

Light efficiency:

116 Lumen/Watt

Light quality:

CRI: 86.4

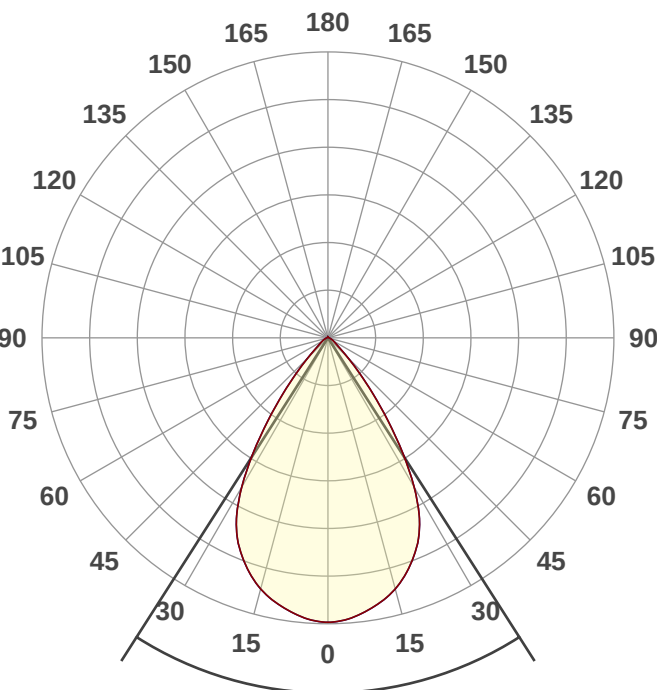
Color temperature:

5090 K

Output: 58392 lm

Peak: 53024 cd

Power: 504 W

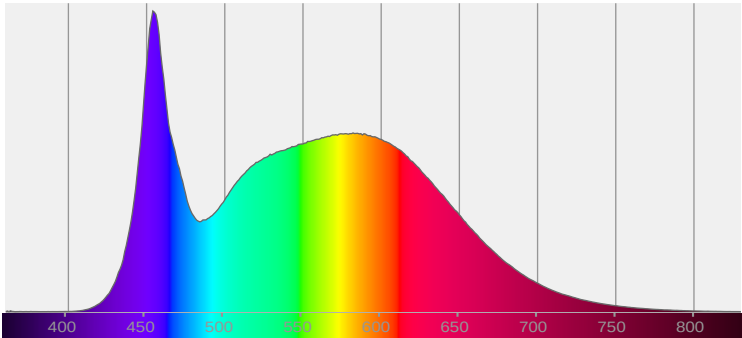


Beam angle **65.2°**

Product name:
HBUD-50K500W-90-PR
Date and time:
3/8/2019 10:52:28 AM

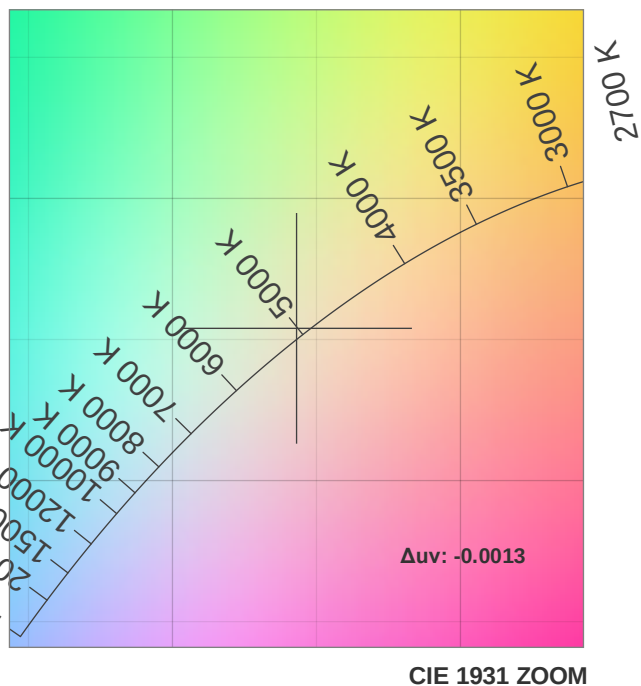
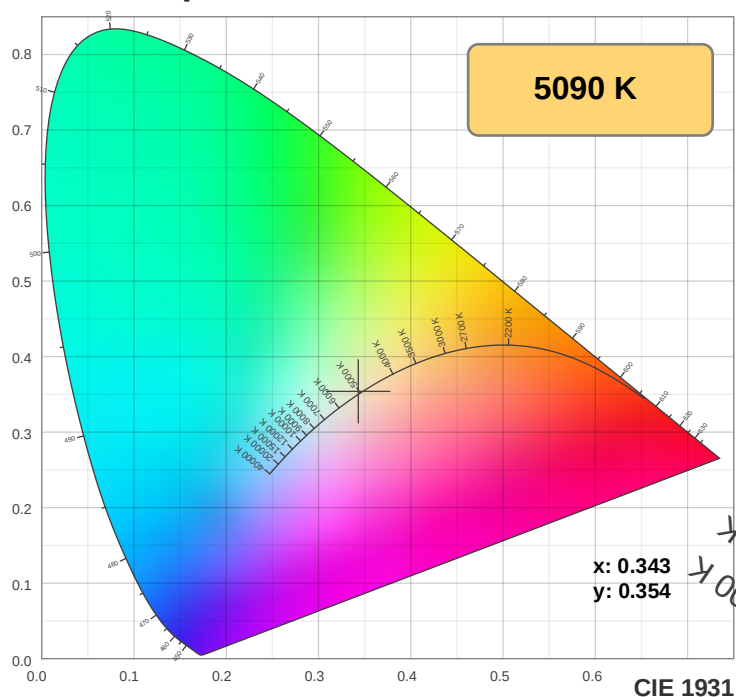
CIE 1931
x: 0.343
y: 0.354

