

Light Measurement Report

Print date: 06/05/2026
Measurement date and time: 27/04/2026 16:22:30 – Measurement no. VFR-260427-1433-MS
Measurement tracking No. and Link: [VT260427-004807](#)
Operator: LC



Laboratory and Equipment

Laboratory Owner and Location	Viso Systems, Copenhagen V, Denmark
Goniospectrometer System and Type	LabSpion – Type C, horizontal
Sensor Name, Calibr. Date and Serial No.	LabSensor Model2 – 11/12/2024 – 3532797498
Spectrometer Manufacturer and Model	Ibsen Photonics, Denmark – Freedom VIS (Custom Viso)

Measurement Conditions

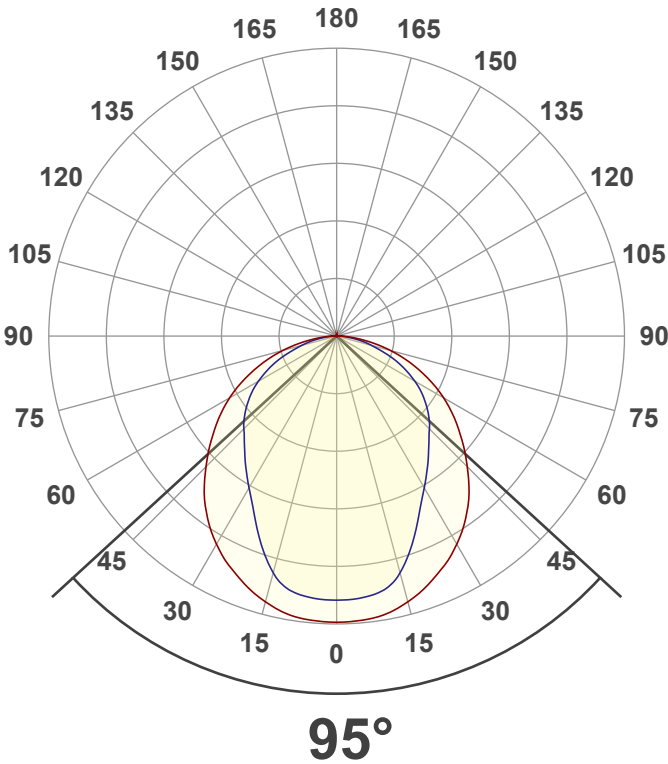
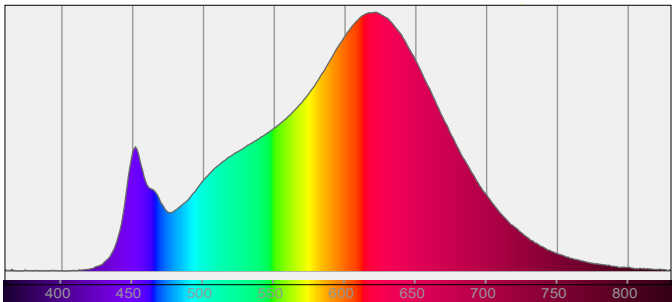
Number of C-planes and Resolution	64 planes – 5,63°
γ (gamma)-Resolution	2,5°
Test Distance	1,20 m
Input Power, Power and Displ. Factors	5,9 W – PF 0,52 – DPF 1,0
Input RMS Voltage and Current	244 V – 0,047 A
Frequency of Input Power	50,1 Hz
Warm-up Time and Variation	n/a – n/a%

Tested Light Source

Product Name	AURA 3000K WHITE
Item No. and Manufacturer	89121597309003 – ELECTRUM
Product Description (line 1)	

Main Light Measurement Results

Output – Total Lumen (Up% / Down%)	99,8 lm – 0,56% / 99,44%
Efficiency	17 lm/W
Peak Intensity and Beam Angle	40,7 cd – 95°
Correlated Color Temperature, Target/Measured	CCT = 3000 K / 2812 K
Color Rendering Index	CRI 93,6
Color Rendering TM30-18	R _f 92,2 – R _g 99,2
Color Shift, CIE duv and MacAdam Steps	Duv -0,0025 – SDCM 6,9
Flicker	SVM 0 – PstLM 0,2



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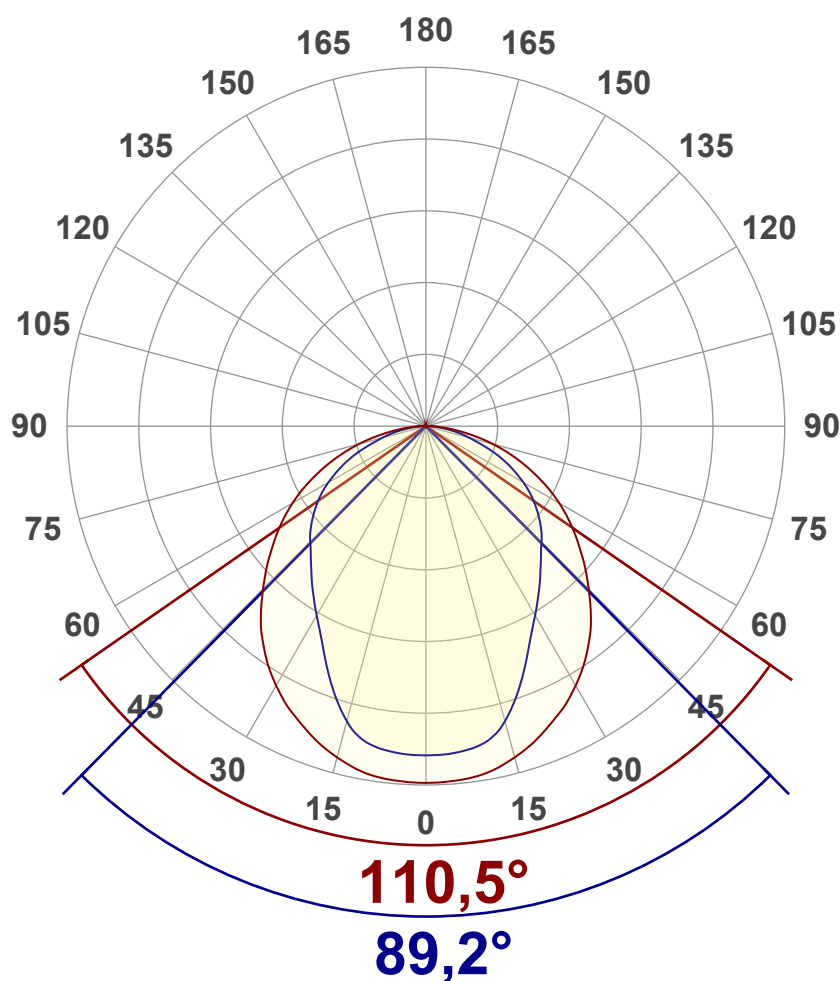
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Luminous Intensity diagram

