

Laboratory and Equipment

Test lab
Spectrometer Manufacturer and Model
Measurement date
Report Number

Viso LabSpion - serial: 1996407700 sensor serial: 1118720440 -
LabSpion - Type C, horizontal
23/07/2025
n/a

Tested Light Source

Luminaire
Basic Luminous Shape
Item No.
Manufacturer
Description

NLS3.024E
Linear LED Product
PO163530
Acolyte
0.6*41.2*1.2CM

Main Light Measurement Results

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

154 lm - 1,8% / 98,2%
41 lm/W
51,5 cd
2290 K
CRI 92,5
587 nm
631 nm
376,92 lm/m
9,18 W/m
114,89 lm/ft
2,80 W/ft

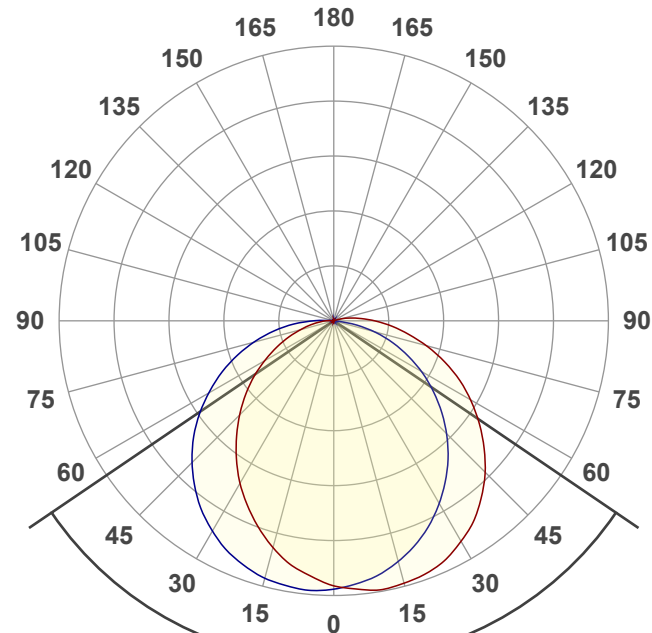
Measurement Conditions

Tested c-planes
Tested gamma resolution
Input Power

12 planes - 30°
5°
3,7 W

Polar light distribution diagram

Unit: 0-100% of peak intensity



111,6°

— C0 - C180
— C90 - C270

$\eta = 100.0\%$

41 lm/W

2290 K

Product photo



Color Parameters

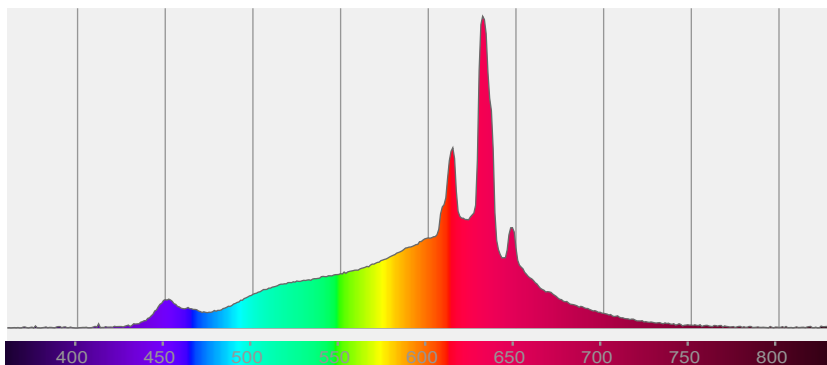
Correlated Color Temperature, Measured
Color Rendering Index
Color Rendering Index, R9 (red)
Color Rendering TM30-18

CCT = 2290 K
CRI 92,5
R9 = 78,8
Rf 91,8
Rg 102,2

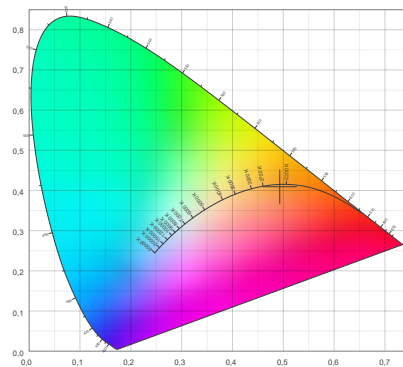
Color deviation from BBL
Color coordinates CIE 1931
Color coordinate CIEs 1960
Color coordinate CIEs 1976
Color Quality Scale

