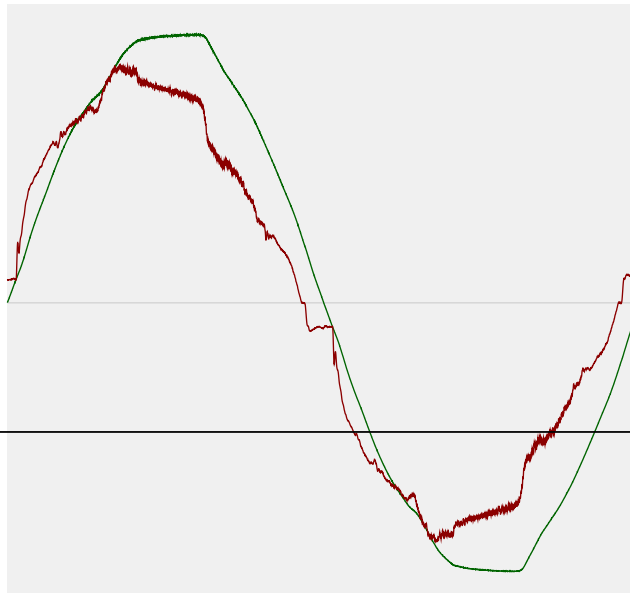
Test report

Power details

Input power

Frequency of input power	50,0 Hz
Power feed to light source	34,34 W
RMS Input voltage feed V,RMS	233,7 V
RMS Input current feed I,RMS	0,15 A
Volt-Amp or apparent power = V,RMS*I,RMS	35,2 VA
Displacement factor of AC power feed	0,97
Power factor of AC current feed	0,97
Total harmonic distortion of the current	7,665%
Total harmonic distortion of the voltage	3,018%

Input power curve



Efficiency

Radiated power efficiency 38,57

Lumen efficiency 109,3 lm/W

Stabilization details

Warmup Conditions

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

Color Temperature Change

CCT start	3008 K
CCT shift	-8 K
CCT end	3000 K

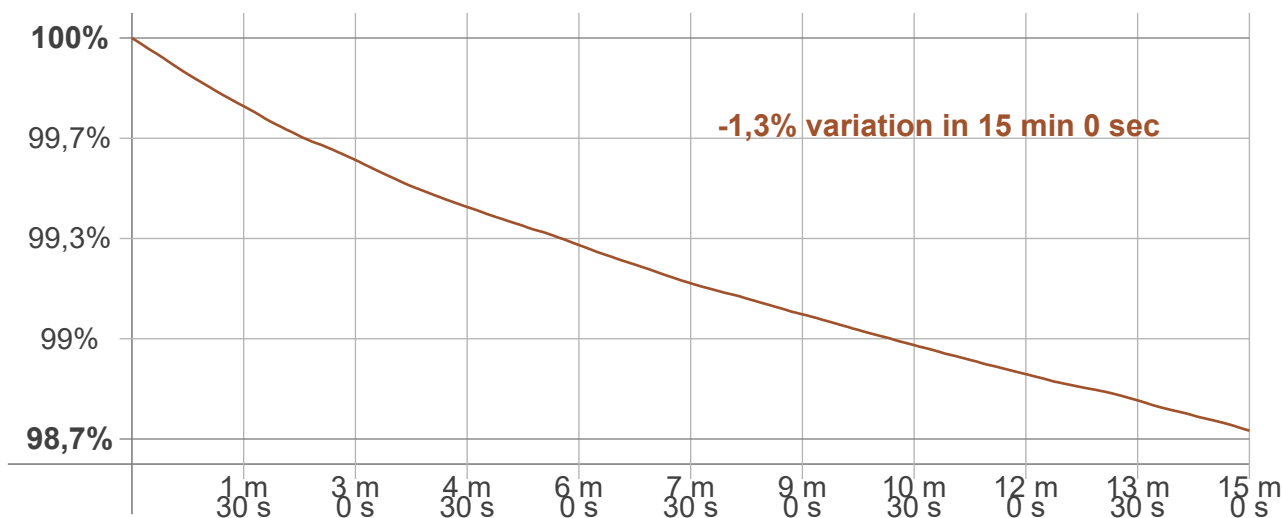
Warmup Result

Total warmup time	Lamp stabilized in
Warmup variation	-1,3156%

Output Change

Output start	3802 lm
Output change	-48,808 lm
Output end	3753 lm

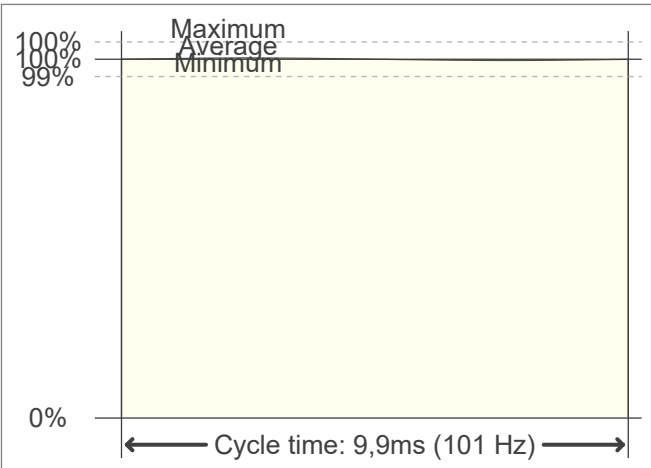
Stabilization Curve



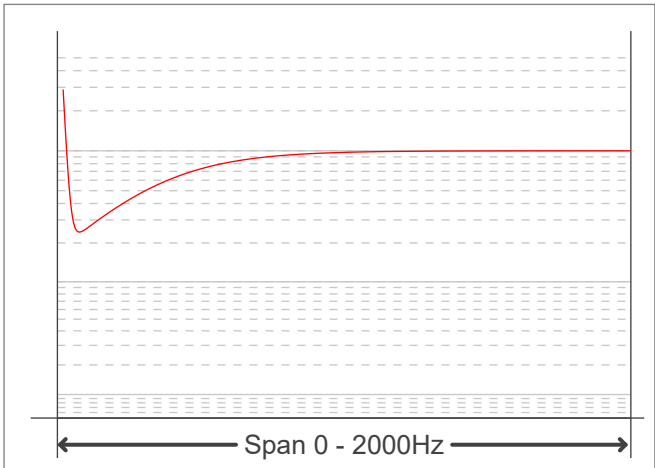
Flicker TLA details

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	101,0 Hz	JA8/10 40 Hz	0,0511 %
Percent Flicker	0,4046 %	JA8/10 90 Hz	0,081 %
Flicker index	0,0	JA8/10 200 Hz	0,3984 %
		JA8/10 400 Hz	0,3984 %
		JA8/10 1000 Hz	0,3989 %
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)	0,07	Perception metric, Assist Mp	0,02
SVM value (80 < F < 2000 Hz)	0,01		

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



Flicker FFT (flicker curve in frequency domain)



IEEE 1789 Frequency/modulation plot