Unit: 0-100% of peak intensity



Main Values

Output (total Lumen)	99,8 lm
Lumen Up% / Down%	0,56% / 99,44%
Peak Intensity	40,7 cd
Beam Angle (50%-FWHM)	94,95°

Cut-off Angle

Average 2,5%	175,5°
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Field Angle

Average 10%	159,5°
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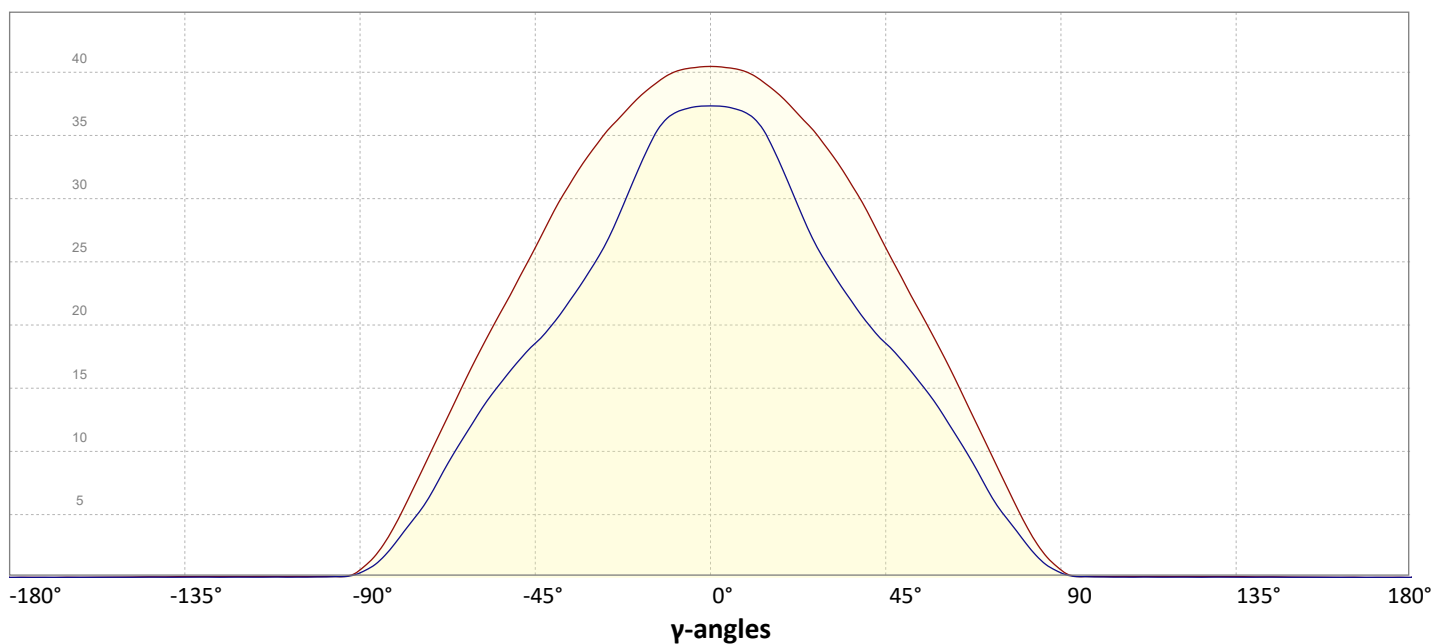
Intensity Ratio