Spectra

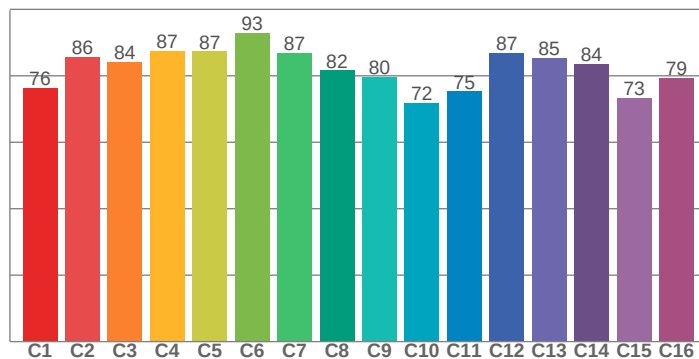


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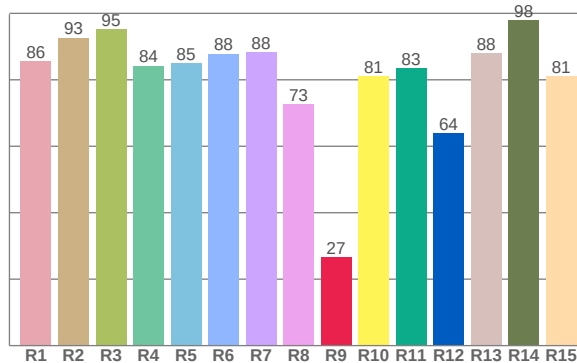
Color Specifications



TM30: 82.7



CRI: 86.4 (R1-R8)



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
85.5	92.7	95.2	84.3	85.0	87.9	88.4	72.6	26.6	81.1	83.4	63.9	88.0	97.8	81.0

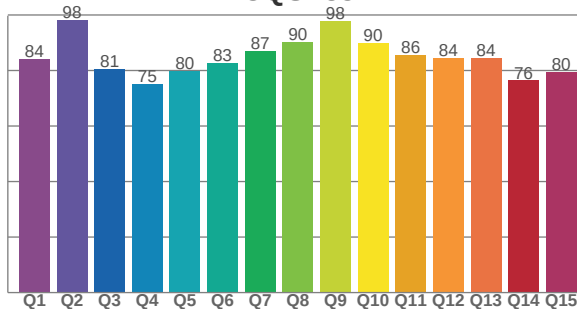
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
76.4	85.8	84.2	87.4	87.4	92.9	86.9	81.6	79.6	71.8	75.3	87.0	85.4	83.5	73.4	79.4

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
84.1	98.3	80.7	75.1	79.9	82.8	87.0	90.4	97.7	90.0	85.7	84.5	84.4	76.4	79.5

CQS: 83.7



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
5090 K	86.4	26.6	82.7	93.5	83.7	0.343	0.354	0.209	0.324	-0.0013



