

Light efficiency:



Light quality:



Color temperature:

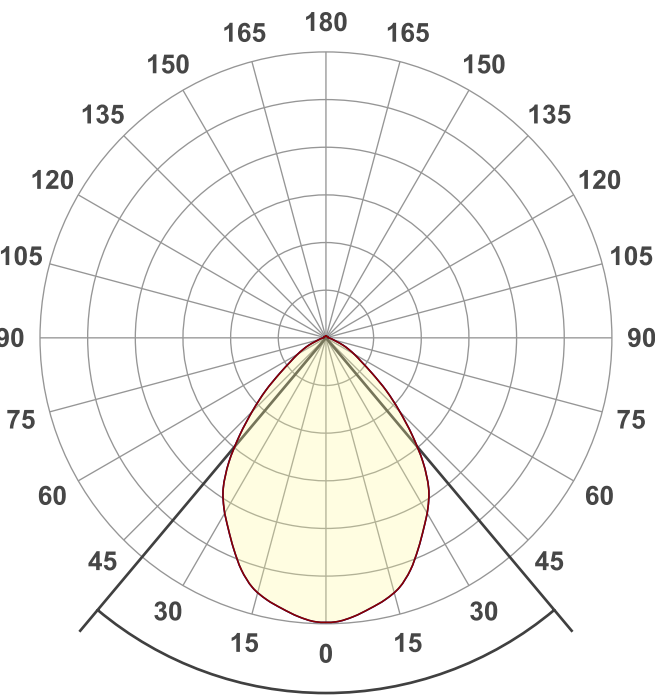


Output: 12838 lm

Peak: 7525 cd

Power: 102.7 W

PF: 1.0



Product name:

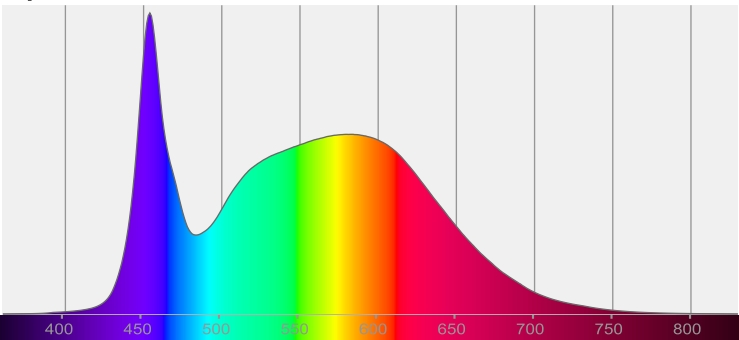
HBUD-50K100-PR

Date and time:

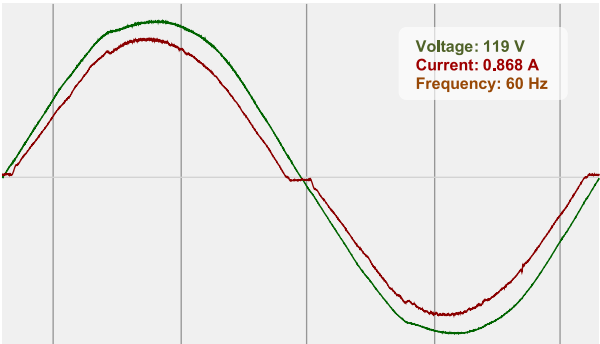
3/4/2019 11:26:11 AM



Spectra



Power



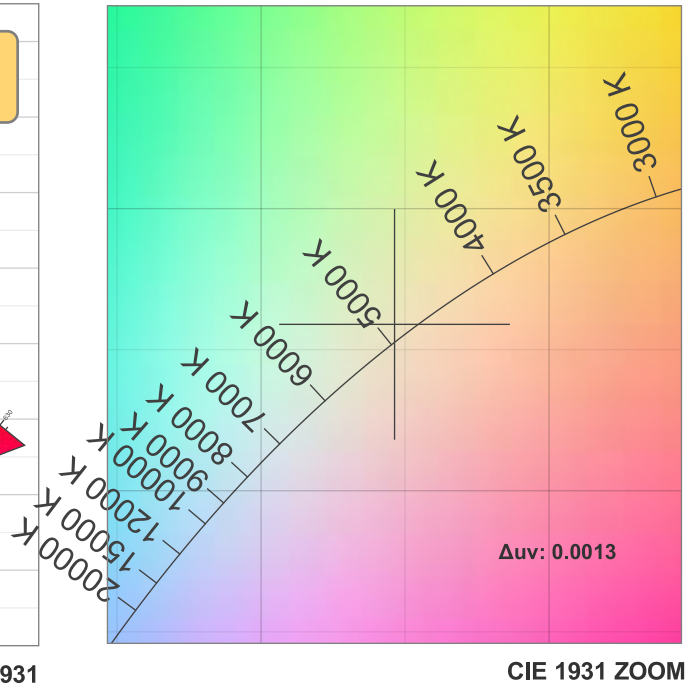
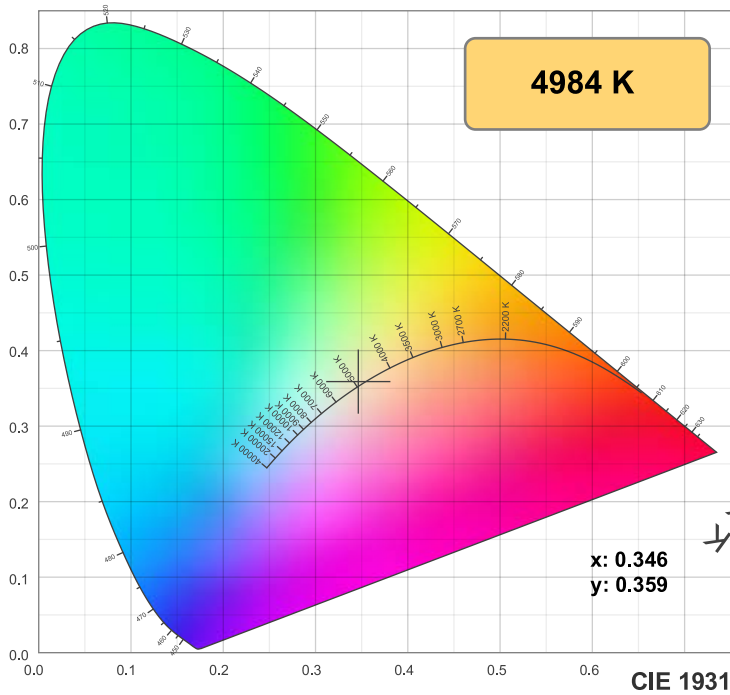
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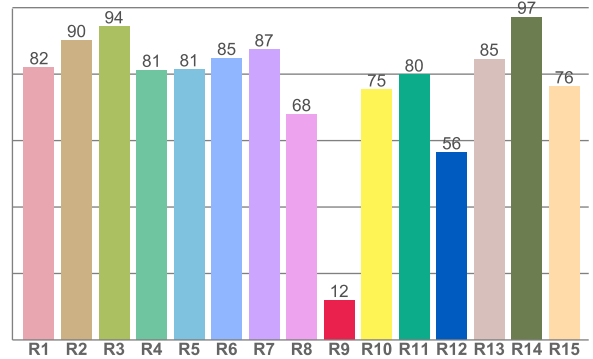
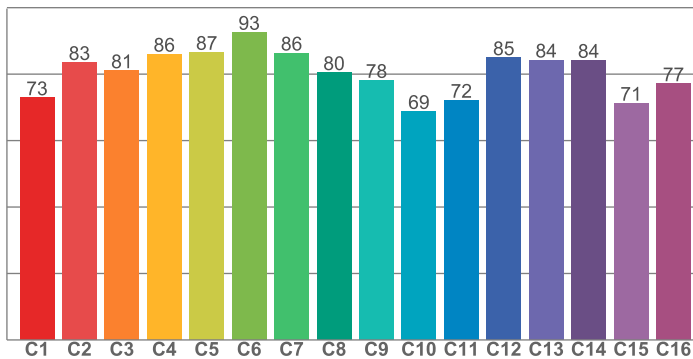
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Color details