In 120° cone	78,3%
In 90° cone	55,2%

C000-C180

C090-C270

Linear distribution diagram - Intensity (candela) vs γ-angle



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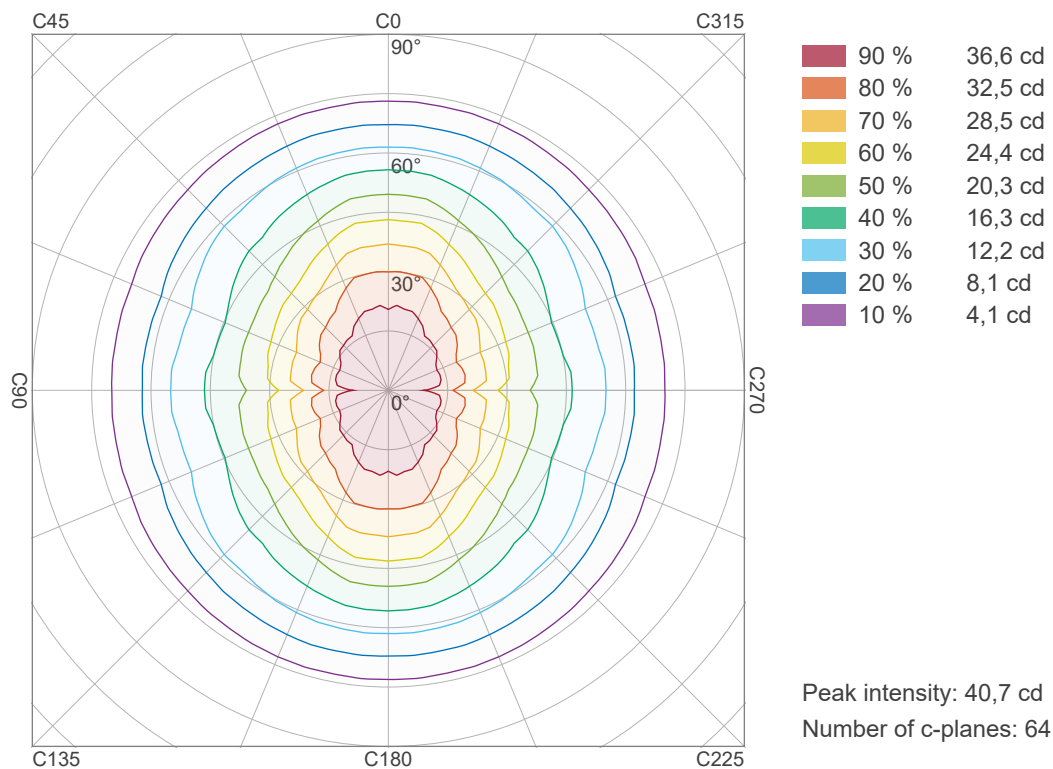
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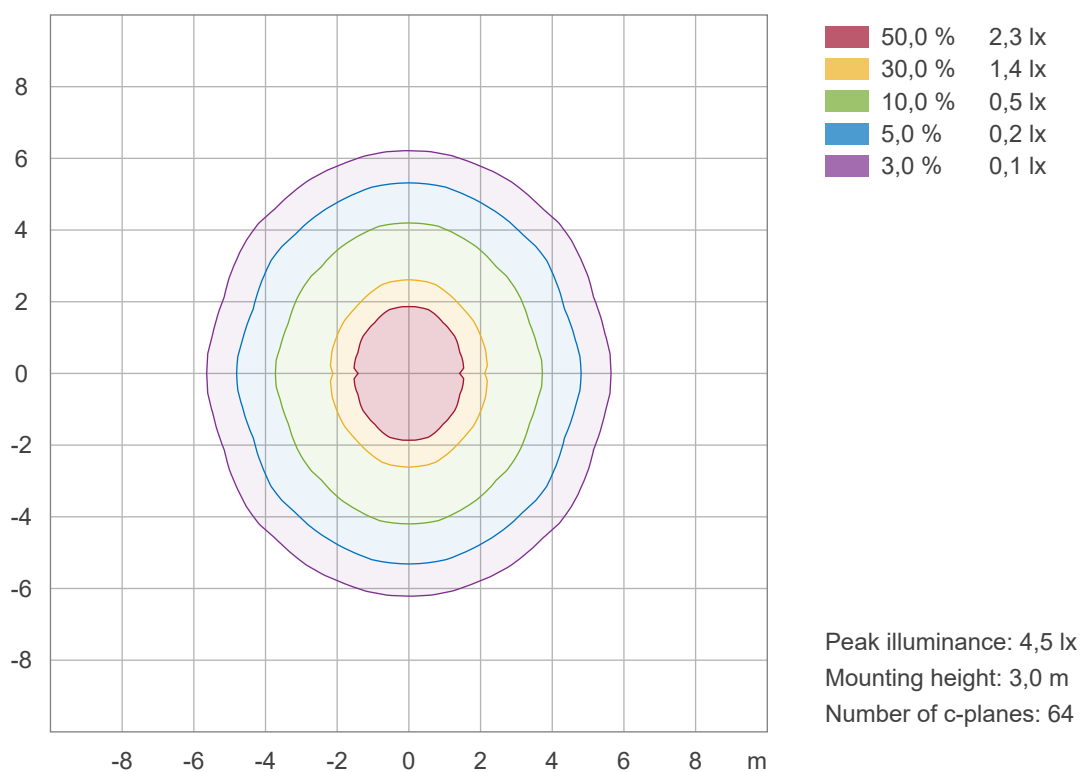
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Iso-intensity Diagram (Iso-candela)



Iso-illuminance Diagram (Iso-lux)



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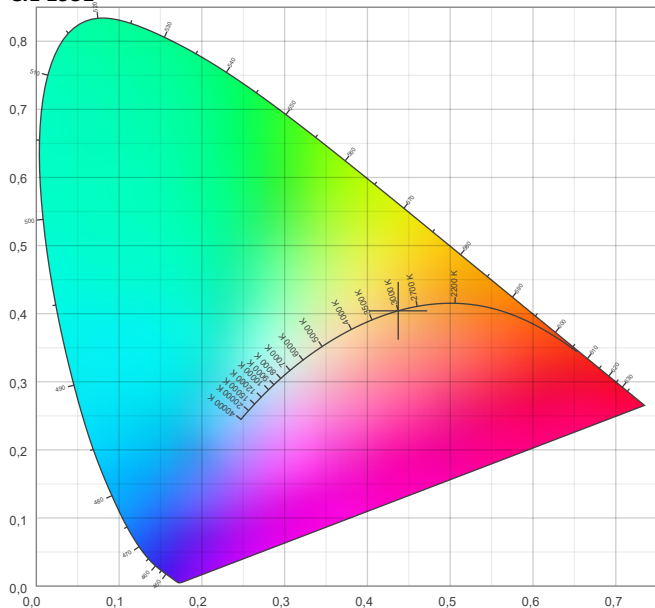


Color details

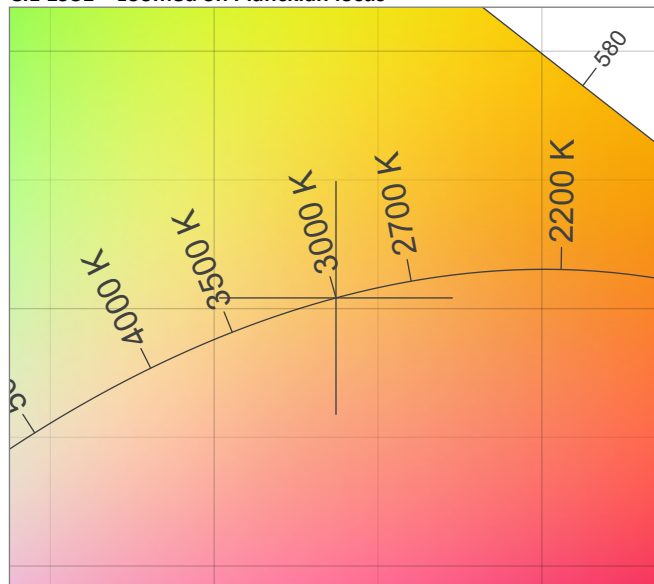
Correlated Color Temperature, Target CCT = 3000 K
Correlated Color Temperature, Measured CCT = 2812 K
Color Rendering Index CRI 93,6
Color Rendering Index, R9 (red component) R9 = 61,2
Color Rendering TM30-18 R_f 92,2 – R_g 99,2
Color Quality Scale CQS = 91,5

