

Light efficiency:



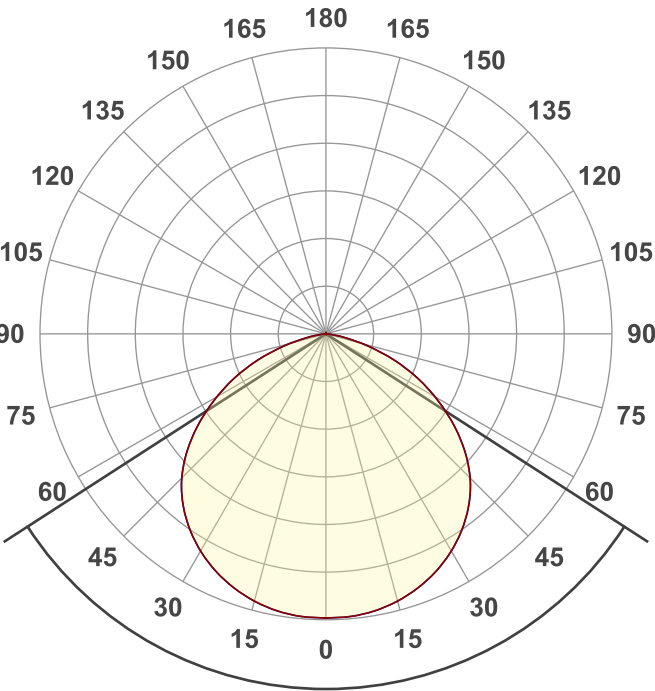
Light quality:



Color temperature:



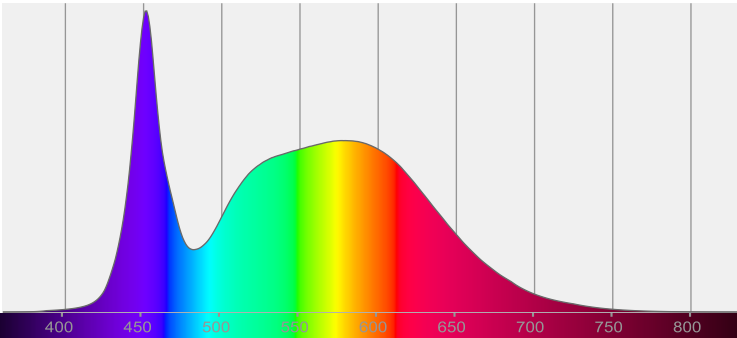
Output: 40875 lm
Peak: 14303 cd
Power: 310.6 W
PF: 1.0



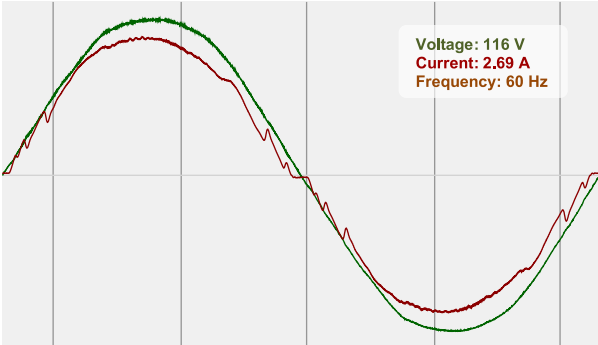
Product name:
HBUD-50K300W
Date and time:
3/4/2019 2:19:49 PM



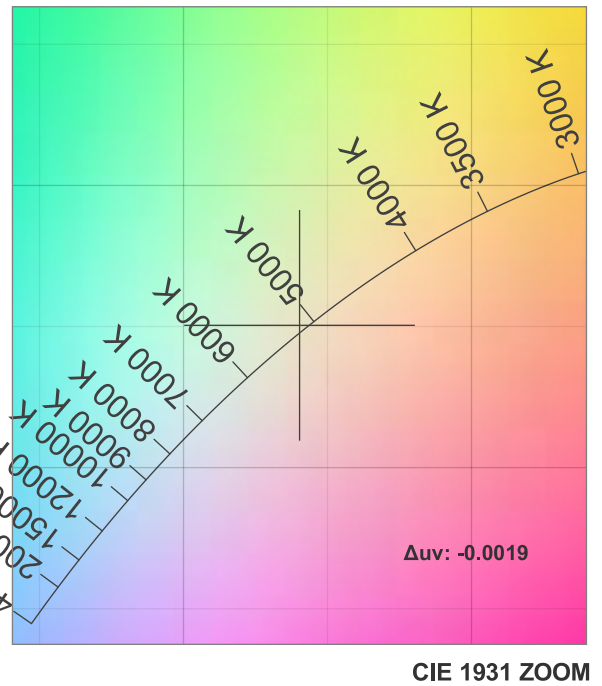
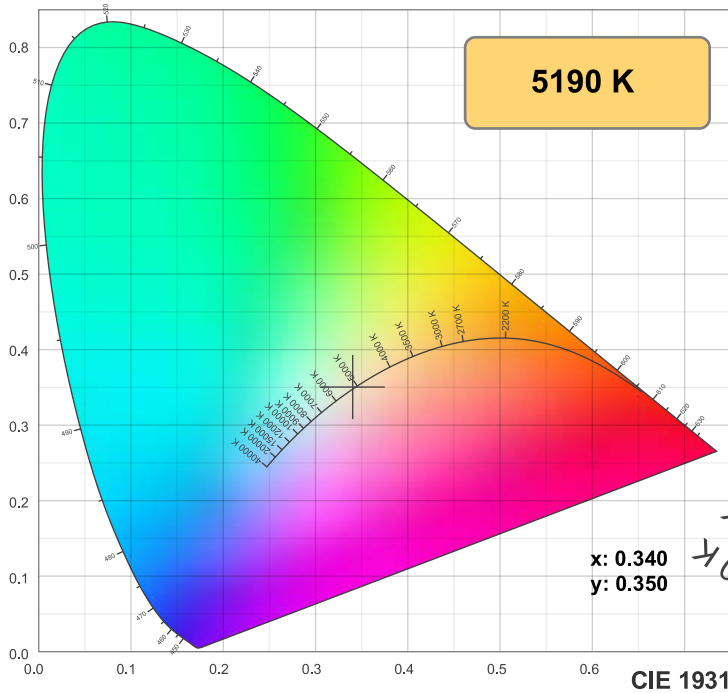
Spectra