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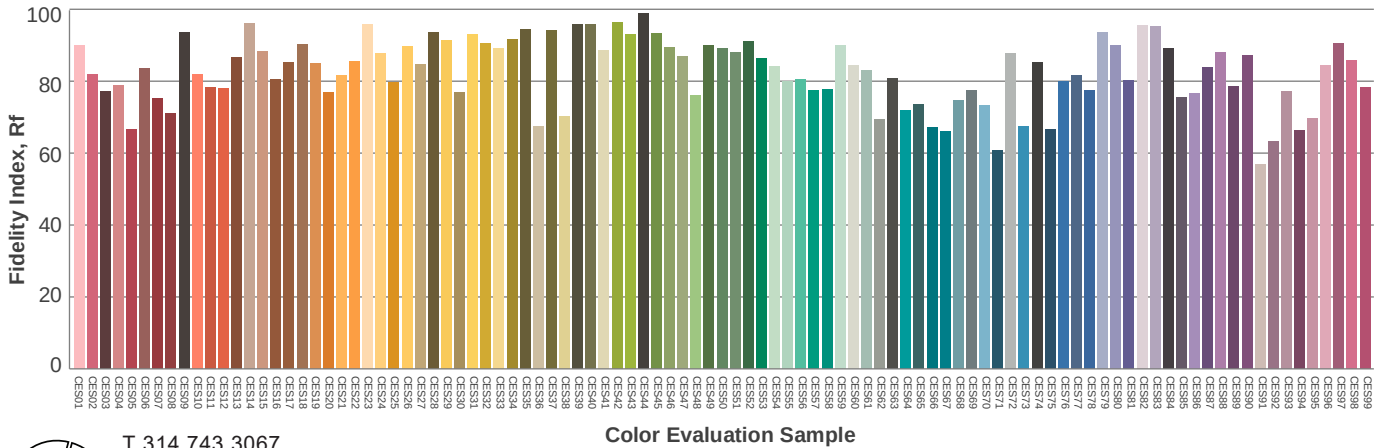
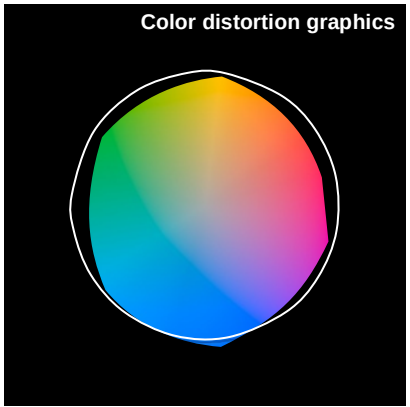
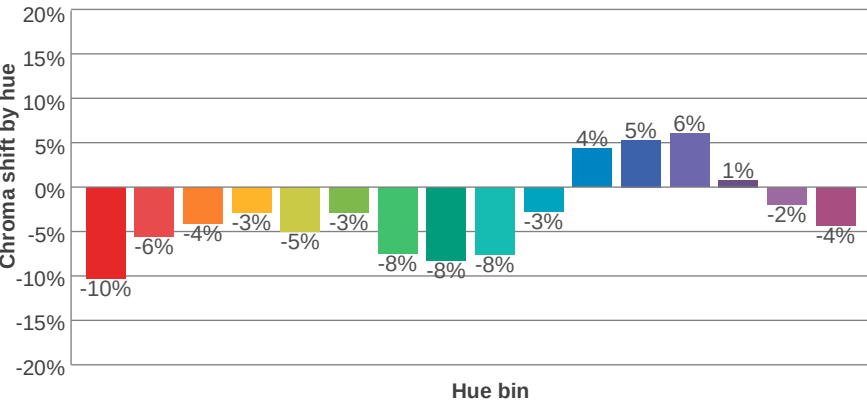
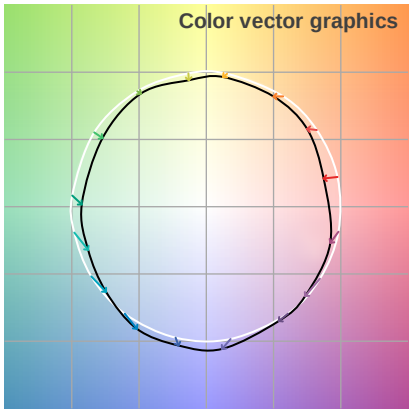
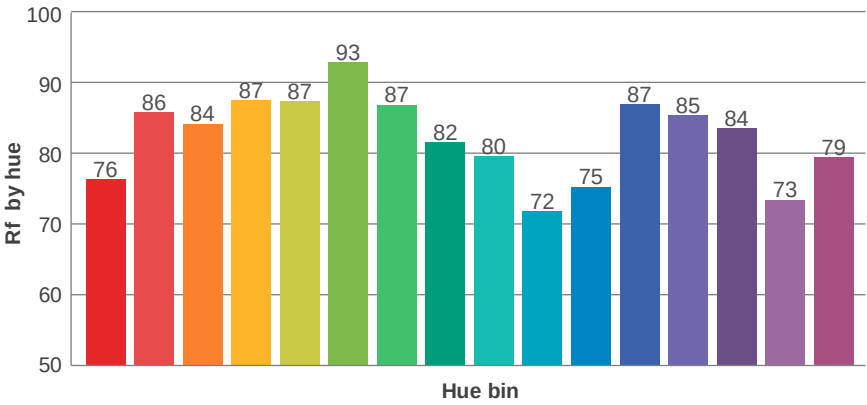
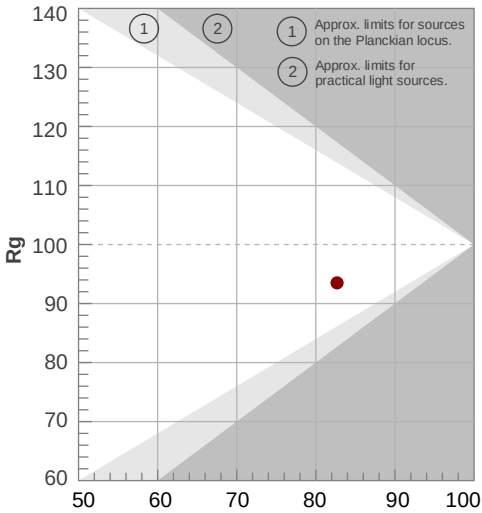
TM30 Report