MacAdam Steps
Color coordinates CIE 1931 (x;y) = (0,437;0,404)
Color coordinate CIEs 1960 (u;v) = (0,251;0,348)
Color deviation from BBL Duv = -0,0025
Color coordinate CIEs 1976 (CIELUV) (u';v') = (0,251;0,521)

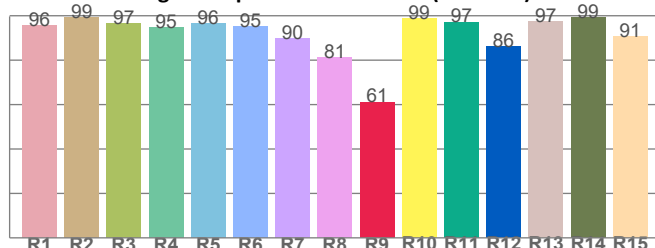
CIE 1931



CIE 1931 – zoomed on Planckian locus



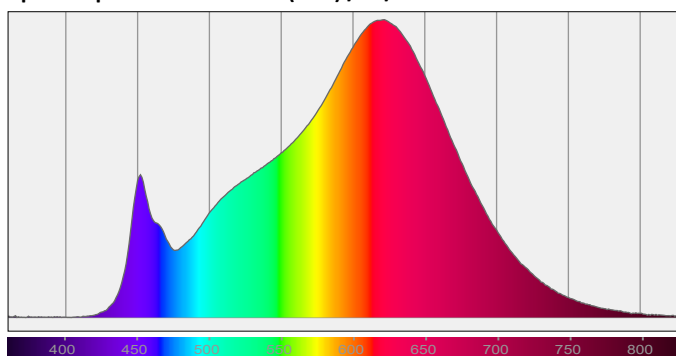
Color Rendering Index per reference color (CIE 1995)



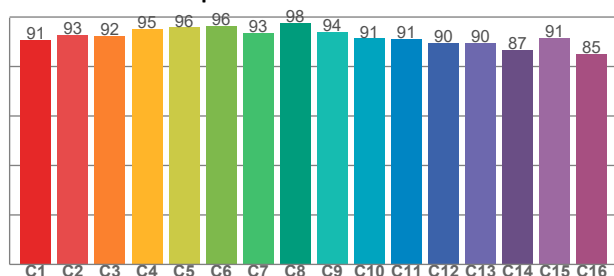
CRI R values, only R1-R8 are used to calculate final CRI value

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
95,8	99,2	96,6	94,9	96,4	95,3	89,7	81,1	61,2	98,8	97,2	86,2	97,4	99,1	90,8

Spectral power distribution (SPD) / W/nm – 0-100%



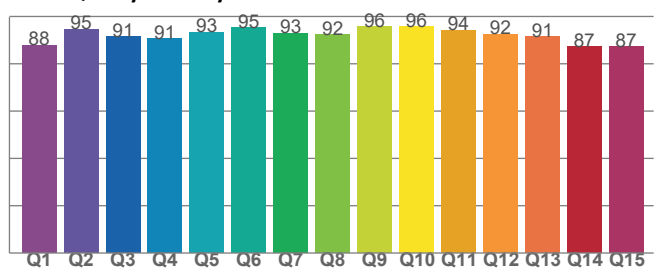
TM30-18 R_f-values per hue bin



TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
90,7	92,8	92,3	95,0	95,7	96,2	93,4	97,7	93,8	91,3	91,2	89,7	89,5	86,6	91,3	85,0

Color Quality Scale by reference color



CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
87,9	94,6	91,4	90,7	93,4	95,3	93,0	92,2	95,7	95,6	94,2	92,5	91,5	87,3	87,3

Beam Details

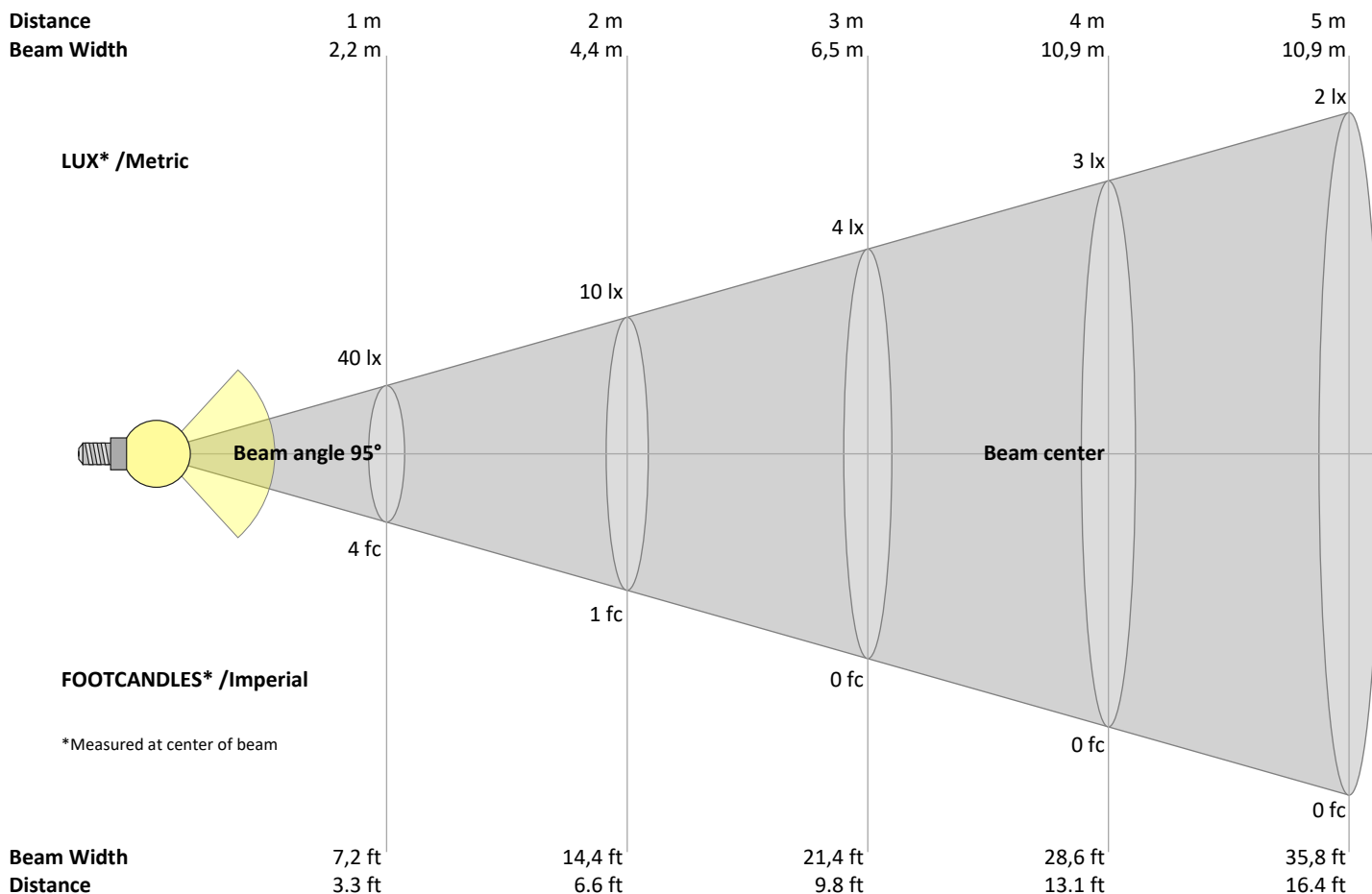
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Beam intensities from 1 – 20 m