Duv = -0,0019
(x;y) = (0,493;0,409)
(u;v) = (0,285;0,355)
(u';v') = (0,285;0,532)
CQS = 89,2

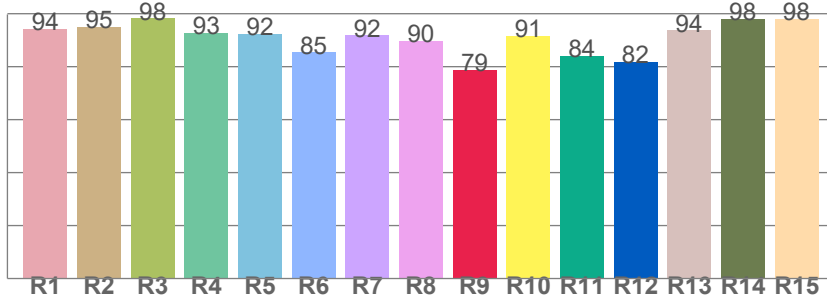
Spectral power distribution



CIE 1931 Chromaticity diagram



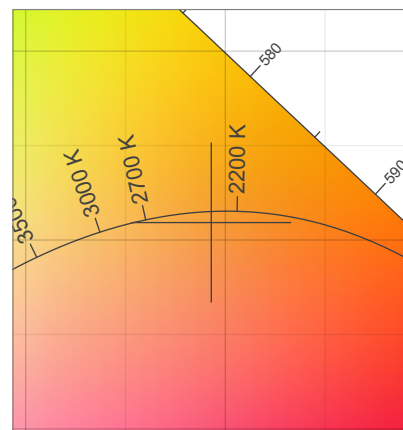
Color Rendering Index per reference color (CIE 1995)



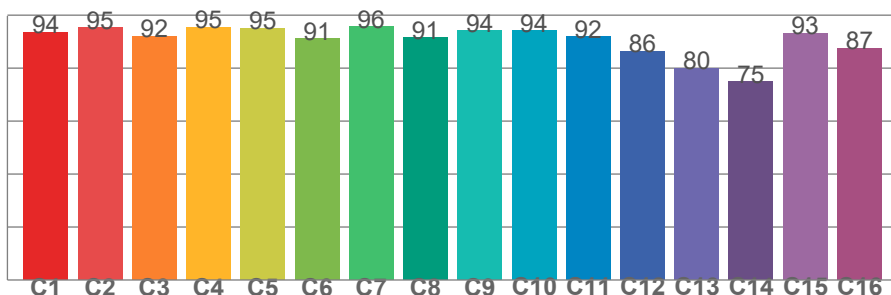
CRI R values, only R1-R8 are used to calculate final CRI value

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
94,3	95,1	98,2	92,6	92,5	85,4	91,8	89,8	78,8	91,5	84,2	81,7	93,7	98,1	98,0

CIE 1931 Chromaticity - zoomed



TM30-18 Rf-values per hue bin

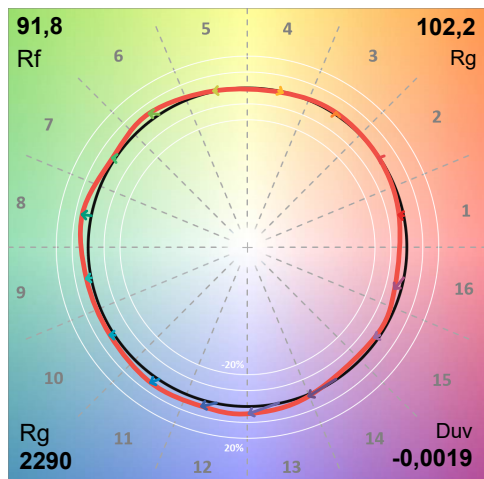


TM30-18 Rf-values per hue bin

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
93,5	95,2	92,1	95,5	95,0	91,1	95,6	91,5	94,1	94,2	91,9	86,4	80,0	74,8	93,2	87,5