Rf 82.7

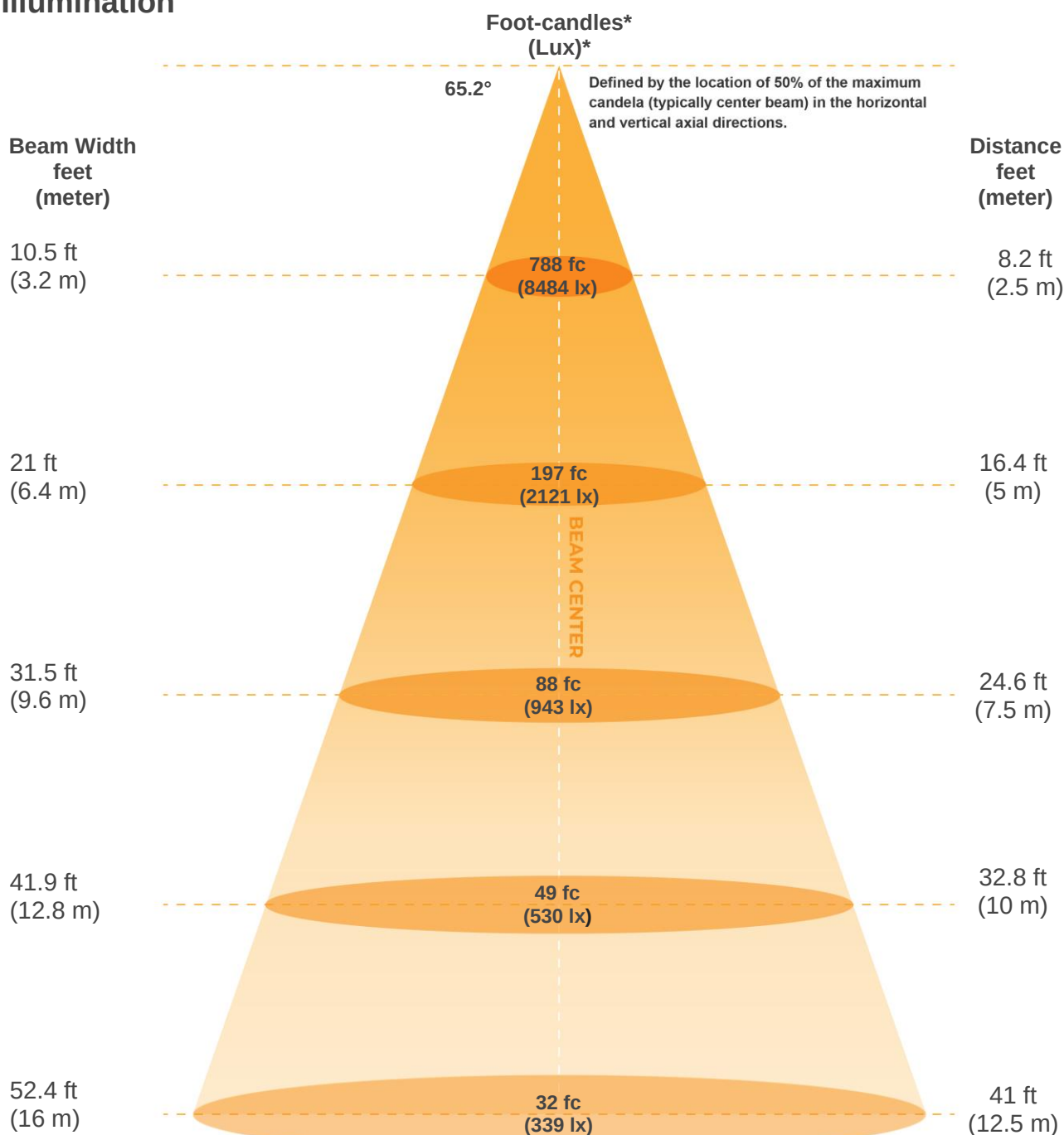
Rg 93.5

Gammut index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	76	-10%	1%
2	86	-6%	5%
3	84	-4%	6%
4	87	-3%	2%
5	87	-5%	1%
6	93	-3%	-1%
7	87	-8%	0%
8	82	-8%	5%
9	80	-8%	15%
10	72	-3%	16%
11	75	4%	14%
12	87	5%	3%
13	85	6%	-8%
14	84	1%	-9%
15	73	-2%	-17%
16	79	-4%	-9%



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
53024lx	13256lx	5892lx	3314lx	2121lx	1473lx	1082lx	828lx	655lx	530lx	438lx	368lx	314lx	271lx	236lx	207lx	183lx	164lx	147lx	133lx
4926.1fcd	1231.5fcd	547.3fcd	307.9fcd	197fcd	136.8fcd	100.5fcd	77fcd	60.8fcd	49.3fcd	40.7fcd	34.2fcd	29.1fcd	25.1fcd	21.9fcd	19.2fcd	17fcd	15.2fcd	13.6fcd	12.3fcd

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
65.2°	90.2°	116.5°	95.7%	90.4%



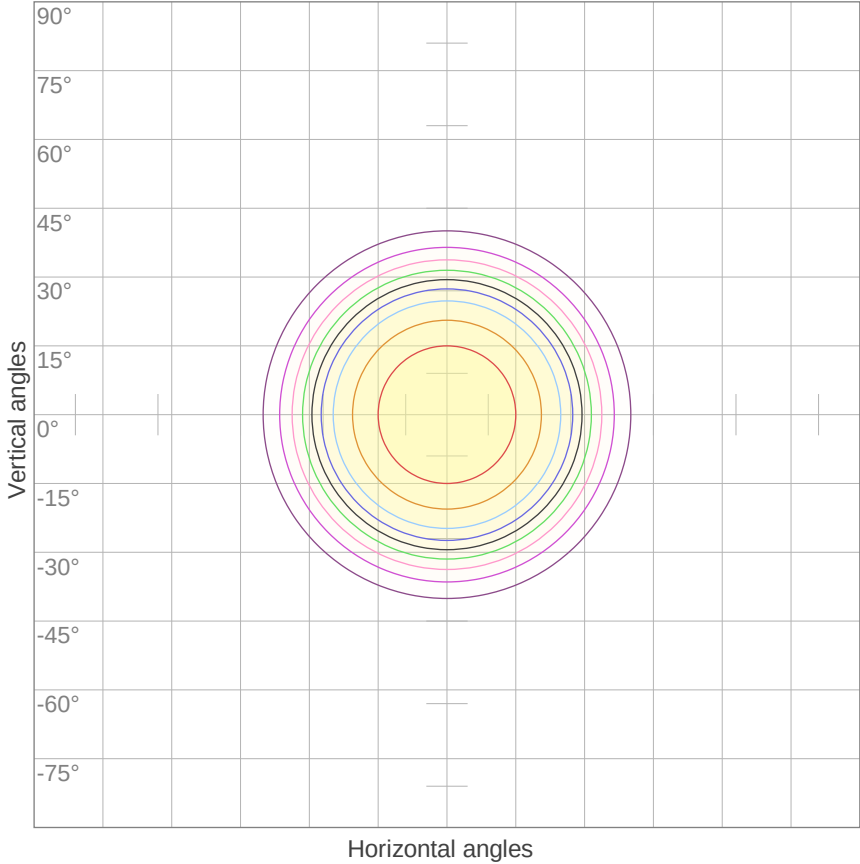
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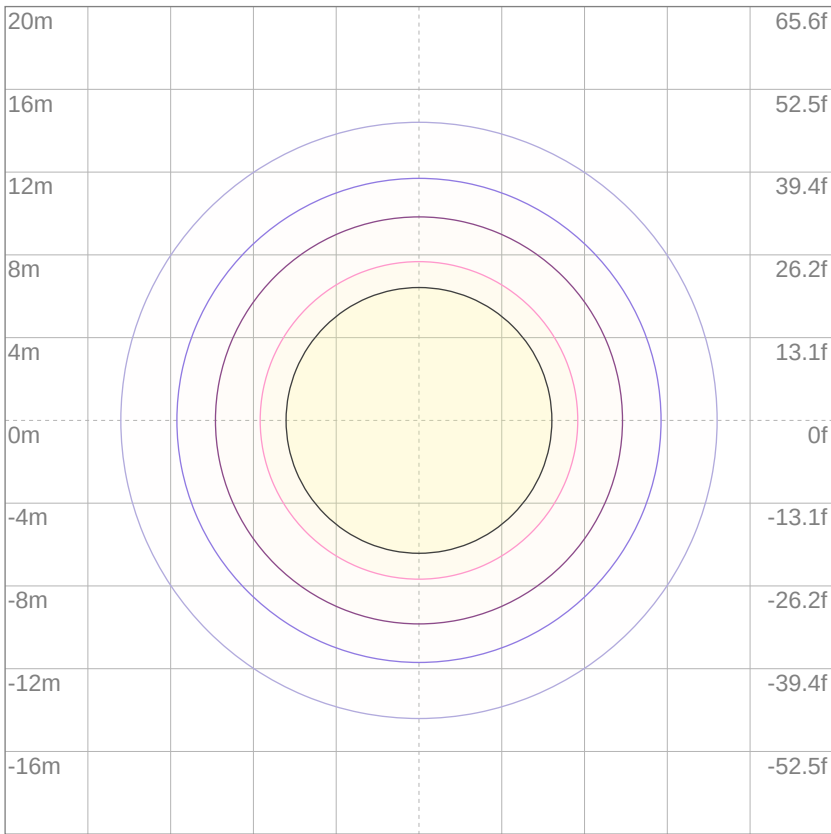
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ISO Diagrams ISO candela diagram