Power

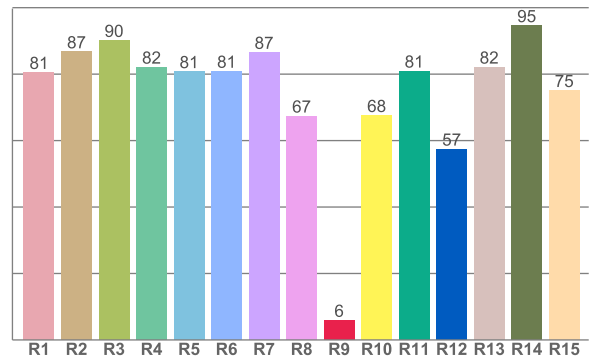
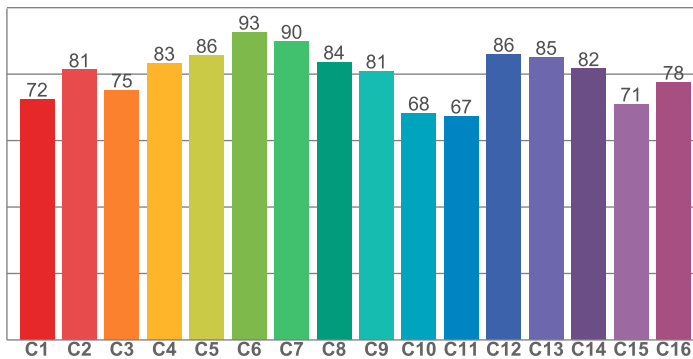


Color details



TM30: 79.9

CRI: 81.9 (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
80.5	86.8	90.2	82.1	80.8	80.9	86.6	67.4	5.9	67.6	81.0	57.5	82.1	94.6	75.1

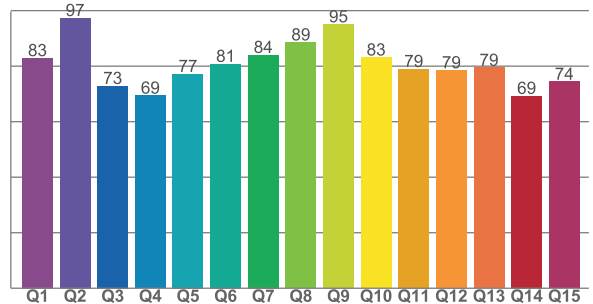
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
72.5	81.3	75.2	83.3	85.6	92.6	89.9	83.7	80.9	68.3	67.4	86.0	85.0	81.6	71.0	77.5

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
82.9	97.4	72.9	69.4	77.2	80.9	84.1	88.6	95.1	83.2	79.0	78.6	79.4	69.3	74.4

CQS: 79.2



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
5190 K	81.9	5.9	79.9	94.8	79.2	0.340	0.350	0.209	0.322	-0.0019