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
40	10	4	3	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	lux
3,7	0,9	0,4	0,2	0,1	0,1	0,1	0,1	0	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
40,2	40,3	39,9	38,9	37,5	35,9	34,0	31,7	29,1	26,1	23,2	20,4	17,5	14,3	11,1	7,9	4,8	2,2	0,6	0,1	cd
100%	100%	99%	97%	93%	89%	84%	79%	72%	65%	58%	51%	43%	36%	28%	20%	12%	5%	2%	0%	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
40,2	37,2	36,6	34,6	31,2	27,7	24,8	22,4	20,3	18,6	16,9	15,0	12,8	10,3	7,6	5,1	3,1	1,4	0,4	0,1	cd
100%	93%	91%	86%	78%	69%	62%	56%	50%	46%	42%	37%	32%	26%	19%	13%	8%	3%	1%	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
40,2	40,3	39,9	38,9	37,5	35,9	34,0	31,7	29,1	26,1	23,2	20,4	17,5	14,3	11,1	7,9	4,8	2,2	0,6	0,1	cd
100%	100%	99%	97%	93%	89%	84%	79%	72%	65%	58%	51%	43%	36%	28%	20%	12%	5%	2%	0%	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
40,2	37,2	36,6	34,6	31,2	27,7	24,8	22,4	20,3	18,6	16,9	15,0	12,8	10,3	7,6	5,1	3,1	1,4	0,4	0,1	cd
100%	93%	91%	86%	78%	69%	62%	56%	50%	46%	42%	37%	32%	26%	19%	13%	8%	3%	1%	0%	of 0°val

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Light Planning – UGR table

Corrected, comprehensive UGR table according to 117-1995

Reflectances													
	p Ceiling		70	70	50	50	30		70	70	50	50	30
	p Walls		50	30	50	30	30		50	30	50	30	30
	p Floor		20	20	20	20	20		20	20	20	20	20
Room size H = mounting height above eye level													
X Y			Viewed Crosswise (Viewing direction orthogonal to lamp length axis)					Viewed Endwise (Viewing direction parallel to lamp length axis)					
2H	2H	2H	17,2	18,4	17,5	18,8	19,0	15,4	16,6	15,7	17,0	17,2	
		3H	18,9	20,2	19,3	20,5	20,7	16,9	18,1	17,3	18,4	18,6	
		4H	19,7	20,9	20,1	21,1	21,4	17,5	18,7	17,9	19,0	19,2	
		6H	20,3	21,3	20,6	21,6	22,0	18,0	19,0	18,3	19,3	19,7	
		8H	20,4	21,4	20,8	21,8	22,2	18,1	19,1	18,5	19,4	19,9	
		12H	20,5	21,5	20,9	21,9	22,3	18,2	19,2	18,6	19,5	20,0	
4H	4H	2H	17,7	18,9	18,1	19,2	19,4	16,3	17,5	16,7	17,8	18,1	
		3H	19,7	20,7	20,1	21,1	21,5	18,0	19,0	18,4	19,4	19,8	
		4H	20,5	21,4	21,0	21,9	22,4	18,7	19,6	19,1	20,0	20,5	
		6H	21,2	22,1	21,7	22,4	22,8	19,2	20,1	19,7	20,4	20,8	
		8H	21,4	22,2	22,0	22,6	23,0	19,4	20,1	19,9	20,5	20,9	
		12H	21,6	22,3	22,1	22,7	23,2	19,5	20,1	20,0	20,6	21,1	
8H	8H	4H	20,8	21,5	21,3	21,9	22,3	19,1	19,9	19,6	20,3	20,7	
		6H	21,6	22,2	22,1	22,7	23,2	19,8	20,4	20,3	20,9	21,4	
		8H	21,9	22,5	22,5	23,0	23,6	20,1	20,6	20,6	21,1	21,8	
		12H	22,2	22,6	22,8	23,2	23,8	20,3	20,7	20,8	21,2	21,8	
12H	12H	4H	20,8	21,4	21,3	21,8	22,3	19,2	19,8	19,7	20,3	20,7	
		6H	21,7	22,2	22,2	22,7	23,4	19,9	20,4	20,4	21,0	21,6	
		8H	22,0	22,5	22,6	23,0	23,6	20,2	20,7	20,8	21,2	21,8	
Variations with the observer position for the luminaire spacings, S:													
S = 1.0H			0,1 / -0,1					0,1 / -0,1					
S = 1.5H			0,1 / -0,2					0,1 / -0,2					
S = 2.0H			0,4 / -0,3					0,3 / -0,5					