TM30: 80.7

CRI: 83.6 (R1-R8)



CRIR 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
82.0	90.1	94.3	81.2	81.3	84.8	87.3	67.8	11.9	75.3	79.8	56.4	84.5	97.2	76.2

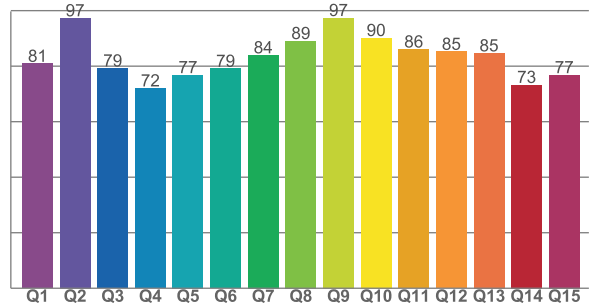
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
72.9	83.5	81.0	86.0	86.5	92.6	86.3	80.4	78.1	68.7	72.1	84.9	84.2	84.1	71.2	77.1

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
80.9	97.3	79.2	72.0	76.8	79.1	84.0	89.1	97.4	90.2	86.1	85.2	84.7	73.3	76.8

CQS: 81.8



Color parameters

Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Color coordinate cie 1931	Color coordinate cie 1931	Color coordinate	Color coordinate	Color deviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
4984 K	83.6	11.9	80.7	92.6	81.8	0.346	0.359	0.209	0.326	0.0013