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

Color Vector Graphic



Color Distortion Graphic

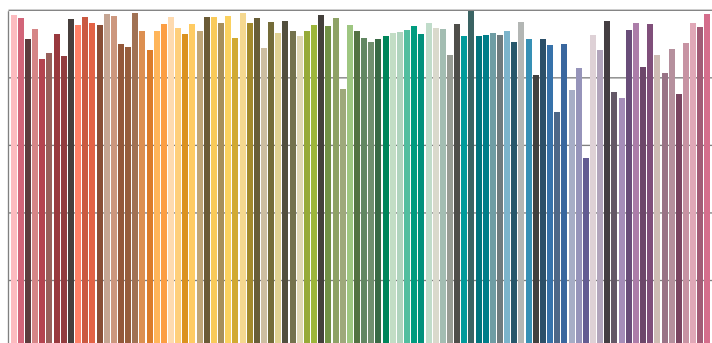


CIE x 0,493
CIE y 0,493
CIE u' 0,285
CIE v' 0,532

CIE 13.3-1995

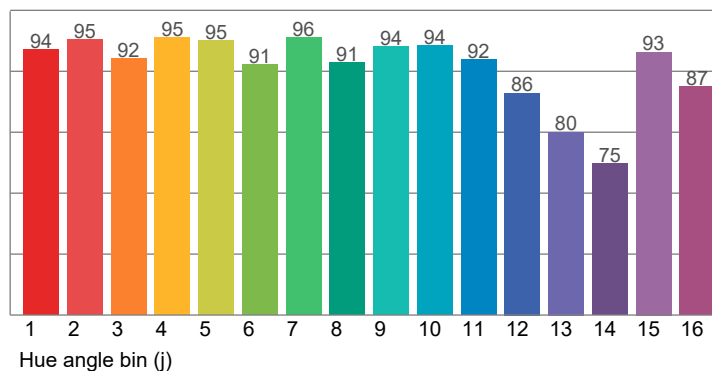
Ra 92,5
R9 78,8

Color Rendition by Color Evaluation Sample (CES)

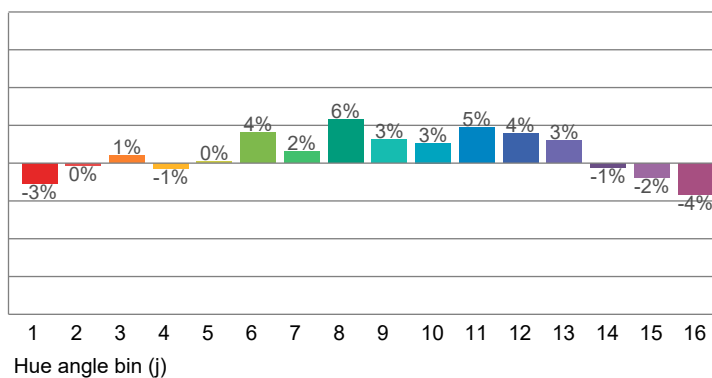


Color evaluation sample CES01 through CES99

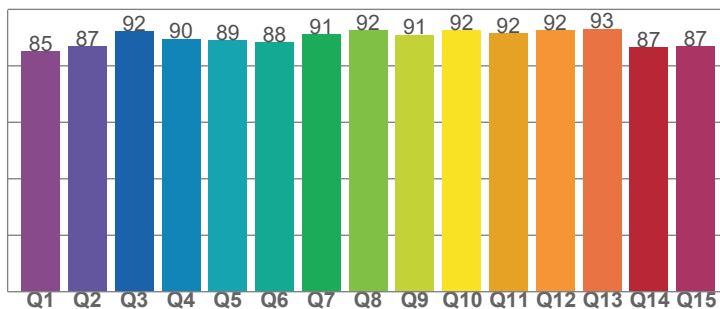
Local Color Fidelity (per hue bin)



Local Chroma Shift (per hue bin)



Color Rendering Index (CQS)



Q1	85,10		Q9	91,01
Q2	86,86		Q10	92,50
Q3	92,17		Q11	91,64
Q4	89,55		Q12	92,44
Q5	88,91		Q13	93,14
Q6	88,32		Q14	86,65
Q7	91,20		Q15	86,88
Q8	92,47		CQS	89,16

Hue Bin	Rf	Shifts (%)	
		Chroma	Hue
1	94	-3%	1%
2	95	0%	1%
3	92	1%	1%
4	95	-1%	-2%
5	95	0%	2%
6	91	4%	5%
7	96	2%	1%
8	91	6%	0%
9	94	3%	0%
10	94	3%	-2%
11	92	5%	-3%
12	86	4%	-9%
13	80	3%	-19%
14	75	-1%	-20%
15	93	-2%	-3%
16	87	-4%	-8%