Conditions:
Number of c-planes: 16
Candela at center: 53024 cd

ISO lux diagram



Conditions:
Number of c-planes: 16
Lux at center: 530 lx

Lux distribution on a surface
when lamp is mounted at 10
meters from the surface.



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	33.3	34.1	33.6	34.3	34.6	33.3	34.1	33.6	34.3	34.6
	3H	33.4	34.1	33.7	34.4	34.6	33.4	34.1	33.7	34.4	34.6
	4H	33.5	34.1	33.8	34.4	34.7	33.5	34.1	33.8	34.4	34.7
	6H	33.5	34.1	33.9	34.4	34.7	33.5	34.1	33.9	34.4	34.7
	8H	33.6	34.1	33.9	34.4	34.8	33.6	34.1	33.9	34.4	34.8
	12H	33.6	34.2	34.0	34.5	34.8	33.6	34.2	34.0	34.5	34.8
4H	2H	33.2	33.9	33.6	34.2	34.5	33.2	33.9	33.6	34.2	34.5
	3H	33.4	33.9	33.8	34.3	34.6	33.4	33.9	33.8	34.3	34.6
	4H	33.5	34.0	33.9	34.3	34.7	33.5	34.0	33.9	34.3	34.7
	6H	33.7	34.1	34.1	34.4	34.9	33.7	34.1	34.1	34.4	34.9
	8H	33.7	34.1	34.2	34.5	34.9	33.7	34.1	34.2	34.5	34.9
	12H	33.9	34.2	34.3	34.6	35.1	33.9	34.2	34.3	34.6	35.1
8H	4H	33.5	33.9	33.9	34.3	34.7	33.5	33.9	33.9	34.3	34.7
	6H	33.7	34.0	34.2	34.4	34.9	33.7	34.0	34.2	34.4	34.9
	8H	33.9	34.1	34.4	34.6	35.1	33.9	34.1	34.4	34.6	35.1
	12H	34.1	34.3	34.6	34.8	35.3	34.1	34.3	34.6	34.8	35.3
12H	4H	33.5	33.8	33.9	34.2	34.7	33.5	33.8	33.9	34.2	34.7
	6H	33.7	34.0	34.2	34.4	34.9	33.7	34.0	34.2	34.4	34.9
	8H	33.9	34.1	34.4	34.6	35.1	33.9	34.1	34.4	34.6	35.1
Variation of the observer position for the luminaire distance S											
S = 1.0H		+3.0 / -2.7					+3.0 / -2.7				
S = 1.5H		+5.4 / -3.2					+5.4 / -3.2				
S = 2.0H		+7.3 / -3.8					+7.3 / -3.8				
Standard table		BK01					BK01				
Correction summand		15.8					15.8				
Corrected glare indices referring to 58392 lm total luminous flux											