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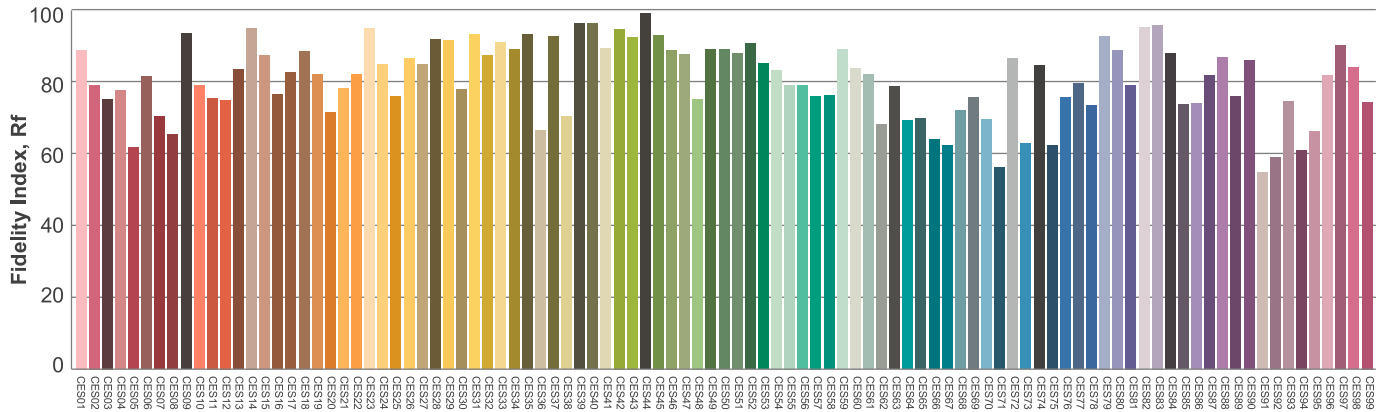
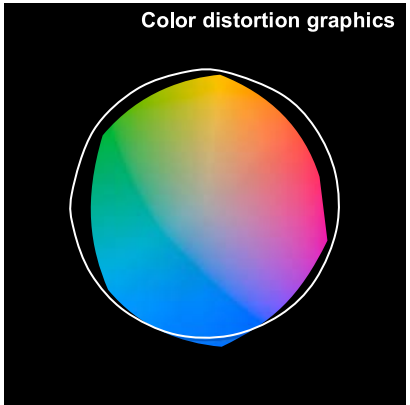
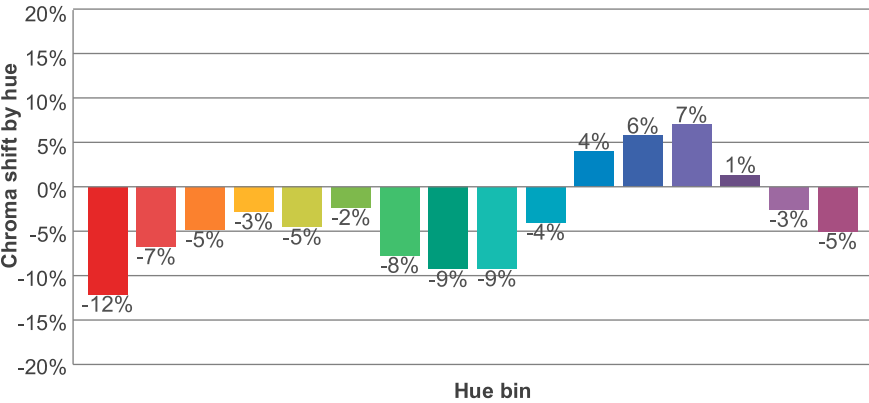
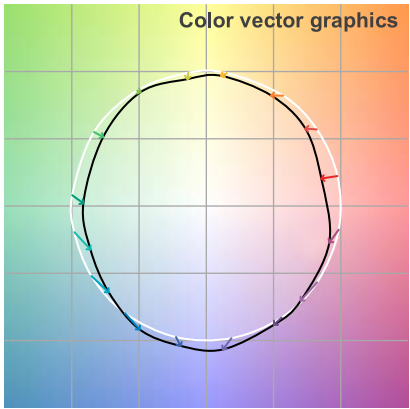
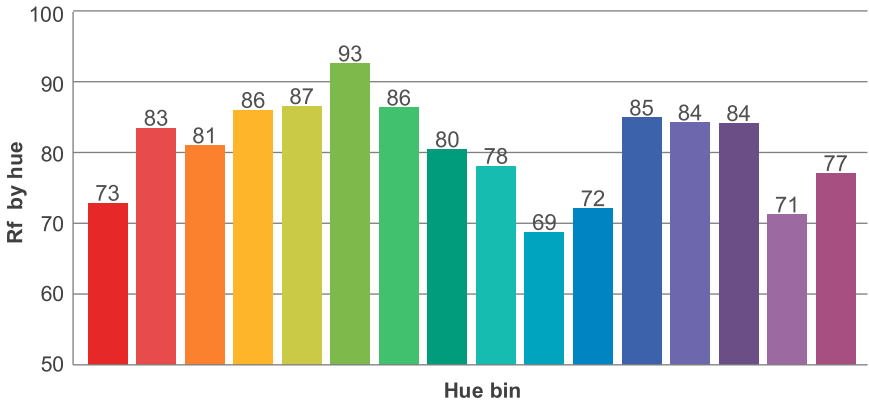
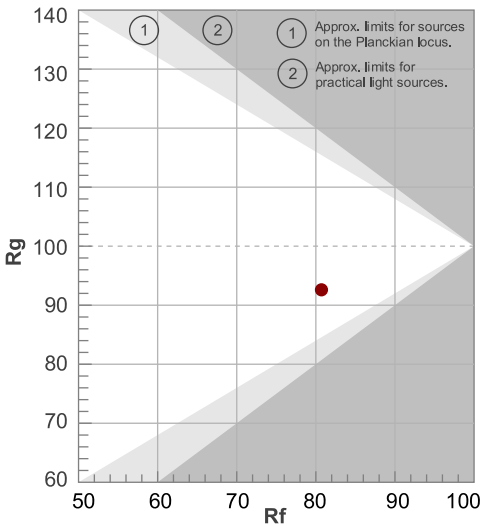
TM30 details