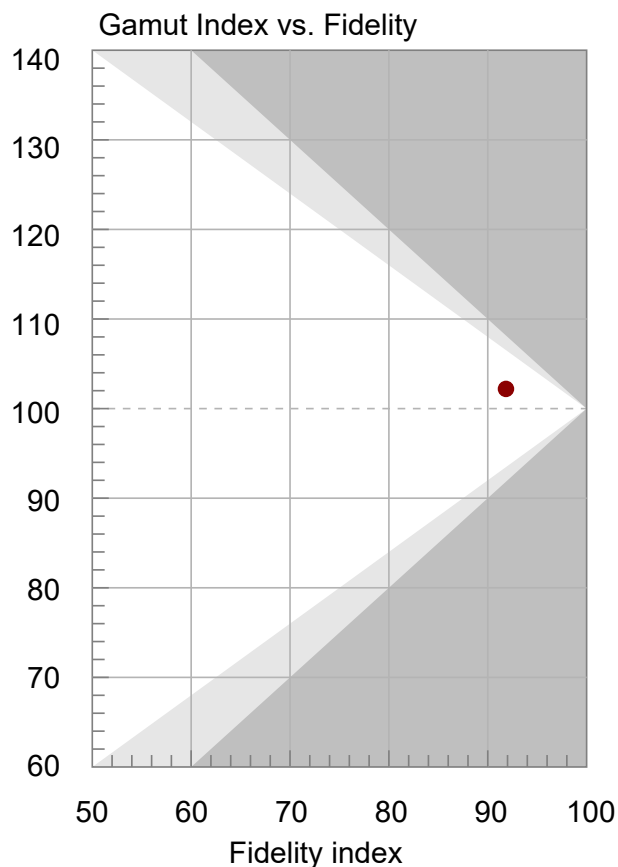
Rg 102,2

Gamut Index Rf

Gamut index

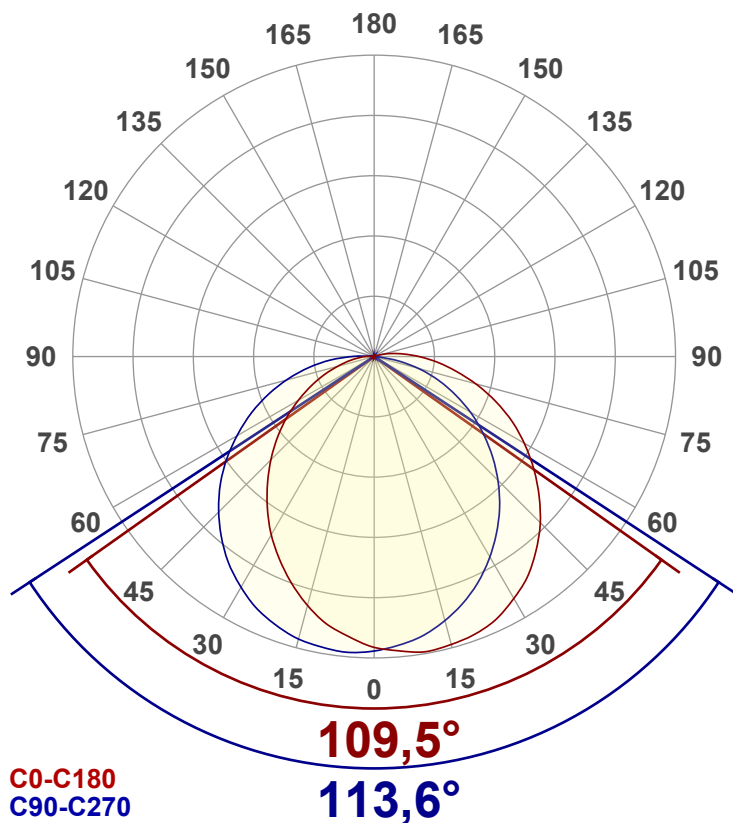
Rf 91,8

Fidelity Index Rf



Luminous Intensity diagram

Unit: 0-100% of peak intensity



Main Values

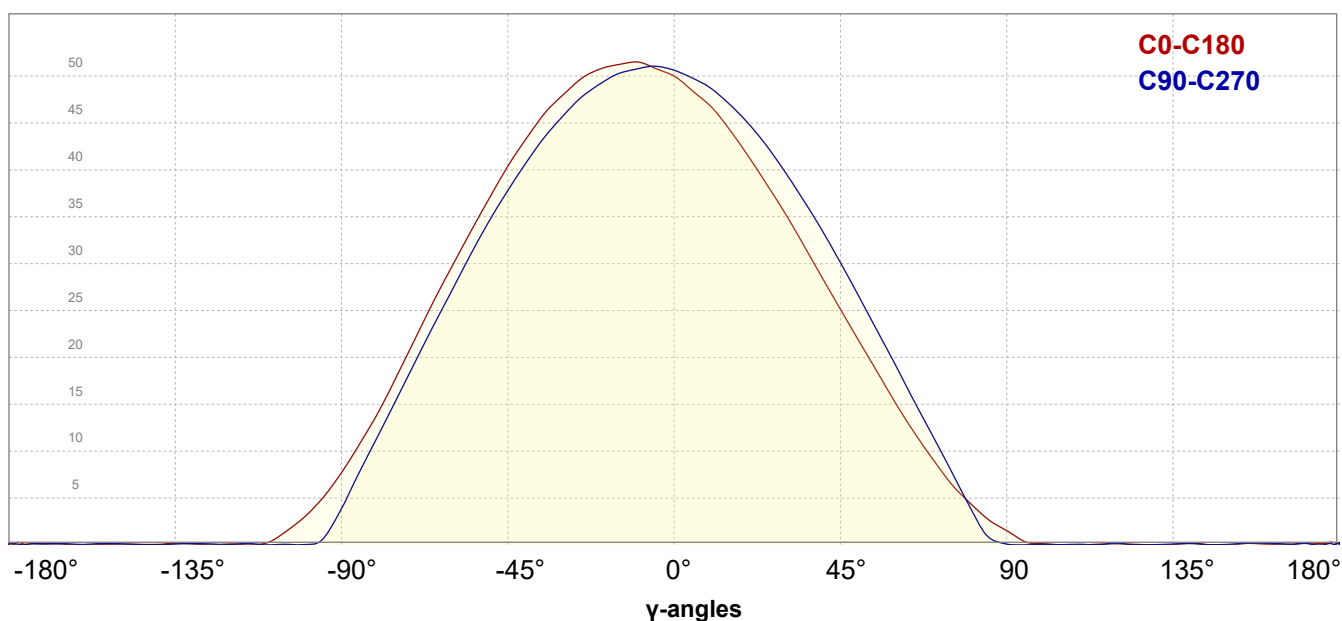
Output (total Lumen)	154 lm
Lumen Up% / Down%	1,8% / 98,2%
Peak Intensity	51,5 cd
Beam Angle (50%-FWHM)	111,59°
Field Angle (10%-FWHM)	169,87°
Cutoff Angle (2.5%-FWHM)	{c_ANG/0.00}°