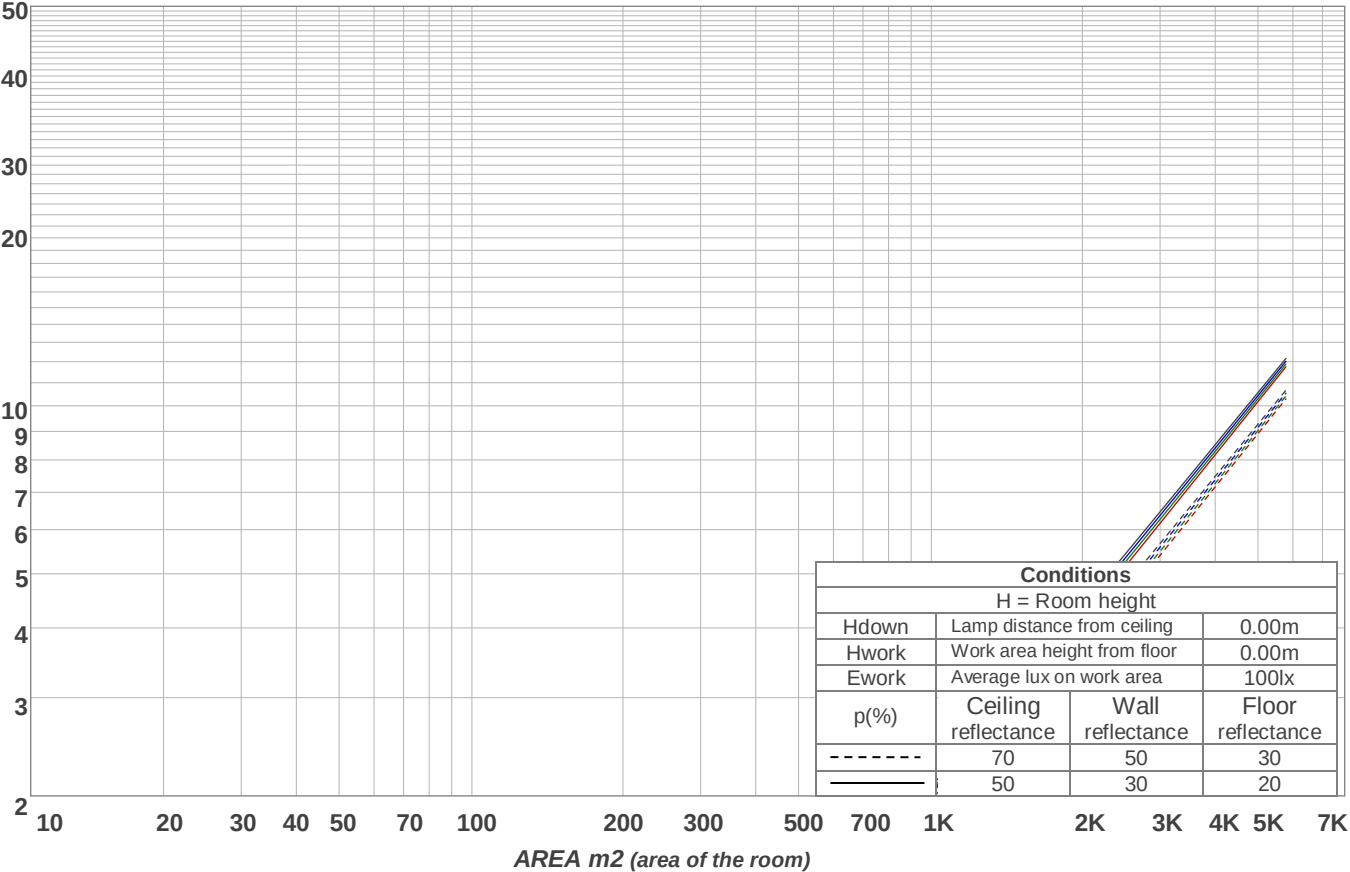
Light Planning

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	119	119	119	119	116	116	116	116	110	110	110	105	105	105	101	101	101	98
1	112	109	107	104	110	107	105	102	103	101	99	99	97	96	95	94	93	91
2	106	101	96	93	104	99	95	91	95	92	89	92	89	87	89	87	85	83
3	100	93	88	83	98	92	87	83	89	85	81	86	83	80	84	81	78	76
4	95	86	80	76	93	85	80	75	83	78	74	81	76	73	78	75	72	70
5	89	80	74	69	88	79	73	69	77	72	68	75	71	67	74	70	67	65
6	85	75	68	64	83	74	68	64	72	67	63	71	66	62	69	65	62	60
7	80	70	64	59	78	69	63	59	68	62	58	66	62	58	65	61	58	56
8	76	66	59	55	74	65	59	55	64	58	54	62	58	54	61	57	54	52
9	72	62	55	51	71	61	55	51	60	54	51	59	54	50	58	53	50	49
10	68	58	52	48	67	57	52	48	57	51	47	56	51	47	55	50	47	46

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°
4945 lm	13619 lm	18106 lm	13221 lm	4433 lm	1548 lm	855 lm	485 lm	275 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
202 lm	145 lm	126 lm	113 lm	103 lm	85.3 lm	65.1 lm	46.1 lm	18.6 lm