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	0
RCR	(RCR: Room Cavity Ratio)																	
	Room Values are expressed as percentage of Lumen delivered to the task surface																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	99
1	109	104	100	96	106	101	98	94	97	94	91	93	91	88	89	87	85	83
2	99	91	84	78	96	89	82	77	85	80	75	82	77	73	79	75	72	70
3	90	80	72	65	88	78	71	65	75	69	63	72	67	62	70	65	61	59
4	83	71	62	56	80	70	61	55	67	60	54	65	58	53	62	57	53	51
5	76	64	55	48	74	62	54	48	60	53	47	58	52	47	56	51	46	44
6	71	57	49	42	69	56	48	42	55	47	42	53	46	41	51	45	41	39
7	66	52	44	37	64	51	43	37	50	42	37	48	42	37	47	41	36	34
8	61	48	39	34	60	47	39	33	46	38	33	44	38	33	43	37	33	31
9	57	44	36	30	56	43	36	30	42	35	30	41	35	30	40	34	30	28
10	54	41	33	28	52	40	33	28	39	32	27	38	32	27	37	31	27	25

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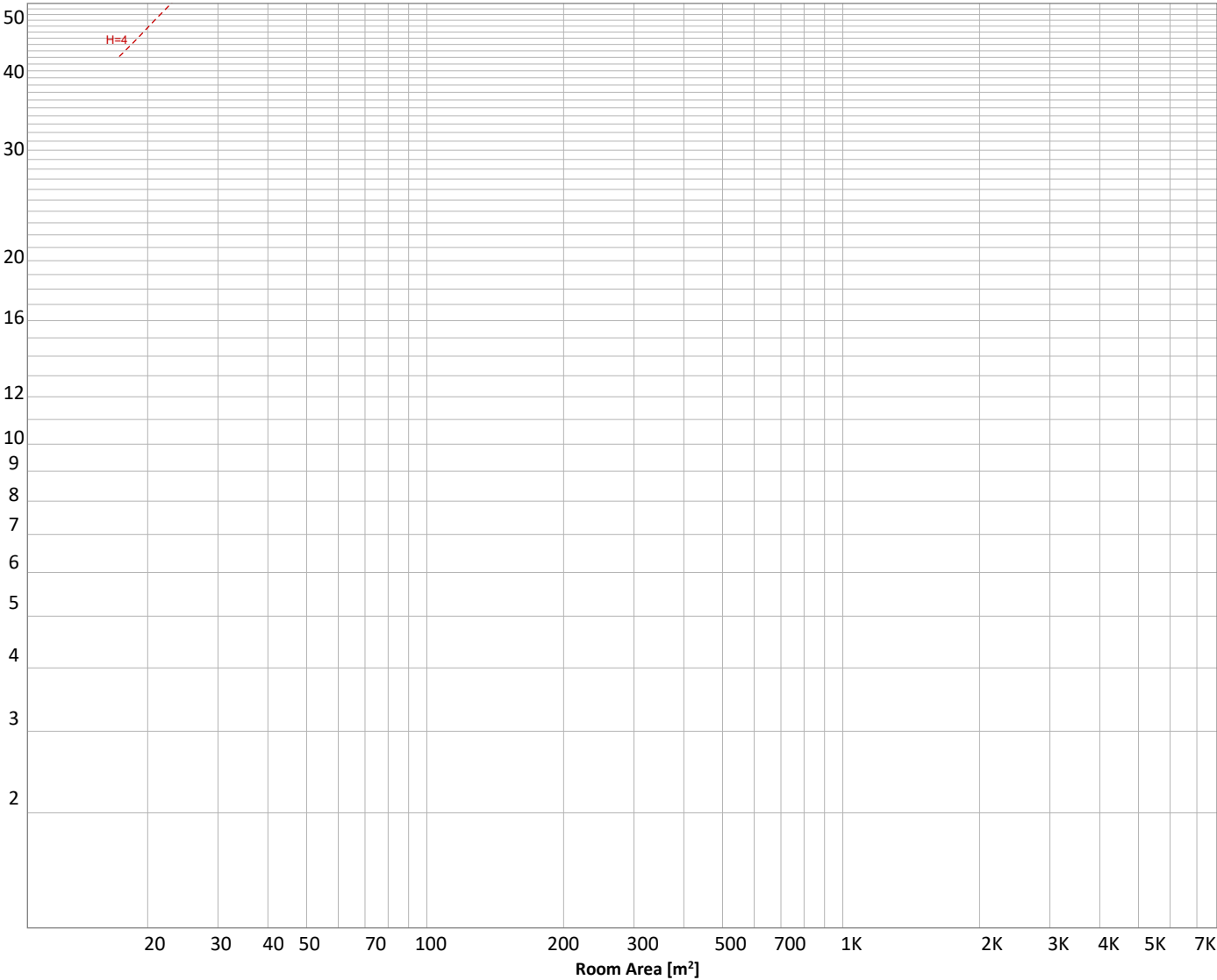
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Luminaire budgetary diagram

Uncorrected, comprehensive UGR table according to 117-1995

LAMPS (number of lamps)



Conditions

H = Room height	Flux = 99,8 lm	p(%)		
H _{down} = Lamp distance from ceiling =	0.00 m	Line type	Ceiling reflectance	Wall reflectance
H _{work} = Work area height from floor =	0.00 m	-----	70	50
E _{work} = Average lux on work area =	100 lx	-----	50	30
				Floor reflectance
				20

Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
3,80 lm	10,6 lm	15,1 lm	17,1 lm	16,6 lm	15,0 lm	11,9 lm	7,01 lm	2,12 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,170 lm	0,093 lm	0,085 lm	0,075 lm	0,063 lm	0,042 lm	0,022 lm	0,010 lm	0,003 lm

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Outdoor Light Planning

Lumen per Zone

Zone (γ)	Lumen	% Total
0-10°	4 lm	3,8%
10-20°	11 lm	10,6%
20-30°	15 lm	15,1%
30-40°	17 lm	17,2%
40-50°	17 lm	16,7%
50-60°	15 lm	15,0%
60-70°	12 lm	11,9%
70-80°	7 lm	7,0%
80-90°	2 lm	2,1%
90-100°	0 lm	0,2%
100-110°	0 lm	0,1%
110-120°	0 lm	0,1%
120-130°	0 lm	0,1%
130-140°	0 lm	0,1%
140-150°	0 lm	0,0%
150-160°	0 lm	0,0%
160-170°	0 lm	0,0%
170-180°	0 lm	0,0%
Total	100 lm	100,0%