Intensity Ratios

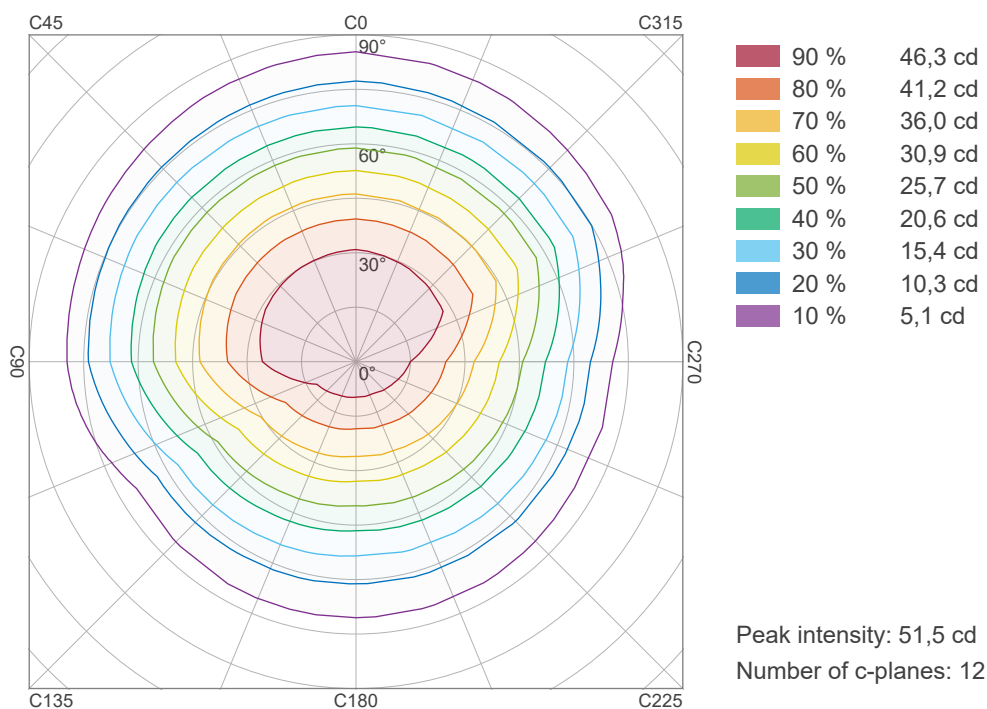
In 120° cone	376,9
In 90° cone	114,9

Linear distribution diagram