Rf 80.7

Rg 92.6

Gammut index Rg

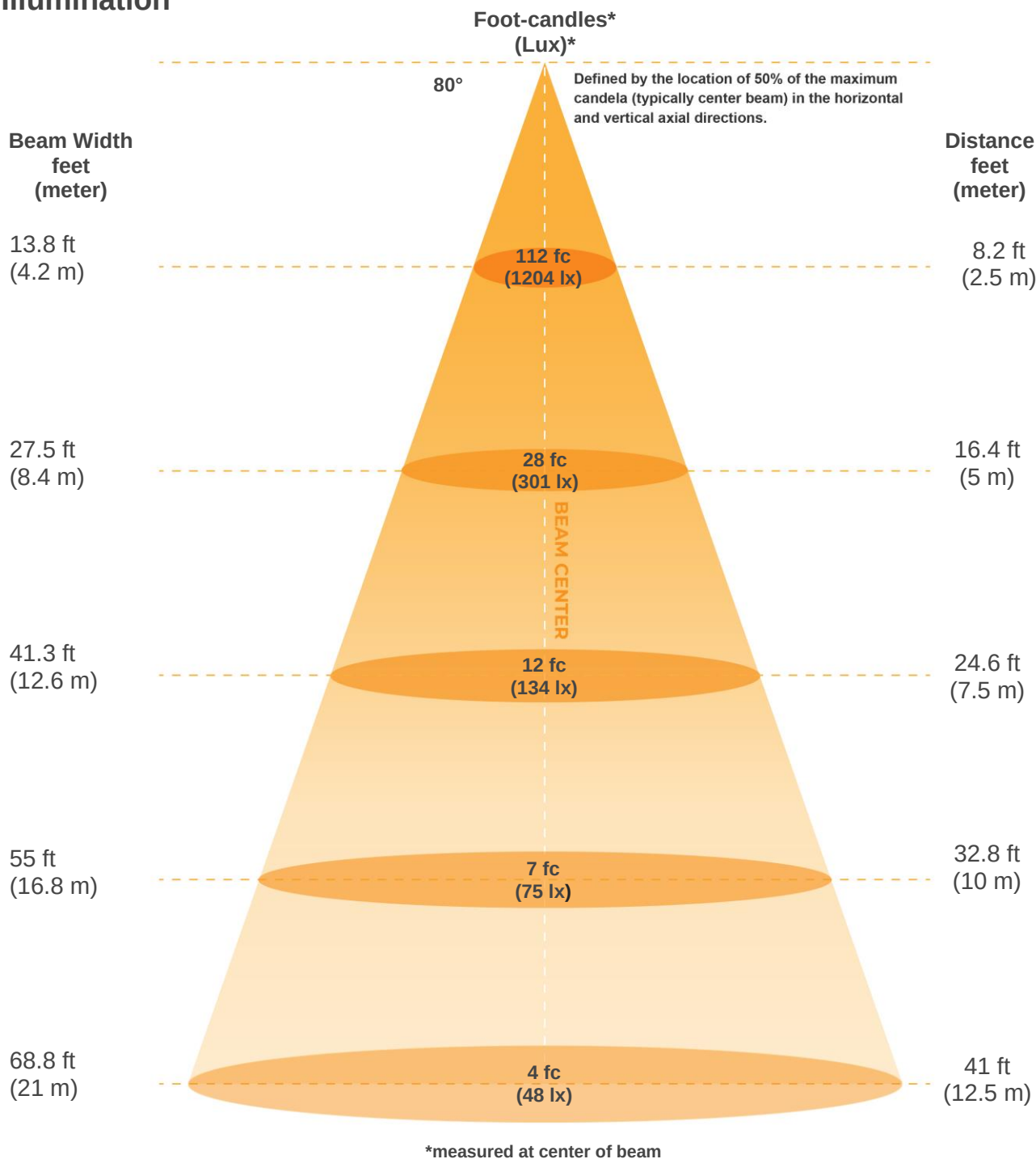
Hue Bin	Ri	Graphic shifts (%)	
		Chroma	Hue
1	73	-12%	1%
2	83	-7%	5%
3	81	-5%	7%
4	86	-3%	4%
5	87	-5%	1%
6	93	-2%	-1%
7	86	-8%	-1%
8	80	-9%	4%
9	78	-9%	15%
10	69	-4%	17%
11	72	4%	16%
12	85	6%	5%
13	84	7%	-8%
14	84	1%	-8%
15	71	-3%	-18%
16	77	-5%	-11%



Color Evaluation Sample



Illumination



Beam intensities from 1-20m

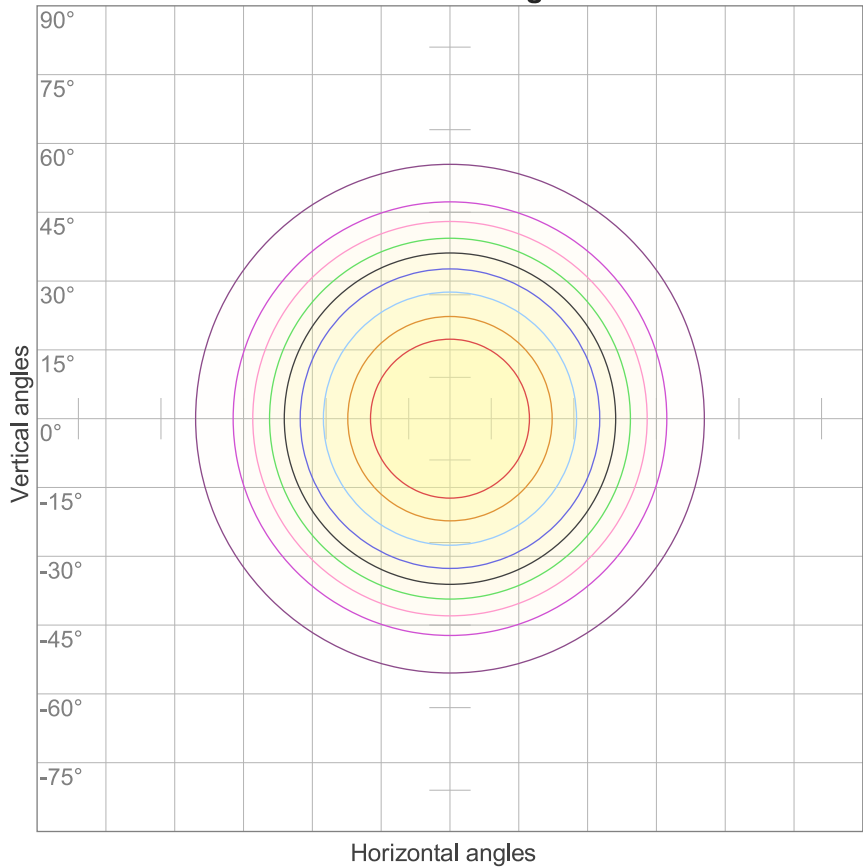
1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
3.3ft	6.6ft	9.8ft	13.1ft	16.4ft	19.7ft	23ft	26.2ft	29.5ft	32.8ft	36.1ft	39.4ft	42.7ft	45.9ft	49.2ft	52.5ft	55.8ft	59.1ft	62.3ft	65.6ft
7525lx	1881lx	836lx	470lx	301lx	209lx	154lx	118lx	93lx	75lx	62lx	52lx	45lx	38lx	33lx	29lx	26lx	23lx	21lx	19lx
699.1fc	174.8fc	77.7fcd	43.7fcd	28fcd	19.4fcd	14.3fcd	10.9fcd	8.6fcd	7fcd	5.8fcd	4.9fcd	4.1fcd	3.6fcd	3.1fcd	2.7fcd	2.4fcd	2.2fcd	1.9fcd	1.7fcd