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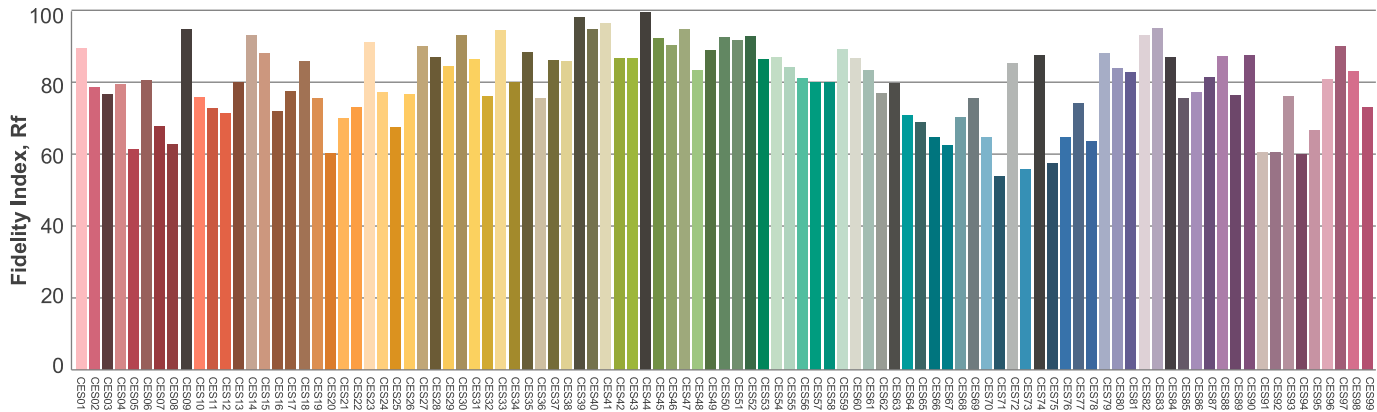
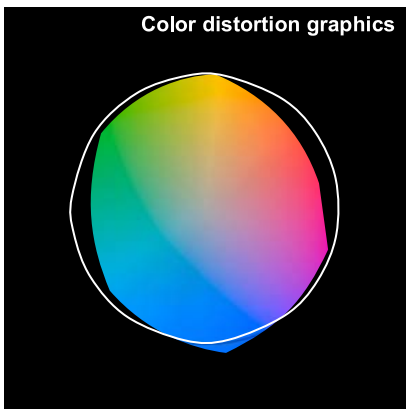
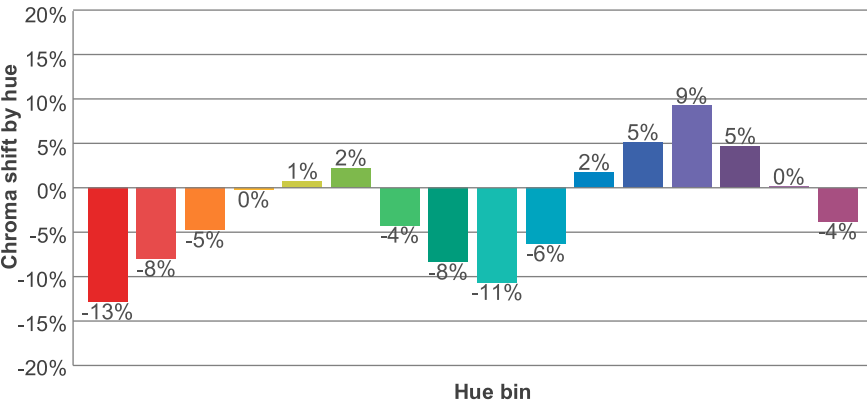
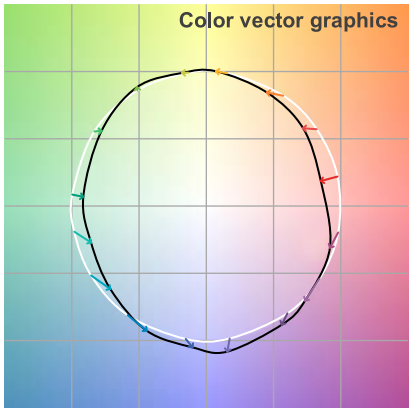
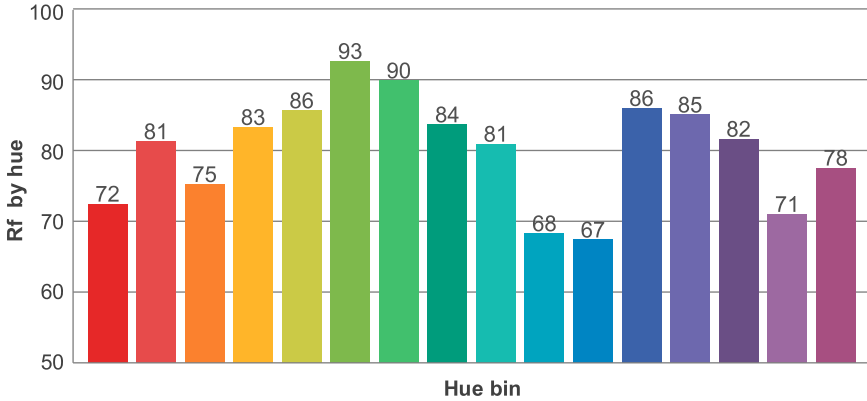
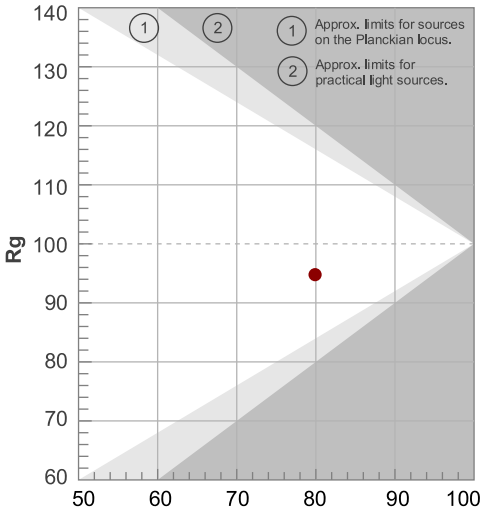
TM30 details