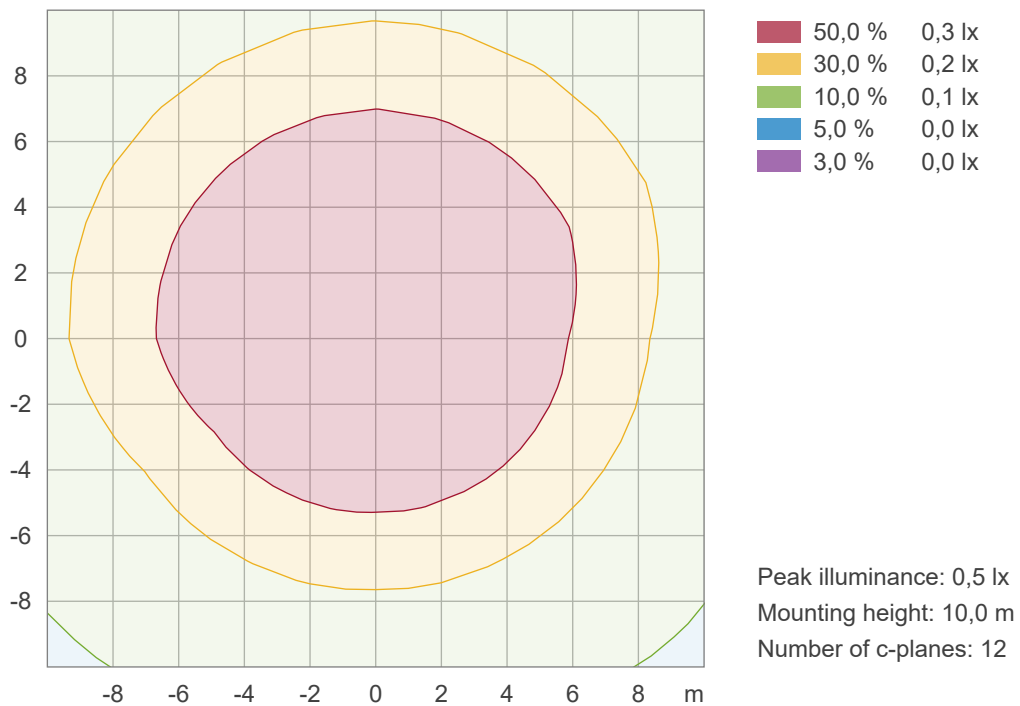
Intensity [cd]



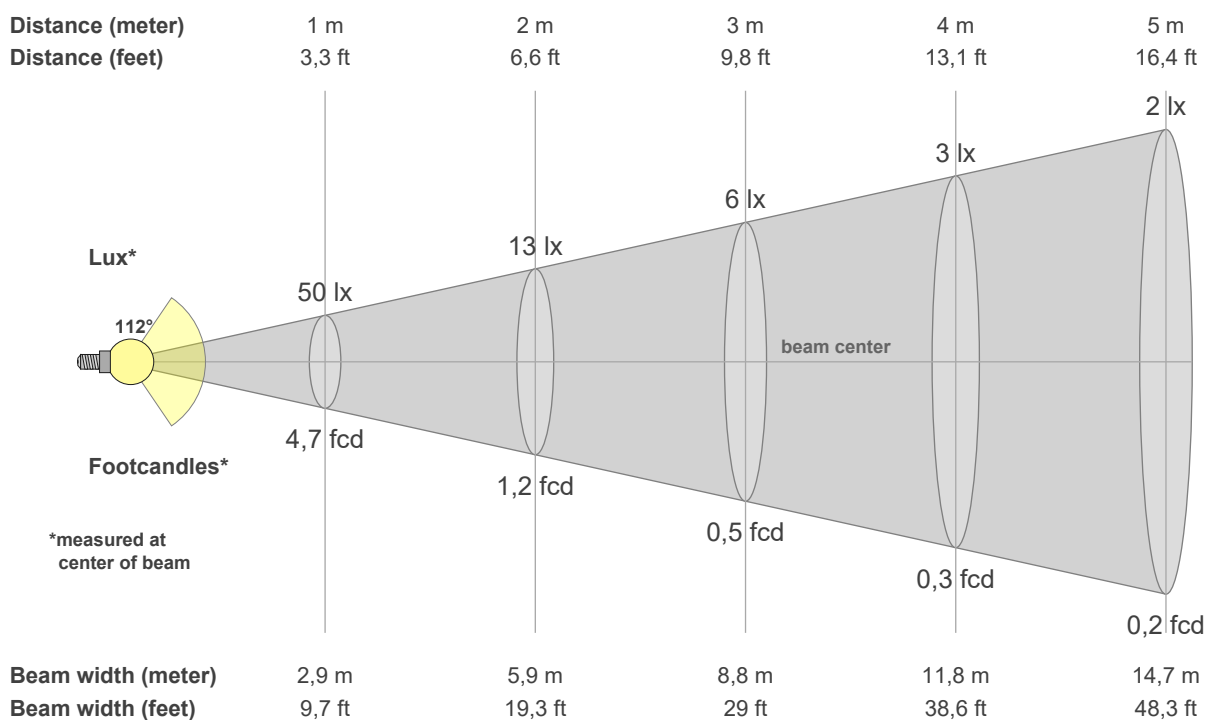
Iso-intensity Diagram (Iso-candela)