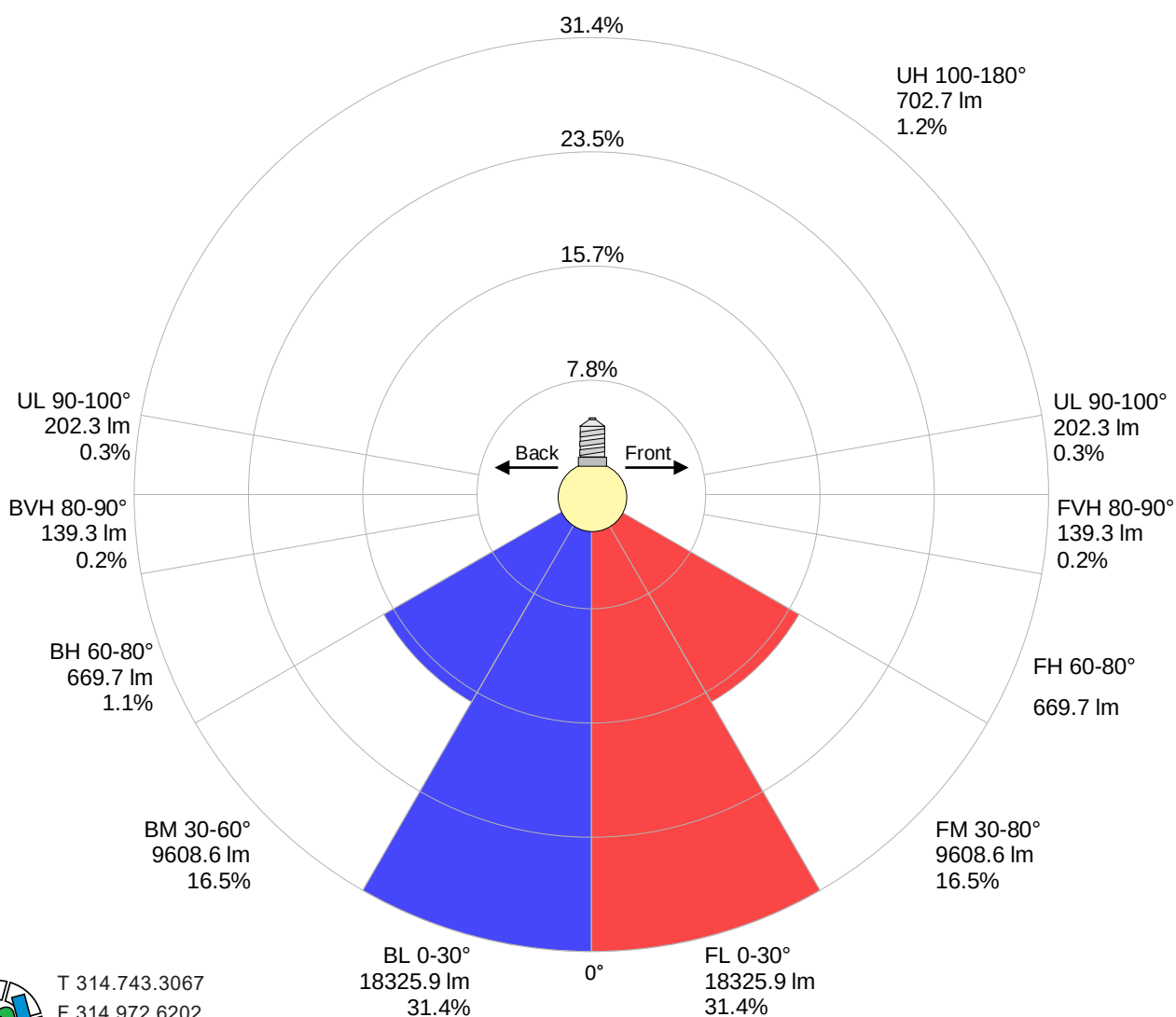


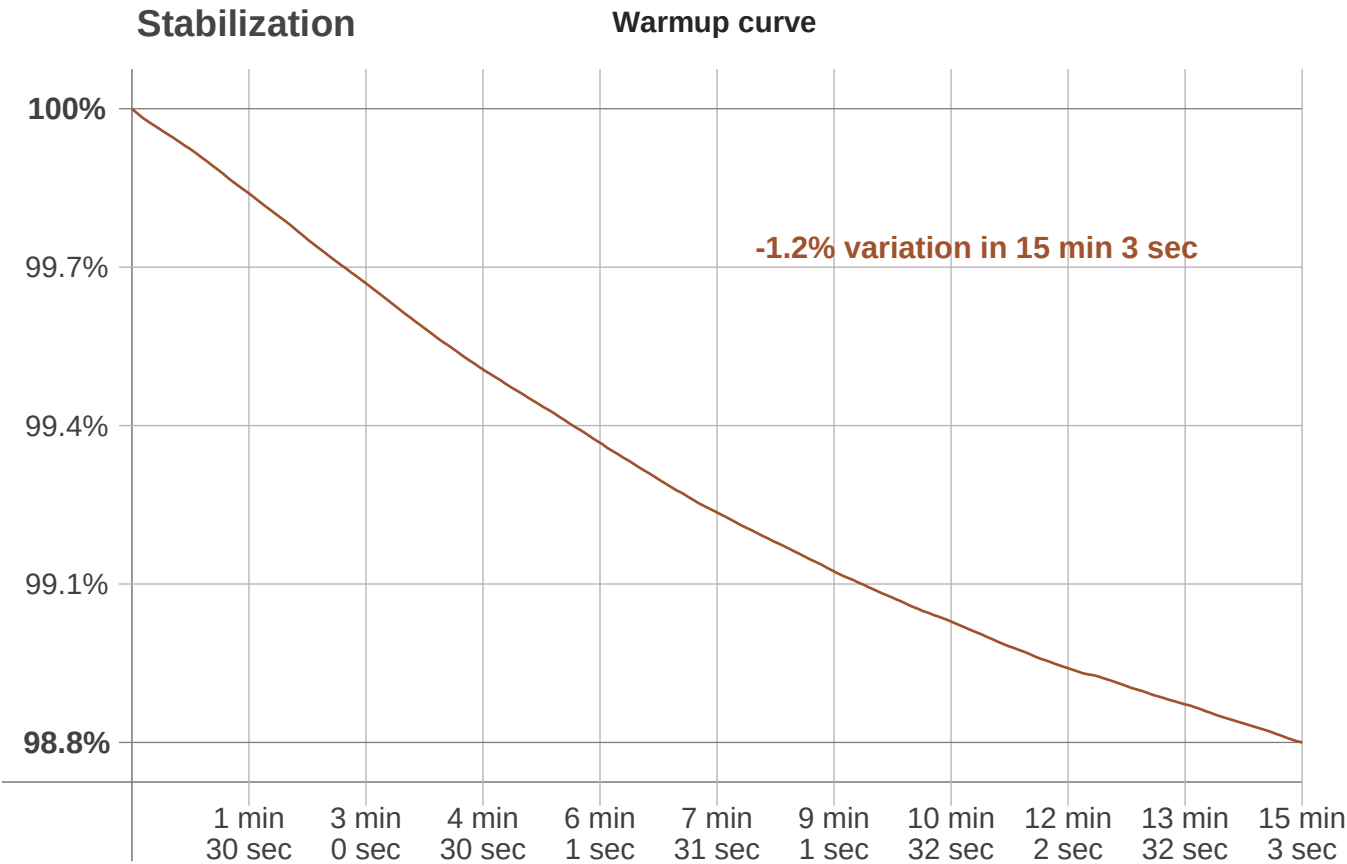
Road Report

LCS table

BUG rating:	B5 U4 G2	
Forward light	Lumens	Lumens %
Low(0-30):	18325.9	31.4%
Medium(30-60):	9608.6	16.5%
High(60-80):	669.7	1.1%
Very high(80-90):	139.3	0.2%
Back light		
Low(0-30):	18325.9	31.4%
Medium(30-60):	9608.6	16.5%
High(60-80):	669.7	1.1%
Very high(80-90):	139.3	0.2%
Uplight		
Low(90-100):	202.3	0.3%
High(100-180):	702.7	1.2%

LCS graph





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