Rf 79.9

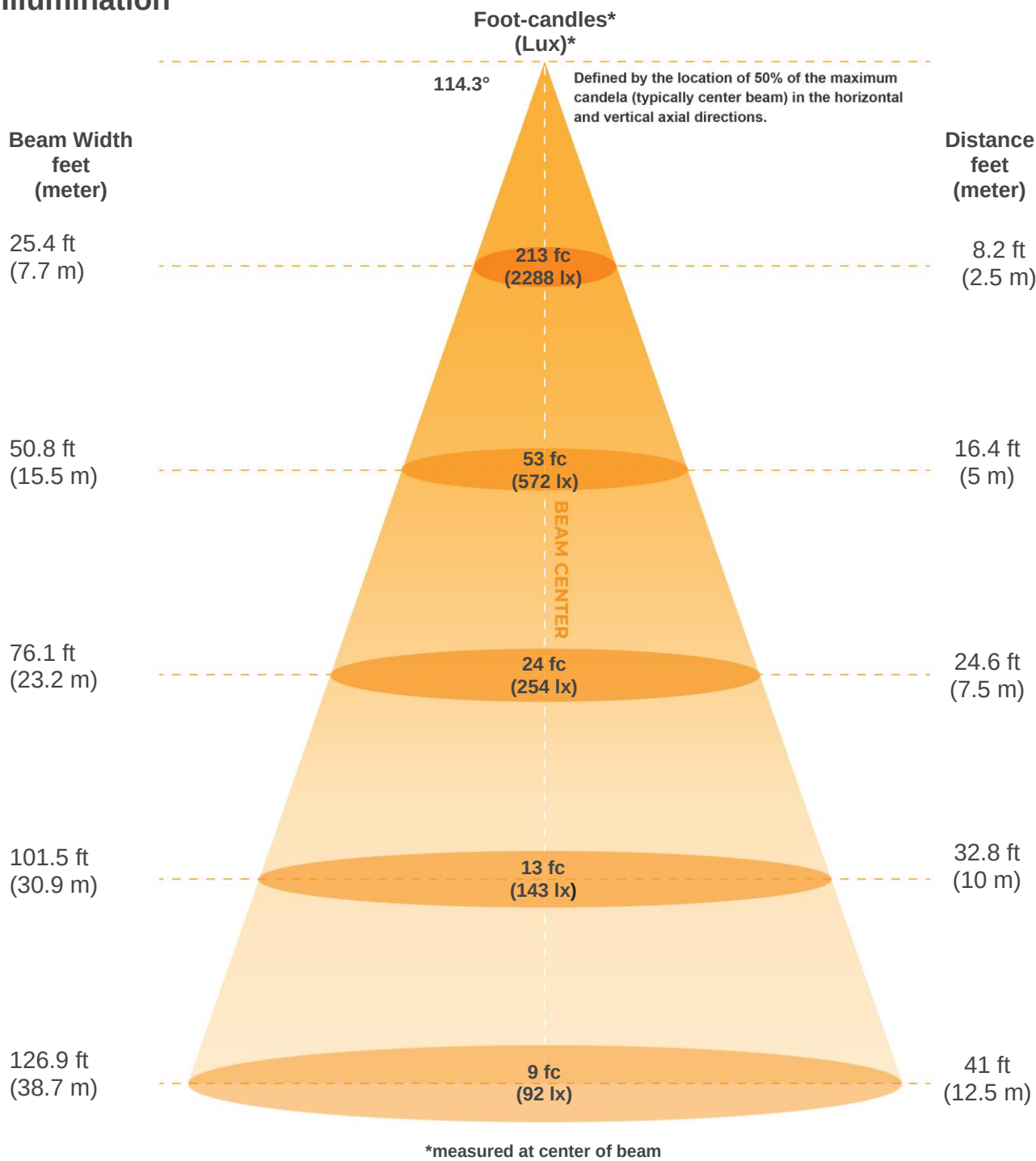
Rg 94.8

Gammut index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	72	-13%	-1%
2	81	-8%	6%
3	75	-5%	11%
4	83	0%	8%
5	86	1%	5%
6	93	2%	-1%
7	90	-4%	-3%
8	84	-8%	0%
9	81	-11%	10%
10	68	-6%	16%
11	67	2%	18%
12	86	5%	6%
13	85	9%	-4%
14	82	5%	-8%
15	71	0%	-20%
16	78	-4%	-12%



Illumination



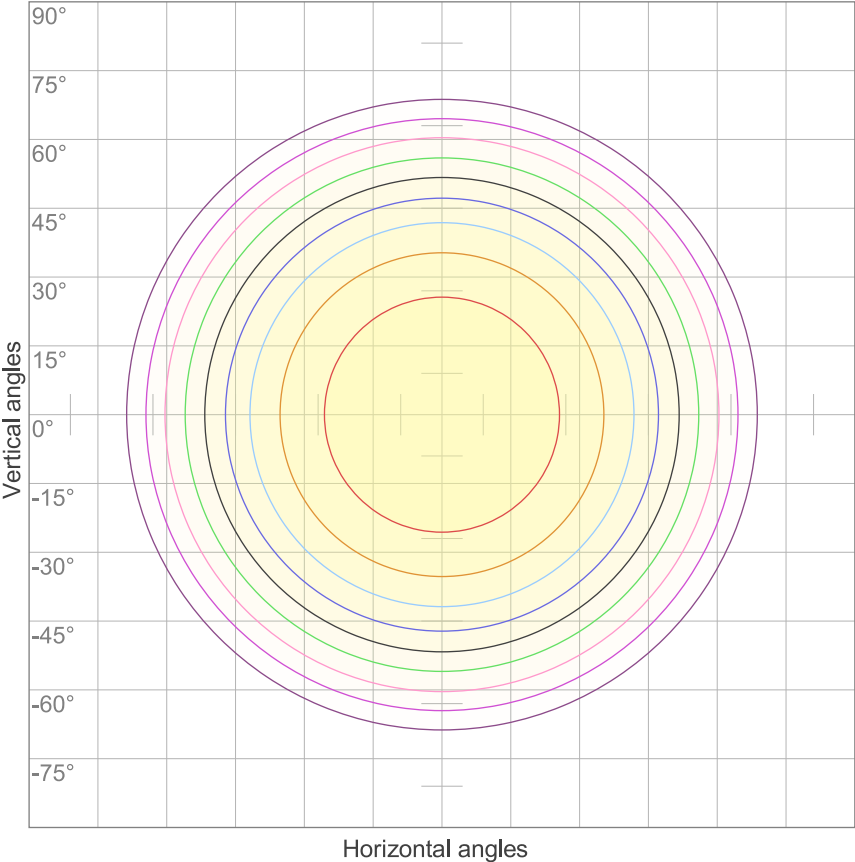
Beam intensities from 1-20m

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
14303lx	3576lx	1589lx	894lx	572lx	397lx	292lx	223lx	177lx	143lx	118lx	99lx	85lx	73lx	64lx	56lx	49lx	44lx	40lx	36lx
1328.8fcd	332.2fcd	147.6fcd	83fcd	53.2fcd	36.9fcd	27.1fcd	20.8fcd	16.4fcd	13.3fcd	11fcd	9.2fcd	7.9fcd	6.8fcd	5.9fcd	5.2fcd	4.6fcd	4.1fcd	3.7fcd	3.3fcd

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
114.3°	153.8°	165.6°	82.3%	55.8%