Iso-illuminance Diagram (Iso-lux)

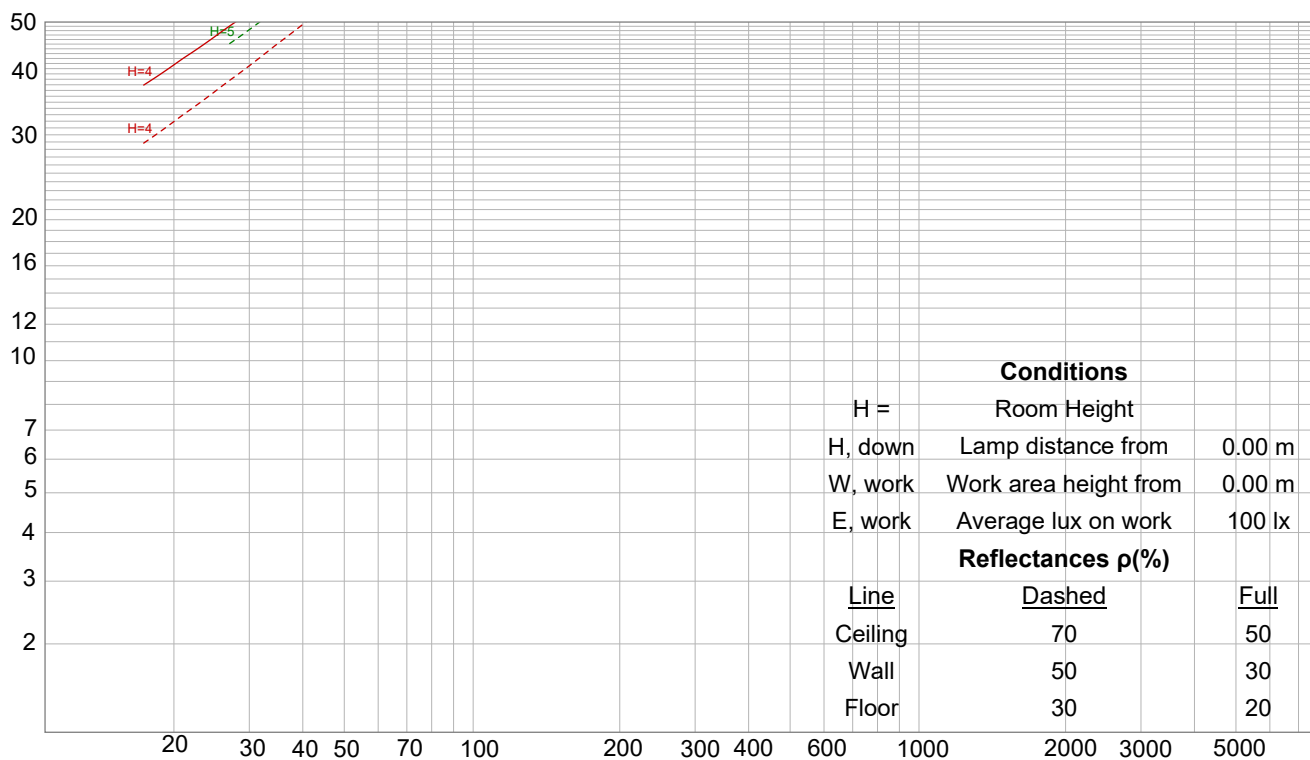


Beam details



Luminaire budgetary diagram

LAMPS (number of lamps)