Intensity peaks

Max intensity	41 cd
Intensity, 90°	1 cd
Intensity, 0°	40 cd

Zonal Lumen summary

Zone (γ)	Lumen	% Total
0-30°	29 lm	29,5%
0-40°	47 lm	46,7%
0-60°	78 lm	78,3%
60-90°	21 lm	21,1%
70-100°	9 lm	9,3%
90-120°	0 lm	0,3%
0-90°	99 lm	99,4%
90-180°	1 lm	0,6%
0-180°	100 lm	100,0%

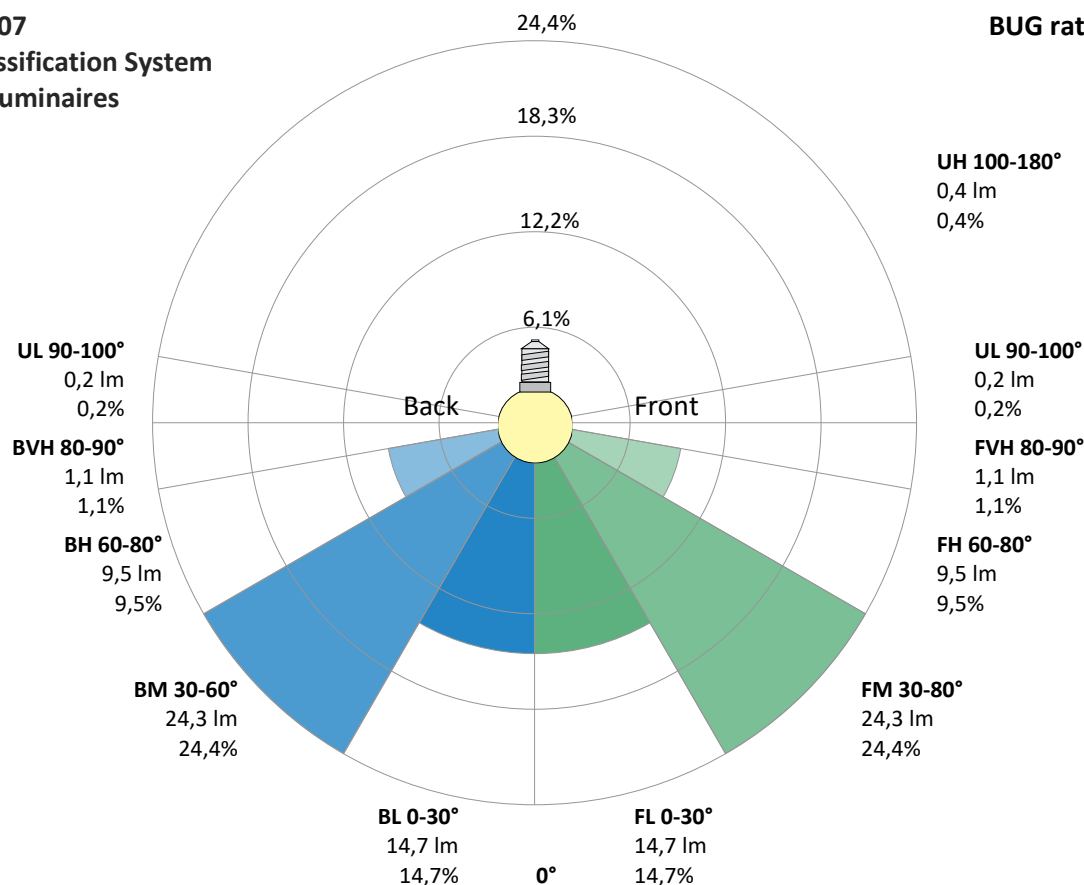
BUG rating

	Lumen	% Total
Forward light		
Low(0-30°)	15 lm	14,7%
Medium(30-60°)	24 lm	24,4%
High(60-80°)	9 lm	9,5%
Very high(80-90°)	1 lm	1,1%
Back light		
Low(0-30°)	15 lm	14,7%
Medium(30-60°)	24 lm	24,4%
High(60-80°)	9 lm	9,5%
Very high(80-90°)	1 lm	1,1%
Uplight		
Low(90-100°)	0 lm	0,2%
High(100-180°)	0 lm	0,4%

IESNA TM-15-07

Luminaire Classification System For Outdoor Luminaires

BUG rating B0 U0 G0



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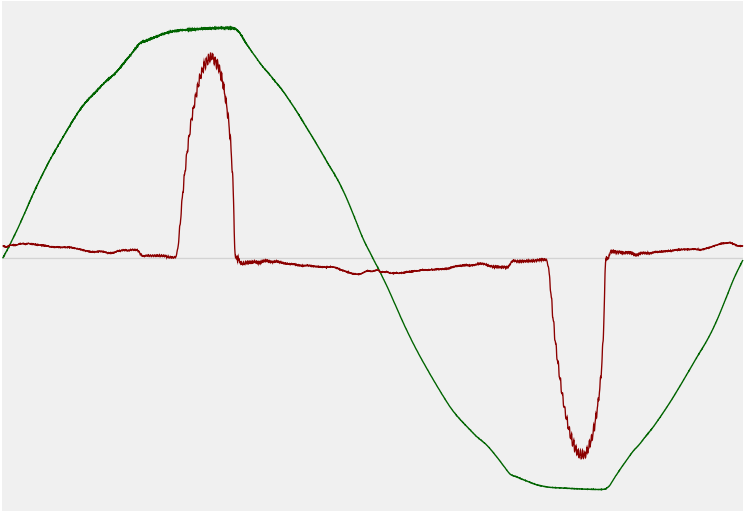


Power Details

Input Power

Power feed to light source	5,9 W
Frequency of input power	50,1 Hz
RMS Input voltage feed, V_{RMS}	244 V
RMS Input current feed, I_{RMS}	0,047 A
Volt-Ampere or apparent power = $V_{RMS} \cdot I_{RMS}$	11,51 VA
Displacement factor of AC power feed	1,0
Power factor of AC current feed	0,52
Total harmonic distortion of the current	161,69%
Total harmonic distortion of the voltage	3,17%