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
80°	123.7°	152.4°	90.3%	73.9%

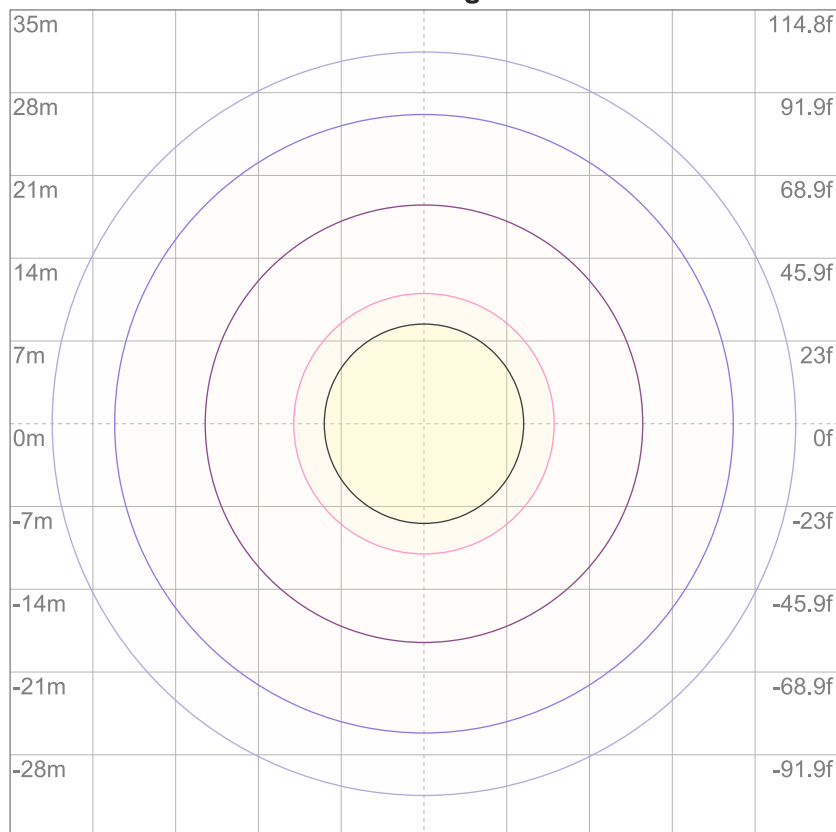


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ISO Diagrams ISO candela diagram



ISO lux diagram



UGR

Glare Evaluation According to UGR

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 X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	32.1	33.1	32.4	33.3	33.6	32.1	33.1	32.4	33.3	33.6
	3H	32.4	33.3	32.8	33.6	33.9	32.4	33.3	32.8	33.6	33.9
	4H	32.5	33.3	32.9	33.6	34.0	32.5	33.3	32.9	33.6	34.0
	6H	32.6	33.3	32.9	33.7	34.0	32.6	33.3	32.9	33.7	34.0
	8H	32.6	33.4	33.0	33.7	34.1	32.6	33.4	33.0	33.7	34.1
	12H	32.7	33.4	33.1	33.7	34.1	32.7	33.4	33.1	33.7	34.1
4H	2H	32.2	33.1	32.6	33.4	33.7	32.2	33.1	32.6	33.4	33.7
	3H	32.7	33.4	33.1	33.7	34.1	32.7	33.4	33.1	33.7	34.1
	4H	32.8	33.4	33.2	33.8	34.2	32.8	33.4	33.2	33.8	34.2
	6H	33.0	33.5	33.4	33.9	34.4	33.0	33.5	33.4	33.9	34.4
	8H	33.1	33.5	33.5	34.0	34.4	33.1	33.5	33.5	34.0	34.4
	12H	33.2	33.6	33.6	34.0	34.5	33.2	33.6	33.6	34.0	34.5
8H	4H	32.8	33.3	33.3	33.7	34.2	32.8	33.3	33.3	33.7	34.2
	6H	33.1	33.5	33.6	33.9	34.4	33.1	33.5	33.6	33.9	34.4
	8H	33.2	33.6	33.7	34.0	34.6	33.2	33.6	33.7	34.0	34.6
	12H	33.4	33.7	33.9	34.2	34.8	33.4	33.7	33.9	34.2	34.8
12H	4H	32.8	33.2	33.3	33.7	34.2	32.8	33.2	33.3	33.7	34.2
	6H	33.1	33.4	33.6	33.9	34.4	33.1	33.4	33.6	33.9	34.4
	8H	33.3	33.5	33.8	34.1	34.6	33.3	33.5	33.8	34.1	34.6
Variation of the observer position for the luminaire distance S											
S = 1.0H		+0.6 / -1.0					+0.6 / -1.0				
S = 1.5H		+1.4 / -1.8					+1.4 / -1.8				
S = 2.0H		+2.7 / -2.7					+2.7 / -2.7				
Standard table		BK02					BK02				
Correction summand		15.4					15.4				
Corrected glare indices referring to 12838 lm total luminous flux											