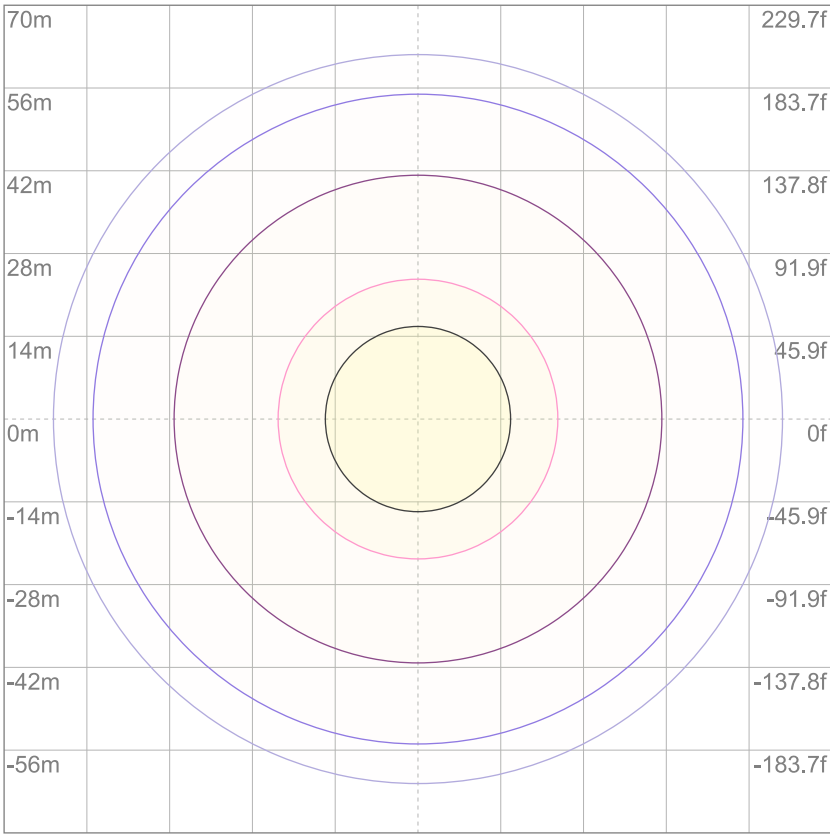
ISO Diagrams ISO candela diagram



10%	1430 cd
20%	2861 cd
30%	4291 cd
40%	5721 cd
50%	7152 cd
60%	8582 cd
70%	10012 cd
80%	11442 cd
90%	12873 cd

Conditions:
Number of c-planes: 16
Candela at center: 14303 cd

ISO lux diagram



3%	4.29 lx
5%	7.15 lx
10%	14.3 lx
30%	42.9 lx
50%	71.5 lx

Conditions:
Number of c-planes: 16
Lux at center: 143 lx

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

Mounting height: 10 meters (33 feet)



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	39.3	40.6	39.6	40.8	41.1	39.3	40.6	39.6	40.8	41.1
	3H	40.5	41.7	40.9	42.0	42.2	40.5	41.7	40.9	42.0	42.2
	4H	40.9	42.0	41.2	42.2	42.5	40.9	42.0	41.2	42.2	42.5
	6H	41.0	42.0	41.4	42.3	42.6	41.0	42.0	41.4	42.3	42.6
	8H	41.0	42.0	41.4	42.3	42.6	41.0	42.0	41.4	42.3	42.6
	12H	41.0	41.9	41.4	42.2	42.6	41.0	41.9	41.4	42.2	42.6
4H	2H	39.9	41.0	40.2	41.3	41.6	39.9	41.0	40.2	41.3	41.6
	3H	41.3	42.2	41.7	42.5	42.9	41.3	42.2	41.7	42.5	42.9
	4H	41.7	42.5	42.1	42.9	43.2	41.7	42.5	42.1	42.9	43.2
	6H	41.9	42.6	42.3	43.0	43.4	41.9	42.6	42.3	43.0	43.4
	8H	41.9	42.6	42.4	43.0	43.4	41.9	42.6	42.4	43.0	43.4
	12H	41.9	42.5	42.4	42.9	43.4	41.9	42.5	42.4	42.9	43.4
8H	4H	41.8	42.5	42.3	42.9	43.3	41.8	42.5	42.3	42.9	43.3
	6H	42.1	42.6	42.6	43.1	43.5	42.1	42.6	42.6	43.1	43.5
	8H	42.1	42.6	42.6	43.1	43.5	42.1	42.6	42.6	43.1	43.5
	12H	42.1	42.5	42.6	43.0	43.5	42.1	42.5	42.6	43.0	43.5
12H	4H	41.8	42.4	42.3	42.8	43.3	41.8	42.4	42.3	42.8	43.3
	6H	42.1	42.6	42.6	43.0	43.5	42.1	42.6	42.6	43.0	43.5
	8H	42.1	42.5	42.6	43.0	43.5	42.1	42.5	42.6	43.0	43.5
Variation of the observer position for the luminaire distance S											
S = 1.0H		+0.1 / -0.2					+0.1 / -0.2				
S = 1.5H		+0.3 / -0.6					+0.3 / -0.6				
S = 2.0H		+0.7 / -1.1					+0.7 / -1.1				
Standard table		BK04					BK04				
Correction summand		24.7					24.7				
Corrected glare indices referring to 40875 lm total luminous flux											