5048 K	+42 K	5090 K

Output change		
Output start	Output change	Output end
59071 lm	-679 lm	58392 lm

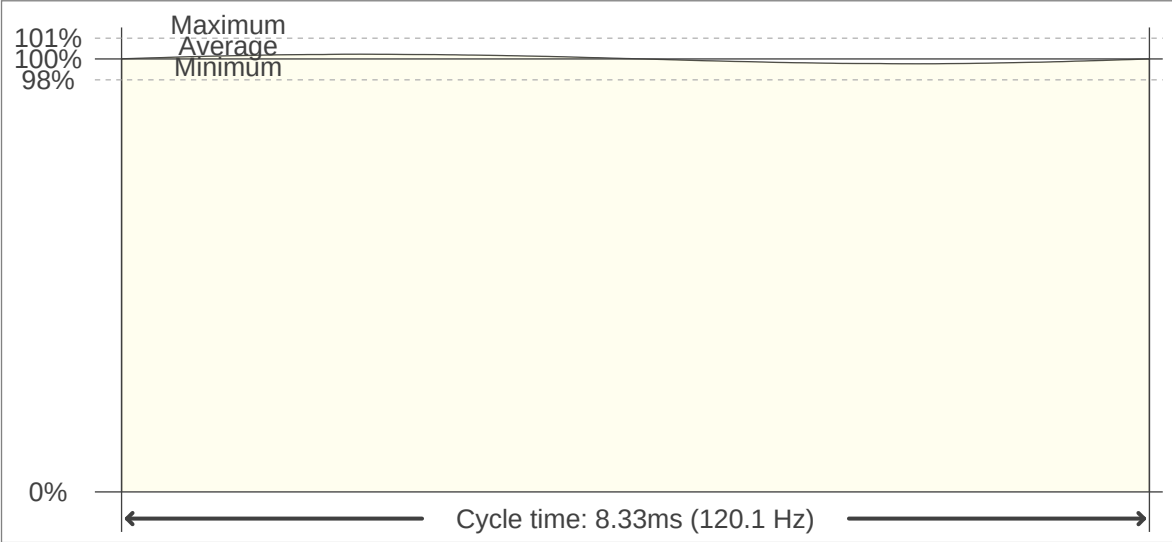


Flicker Specifications

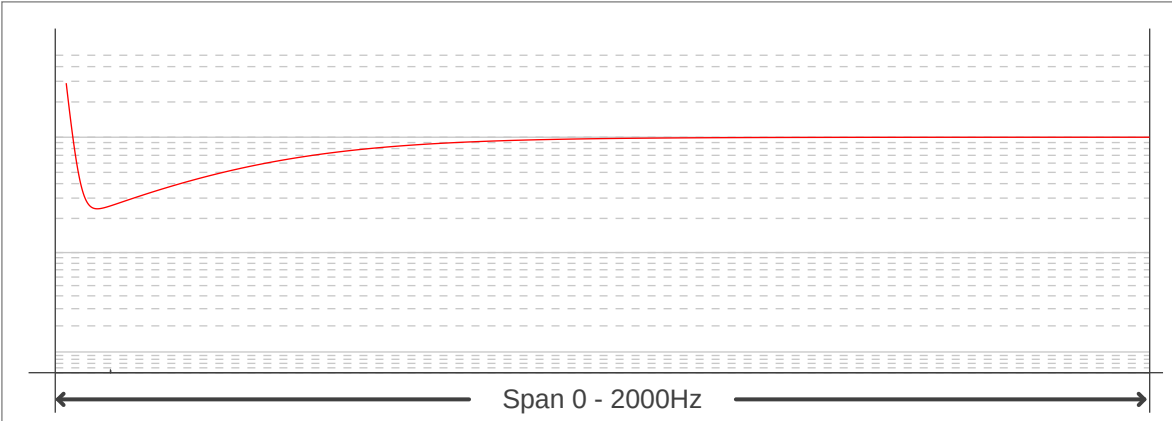
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



Flicker results:

Flicker frequency:	120.12 Hz
Flicker index:	0
Flicker percentage:	1.12 %
SVM: (Visual flicker)	0.04

Flicker conditions:

Sample rate:	40000 samples/second
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