Room Area [m2]

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
50	13	6	3	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	lux
4,7	1,2	0,5	0,3	0,2	0,1	0,1	0,1	0,1	0	0	0	0	0	0	0	0	0	0	0	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
50,2	50,8	51,5	51,2	50,7	49,7	48,0	46,0	43,3	40,4	37,0	33,4	29,8	26,0	22,1	18,1	14,2	10,8	7,7	5,1	cd
100%	101%	103%	102%	101%	99%	96%	92%	86%	80%	74%	67%	59%	52%	44%	36%	28%	22%	15%	10%	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
50,2	49,8	48,7	47,0	45,0	42,6	39,8	36,7	33,5	30,1	26,5	22,8	19,1	15,3	11,6	7,9	4,1	0,9	0,1	0,0	cd
100%	99%	97%	94%	90%	85%	79%	73%	67%	60%	53%	45%	38%	30%	23%	16%	8%	2%	0%	0%	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
50,2	48,4	46,7	44,3	41,5	38,5	35,4	32,0	28,5	25,1	21,7	18,4	15,1	12,0	9,1	6,5	4,5	2,7	1,5	0,4	cd
100%	96%	93%	88%	83%	77%	70%	64%	57%	50%	43%	37%	30%	24%	18%	13%	9%	5%	3%	1%	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
50,2	51,0	50,8	50,2	49,2	47,8	45,8	43,5	40,8	37,8	34,6	31,0	27,2	23,5	19,6	15,6	11,7	7,9	3,9	0,8	cd
100%	102%	101%	100%	98%	95%	91%	87%	81%	75%	69%	62%	54%	47%	39%	31%	23%	16%	8%	1%	of 0°val

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 %

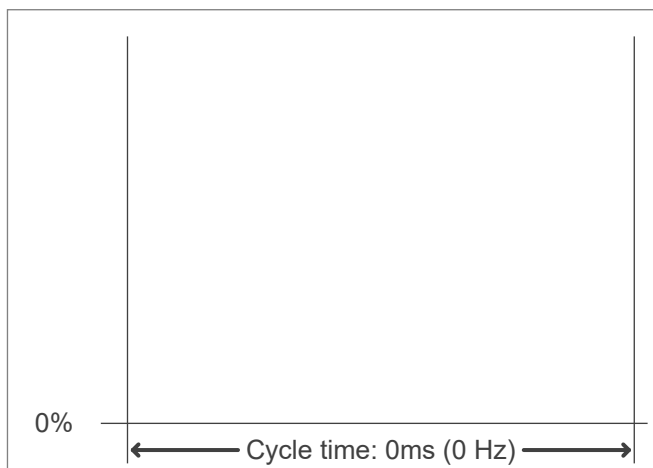
TLA indices (re IEC TR 61547-1, IEC 61000-3-3 and IEC

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

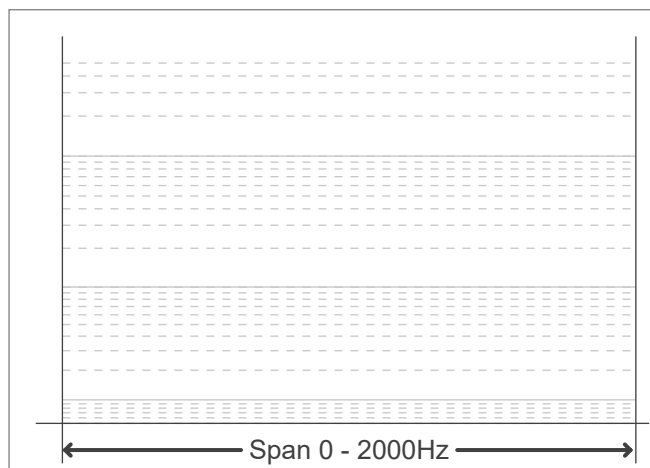
Flicker indices according to Lighting Research Center (2015)

Perception metric, Assist Mp	n/a
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Flicker frame (frame of one flicker period in time domain)



Flicker FFT (flicker curve in frequency domain)



IEEE 1789 Frequency/modulation plot