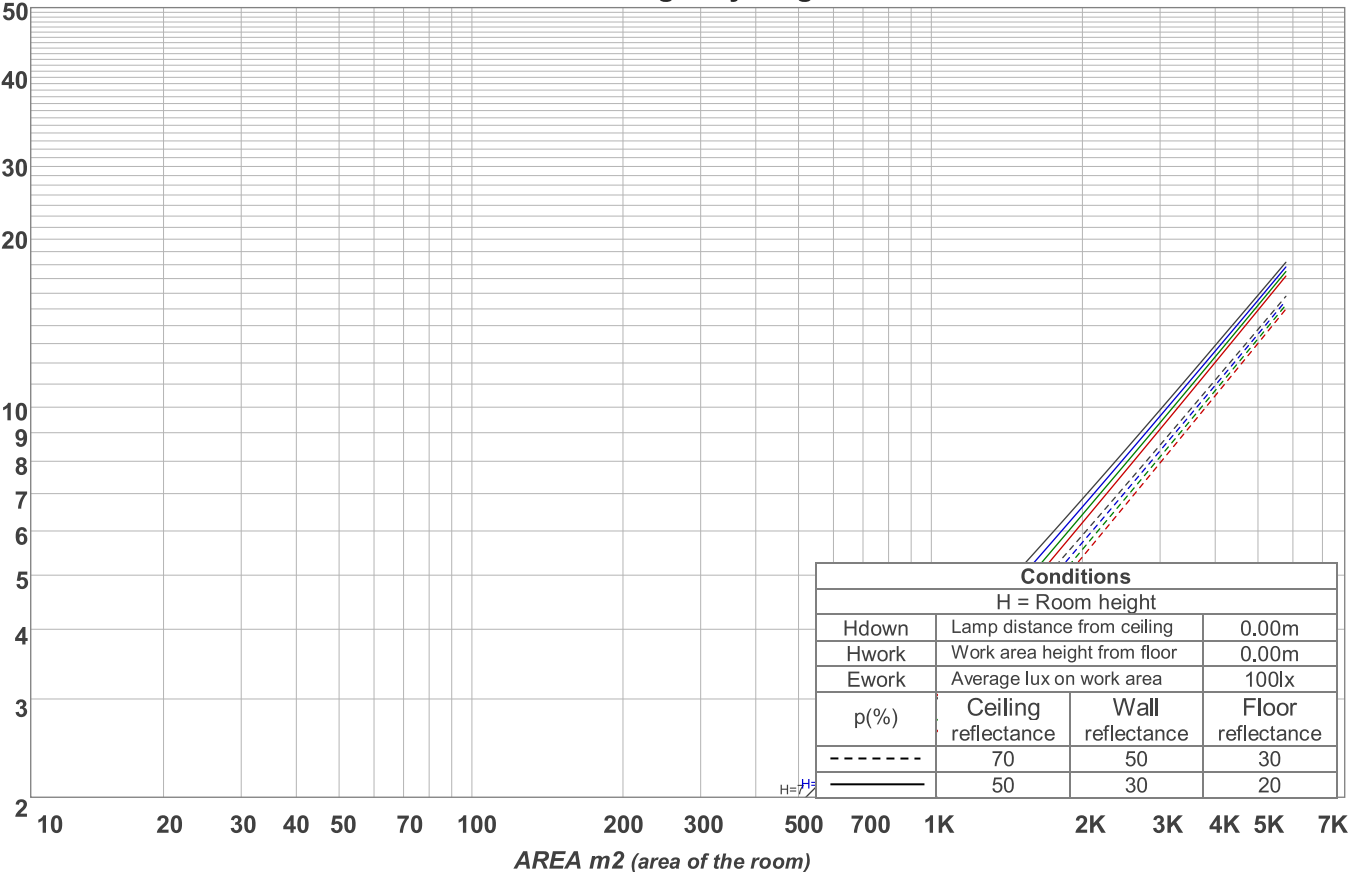
Light planning

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	111	111	111	106	106	106	102	102	102	100
1	109	105	101	97	107	103	99	96	98	95	93	95	92	90	91	89	87	85
2	100	92	85	80	97	90	84	79	86	81	77	83	79	75	80	77	74	71
3	91	81	73	67	89	79	72	66	76	70	65	73	68	64	71	66	63	60
4	83	72	63	57	81	70	62	56	68	61	55	65	59	55	63	58	54	52
5	77	64	55	49	75	63	55	48	61	53	48	59	52	47	57	51	47	45
6	71	58	49	42	69	57	48	42	55	47	42	53	46	41	51	46	41	39
7	66	52	43	37	64	51	43	37	50	42	37	48	42	37	47	41	36	34
8	61	48	39	33	59	47	39	33	45	38	33	44	38	33	43	37	32	31
9	57	44	35	30	55	43	35	30	42	35	30	41	34	29	40	34	29	27
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	25

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°
1358 lm	3931 lm	6064 lm	7480 lm	7880 lm	6919 lm	4813 lm	2049 lm	256 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
11.5 lm	13.6 lm	17.2 lm	18.8 lm	19.9 lm	17.8 lm	14.6 lm	9.56 lm	3.31 lm