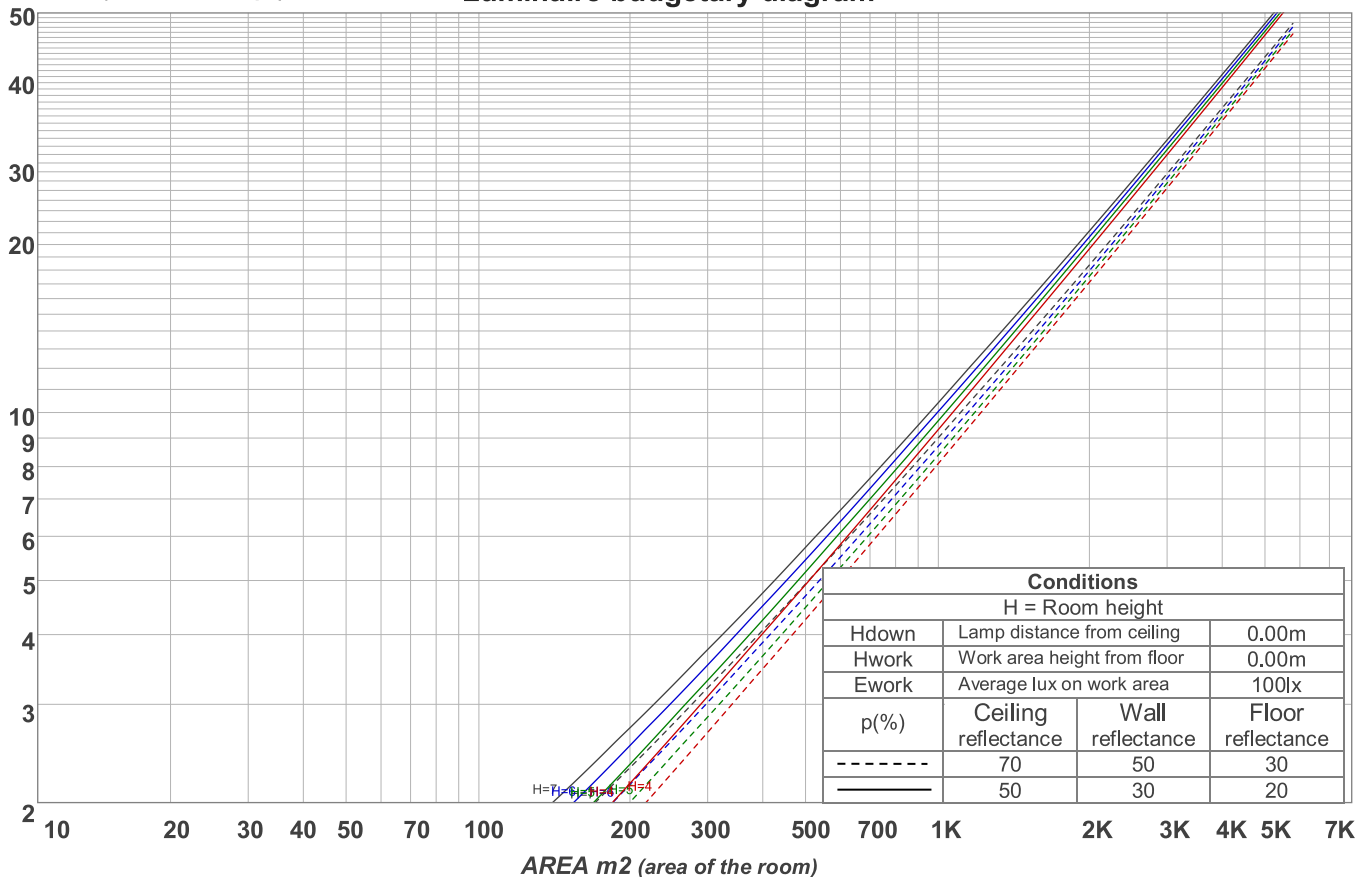
Light planning

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 Lumens delivered to the task surface																	
0	118	118	118	118	115	115	115	115	110	110	110	104	104	104	100	100	100	97
1	111	107	104	101	108	105	102	99	100	98	95	96	94	92	92	90	89	87
2	103	96	91	87	100	94	90	85	91	87	83	87	84	81	84	81	79	77
3	96	87	81	75	93	86	79	75	82	77	73	79	75	72	77	73	70	68
4	89	79	72	66	87	78	71	66	75	69	65	73	68	64	70	66	63	61
5	83	72	65	59	81	71	64	59	69	63	58	67	61	57	65	60	56	54
6	77	66	58	53	76	65	58	53	63	57	52	61	56	52	60	55	51	49
7	72	61	53	48	71	60	53	48	58	52	47	57	51	47	55	50	46	45
8	68	56	49	44	66	55	48	43	54	48	43	53	47	43	51	46	42	41
9	64	52	45	40	62	51	44	40	50	44	39	49	43	39	48	43	39	37
10	60	48	41	37	59	48	41	37	47	41	36	46	40	36	45	40	36	34

LAMPS (number of lamps)

Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
703 lm	1957 lm	2731 lm	2915 lm	2140 lm	1146 lm	578 lm	228 lm	109 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
60.7 lm	58.5 lm	60.6 lm	51.0 lm	37.9 lm	27.1 lm	18.5 lm	11.8 lm	4.33 lm