Input Power Curve



Efficiency

Radiated power efficiency	5,9%
Lumen efficiency	17 lm/W

Stabilization Details

Warmup Conditions

Stable period	n/a
Stable change max	n/a%
Minimum time	n/a

Color Temperature Change

CCT start	n/a K
CCT shift	n/a K
CCT end	3000 K

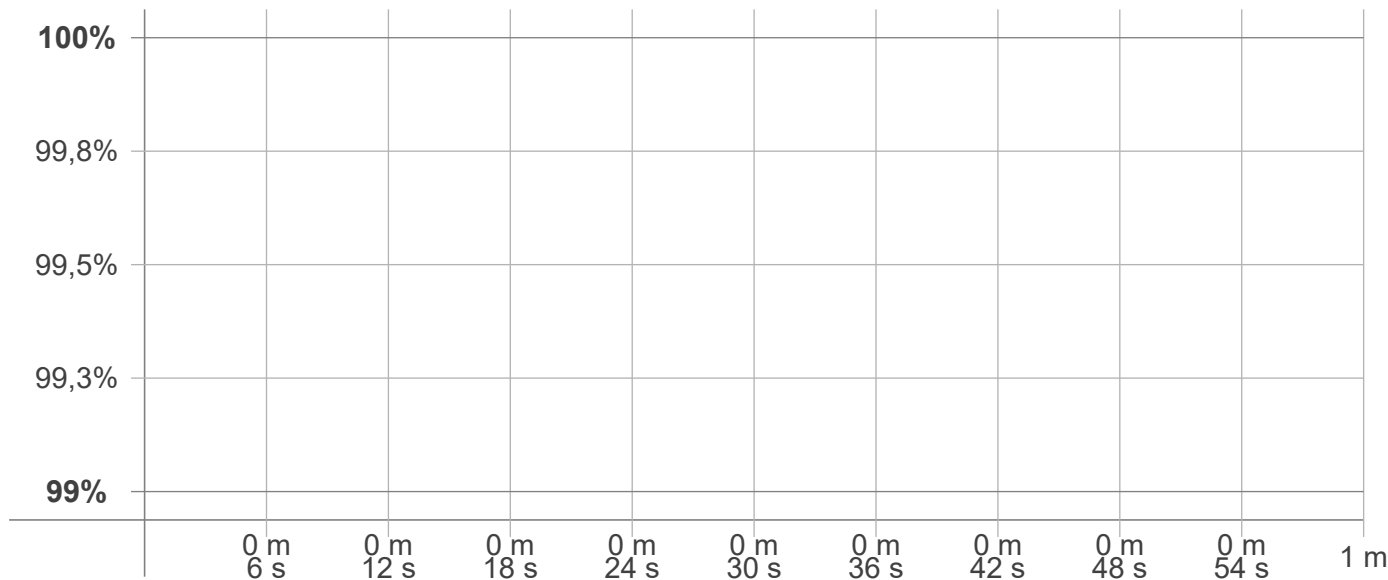
Warmup Result

Total warmup time	n/a
Warmup variation	n/a%

Output Change

Output start	n/a lm
Output change	n/a lm
Output end	99,8 lm

Stabilization Curve



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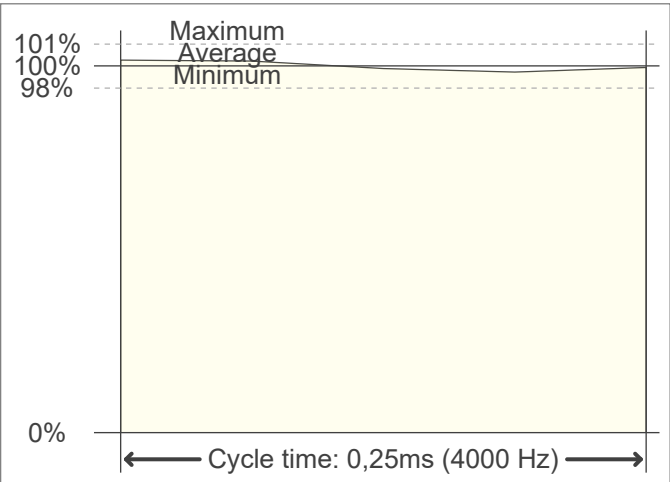
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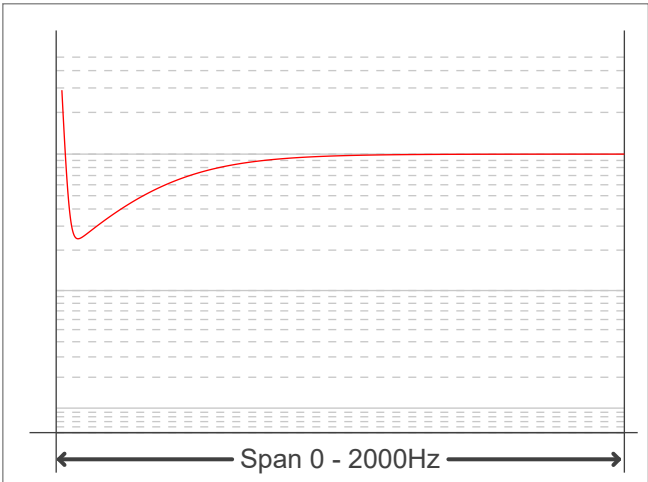
Flicker /TLA details

Flicker Meter Type	Viso Systems LabFlicker	Measurement time	
Frequency of input power	50,1 Hz	PstLM	180 sec
Flicker/TLA sample rate	20000 samples/s	All other indices	1,2 sec
Flicker indices according to Illuminating Engineering Society (IES)		Flicker indices according to California Energy Commission (CEC) 2016b	
Flicker frequency	4000 Hz	JA8/10 40 Hz	0,6 %
Percent Flicker	2,52 %	JA8/10 90 Hz	0,76 %
Flicker index	0,01	JA8/10 200 Hz	0,77 %
		JA8/10 400 Hz	0,76 %
		JA8/10 1000 Hz	0,79 %
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)	0,2	Perception metric, Assist Mp	0,11
SVM value (80 < F < 2000 Hz)	0		

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



Flicker FFT (flicker curve in frequency domain)



IEEE 1789 Frequency/modulation plot