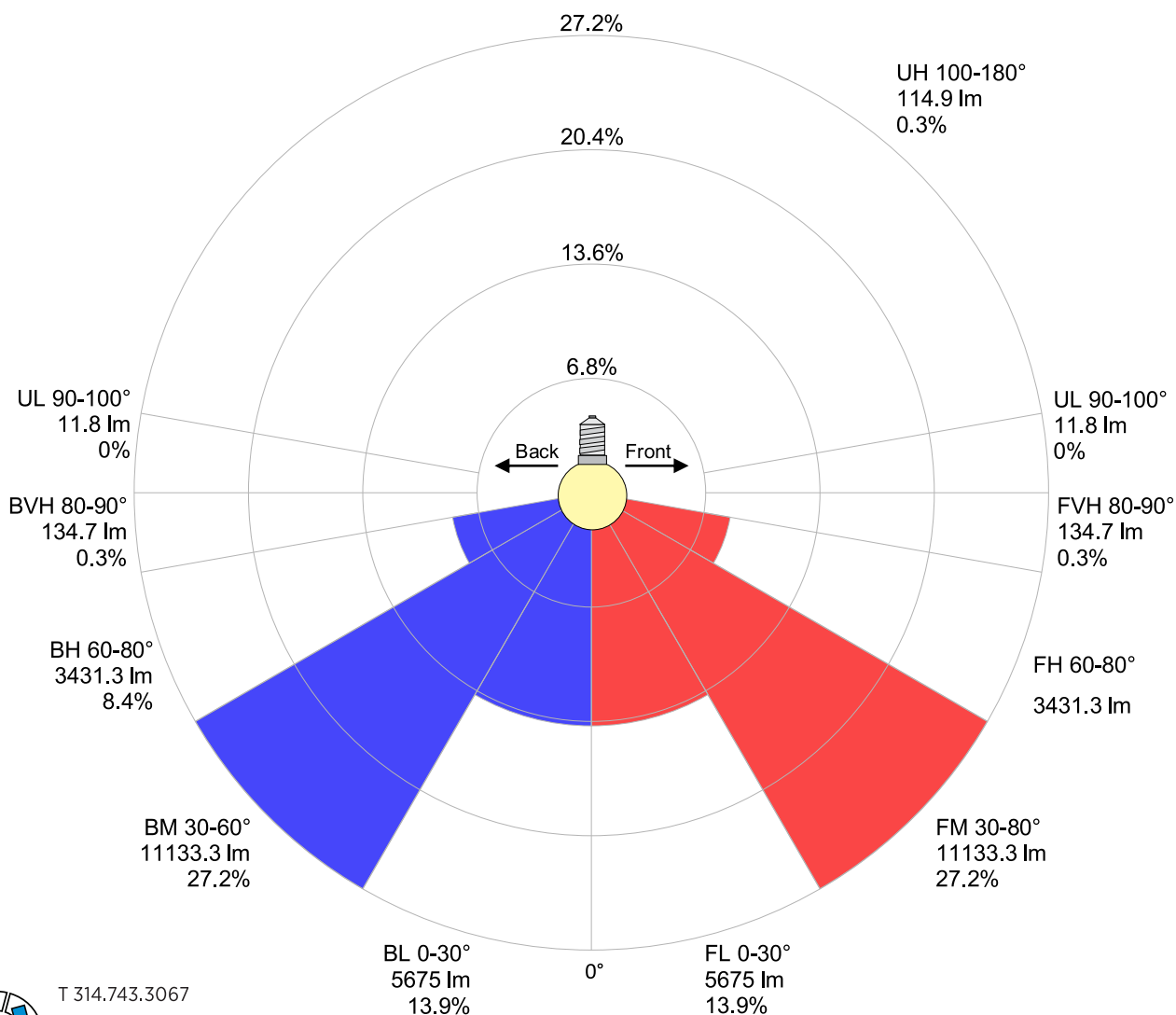


Road report

LCS table

BUG rating:	B5 U3 G2	
Forward light	Lumens	Lumens %
Low(0-30):	5675	13.9%
Medium(30-60):	11133.3	27.2%
High(60-80):	3431.3	8.4%
Very high(80-90):	134.7	0.3%
Back light		
Low(0-30):	5675	13.9%
Medium(30-60):	11133.3	27.2%
High(60-80):	3431.3	8.4%
Very high(80-90):	134.7	0.3%
Uplight		
Low(90-100):	11.8	0%
High(100-180):	114.9	0.3%

LCS graph



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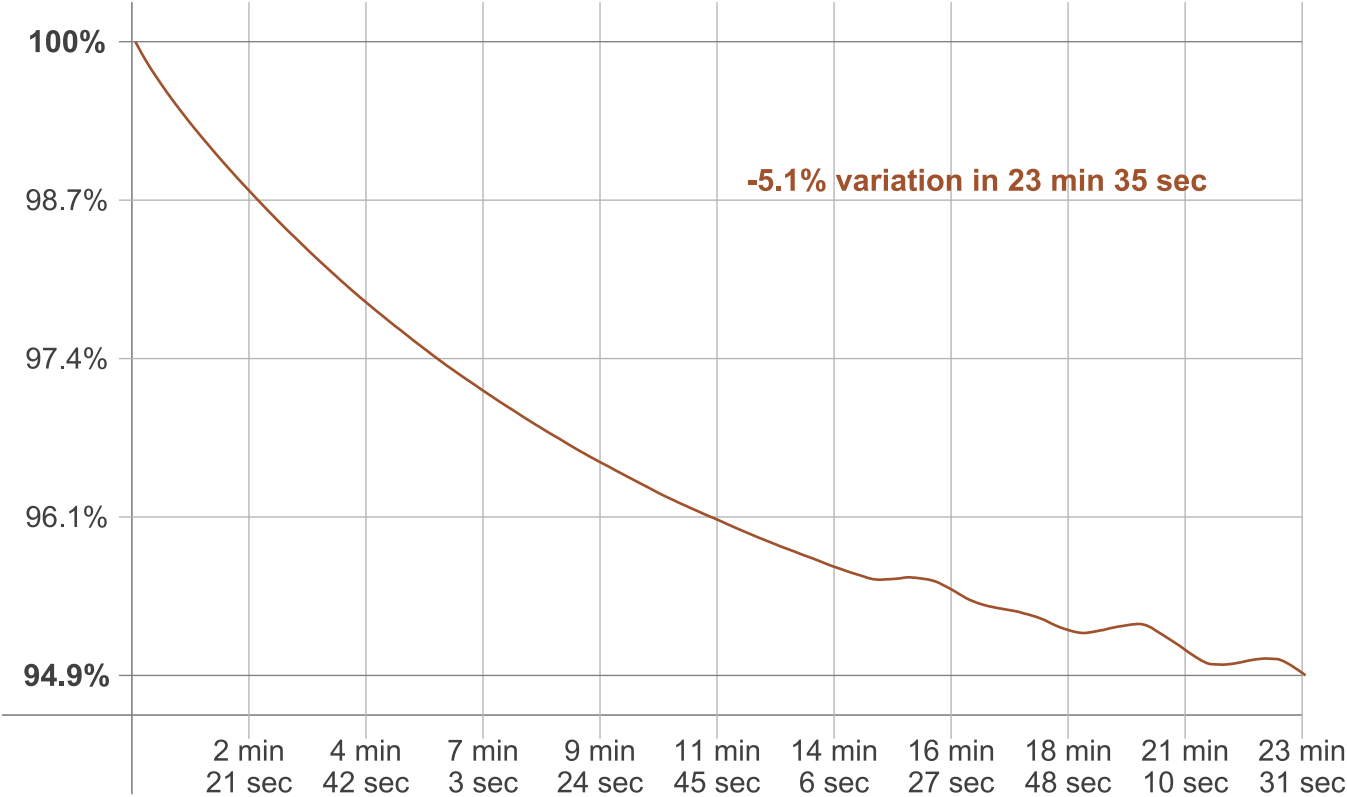
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Stabilization