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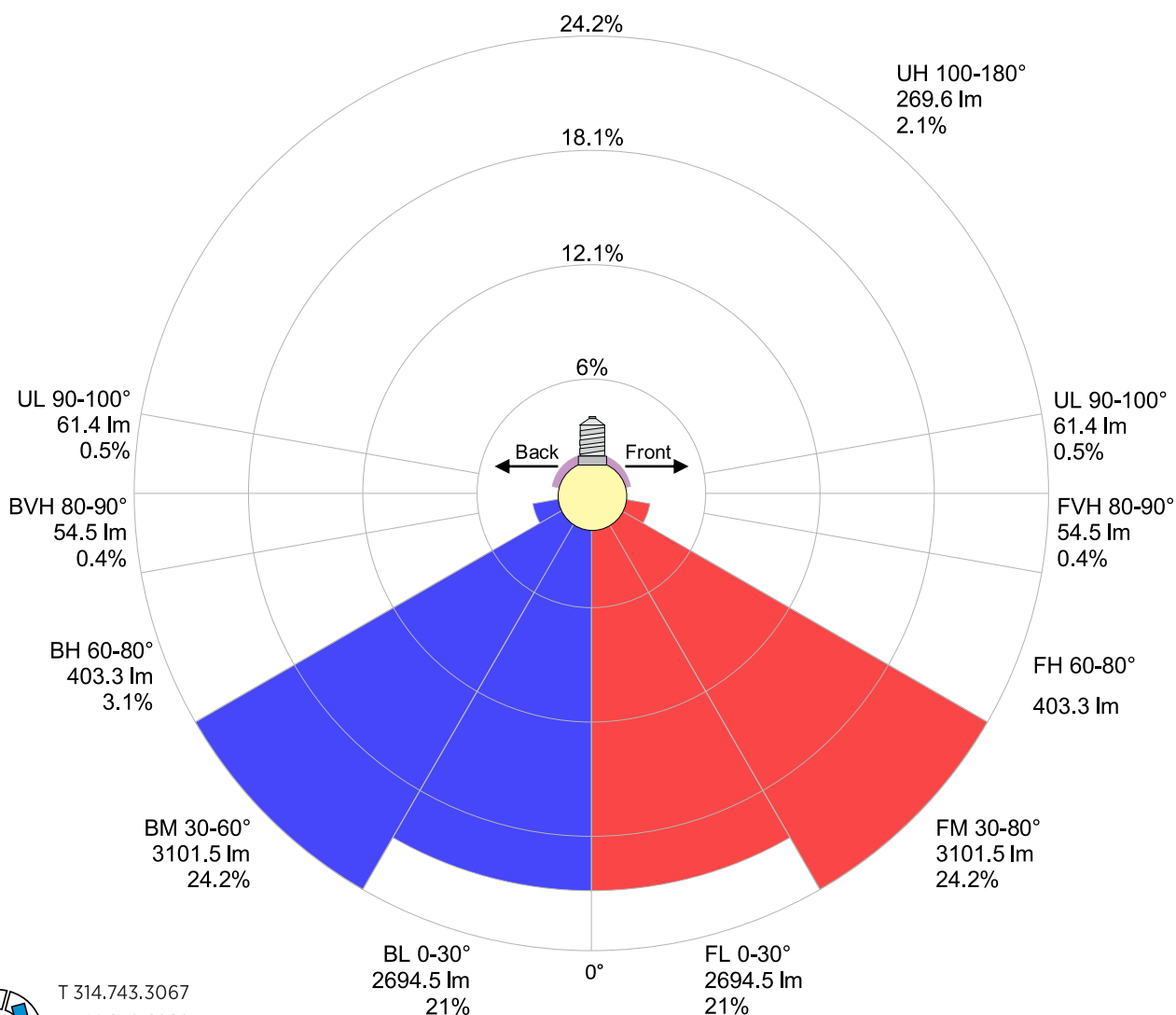
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Road report

LCS table

BUG rating:	B4 U3 G1	
Forward light	Lumens	Lumens %
Low(0-30):	2694.5	21%
Medium(30-60):	3101.5	24.2%
High(60-80):	403.3	3.1%
Very high(80-90):	54.5	0.4%
Back light		
Low(0-30):	2694.5	21%
Medium(30-60):	3101.5	24.2%
High(60-80):	403.3	3.1%
Very high(80-90):	54.5	0.4%
Uplight		
Low(90-100):	61.4	0.5%
High(100-180):	269.6	2.1%

LCS graph



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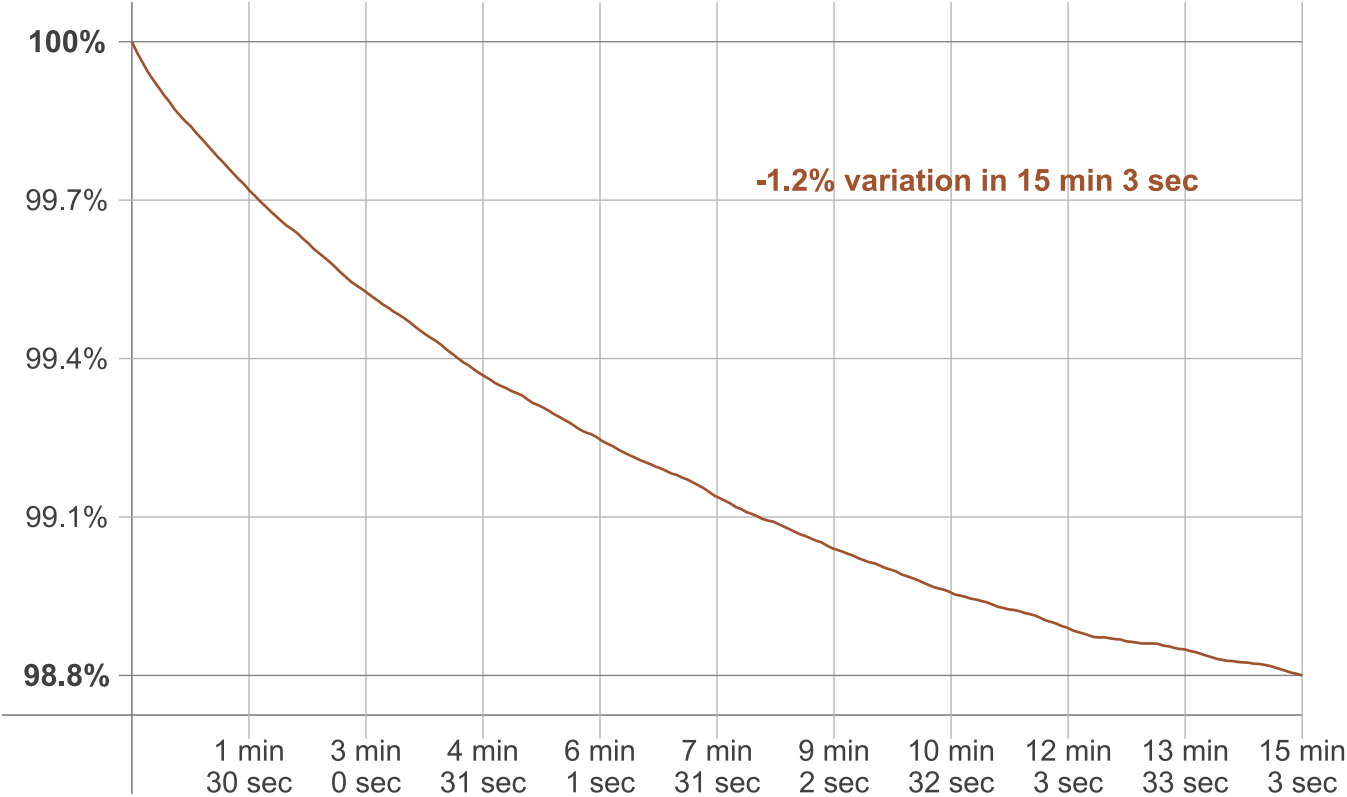
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Stabilization