Warmup curve



Warmup result

Warmup time:	23 min 35 sec
Warmup variation	-5.2%

Warmup conditions

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

Color temperature change

CCT start	CCT change	CCT end
5060 K	+130 K	5190 K

Output change

Output start	Output change	Output end
42996 lm	-2121 lm	40875 lm

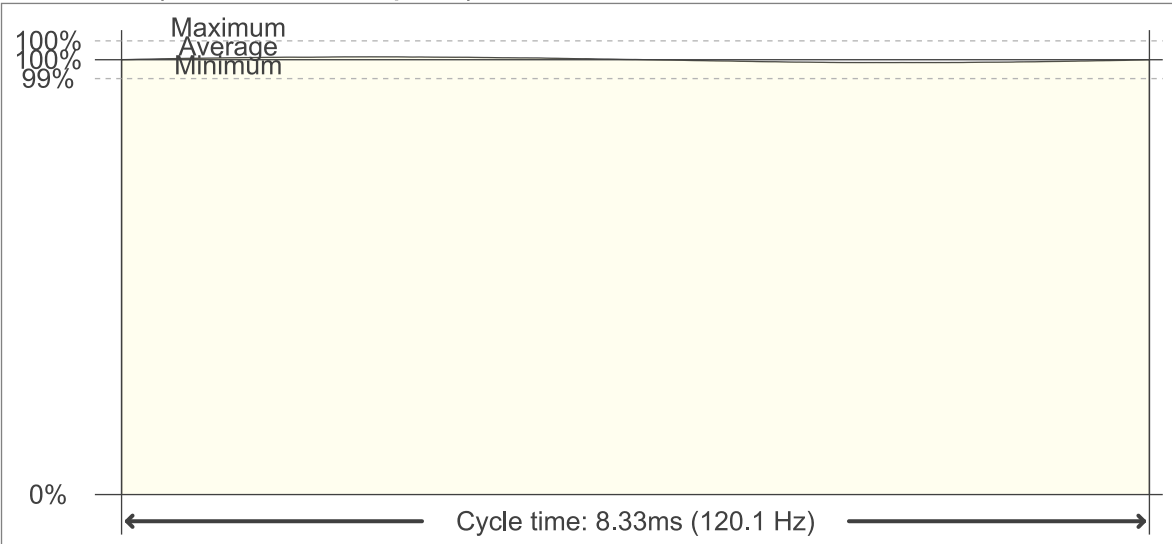


Flicker

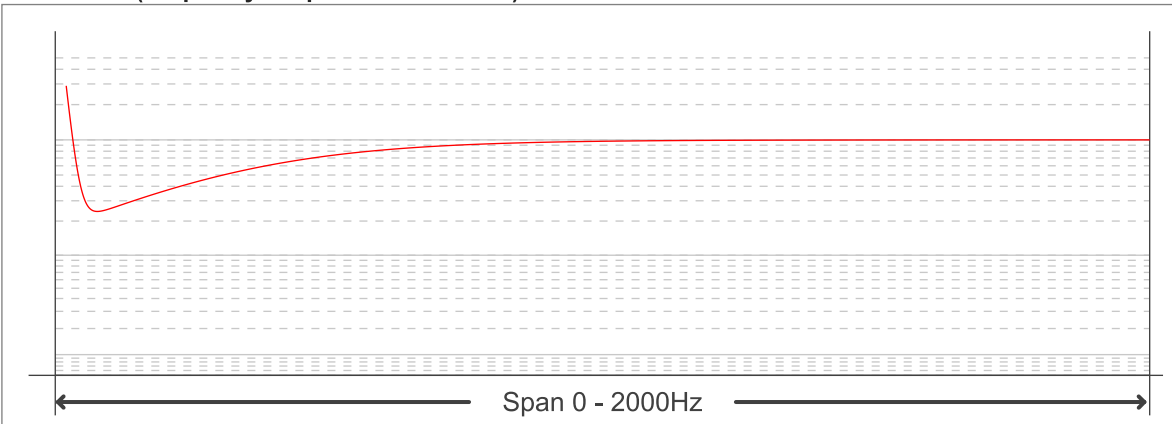
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



Flicker results:

Flicker frequency:	120.12 Hz
Flicker index:	0
Flicker percentage:	0.68 %
SVM: (Visual flicker)	0.02

Flicker conditions:

Sample rate:	40000 samples/second
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