Warmup curve



Warmup result

Warmup time:	15 min 3 sec
Warmup variation	-1.2%

Warmup conditions

Stable period:	15 min
Stable change max:	2.0%
Minimum time:	15 min

Color temperature change

CCT start	CCT change	CCT end
4962 K	+22 K	4984 K

Output change

Output start	Output change	Output end
12985 lm	-147 lm	12838 lm

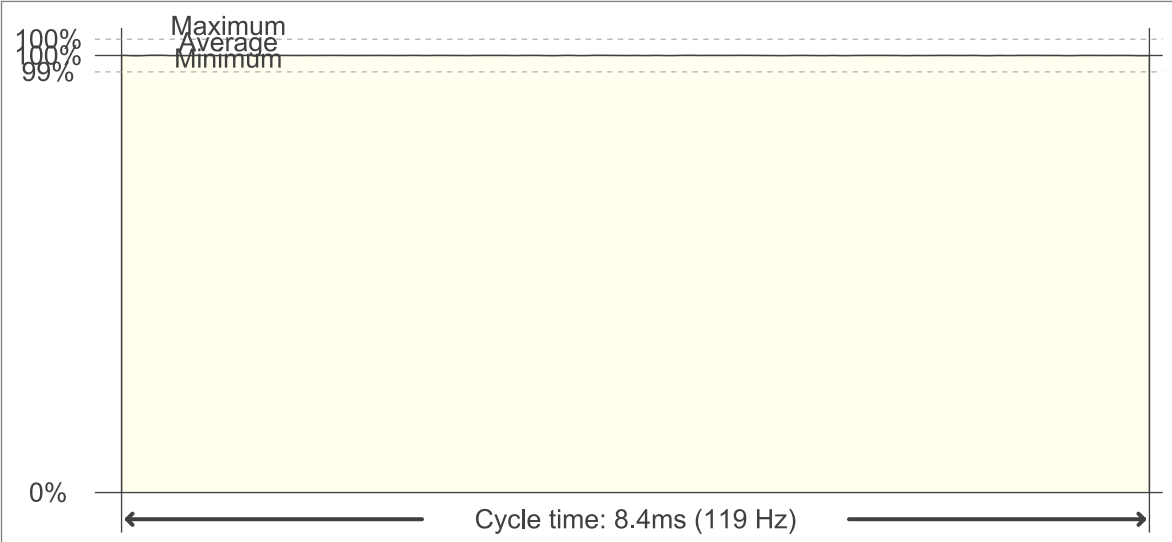


Flicker

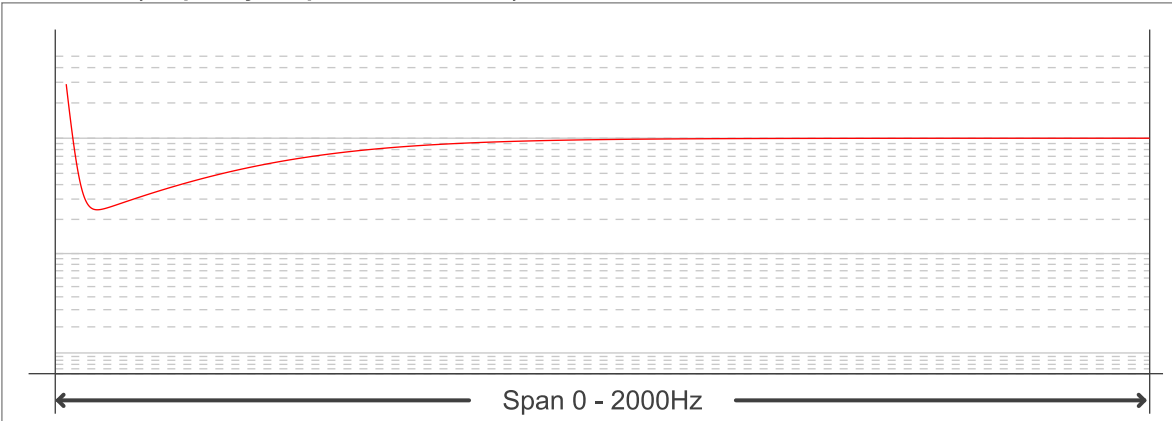
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



Flicker results:

Flicker frequency:	119.05 Hz
Flicker index:	0
Flicker percentage:	0.18 %
SVM: (Visual flicker)	0

Flicker conditions:

Sample rate:	40000 samples/second
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