

Light efficiency:



Light quality:



Color temperature:

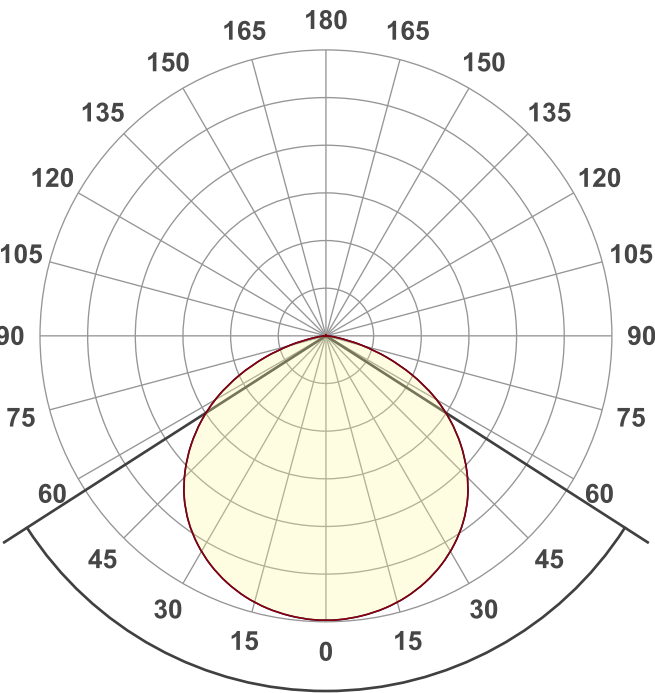


Output: 13891 lm

Peak: 4873 cd

Power: 102.5 W

PF: 1.0

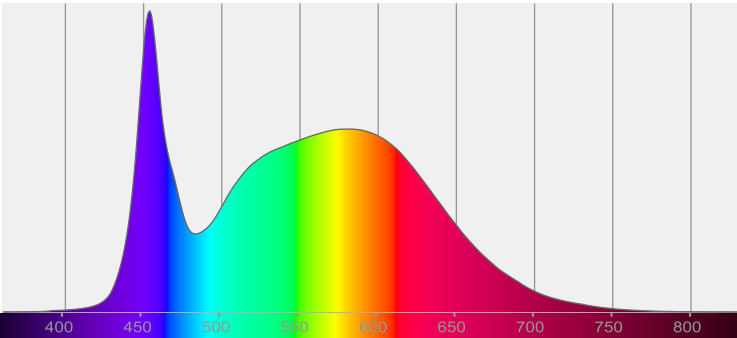


Product name:
HBUD-50K100W
Date and time:
3/4/2019 9:17:51 AM

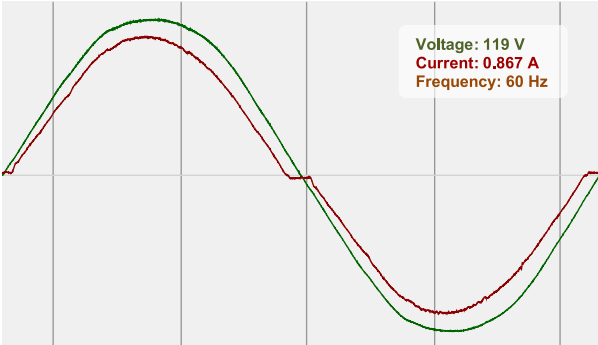


CIE 1931
x: 0.348
y: 0.361

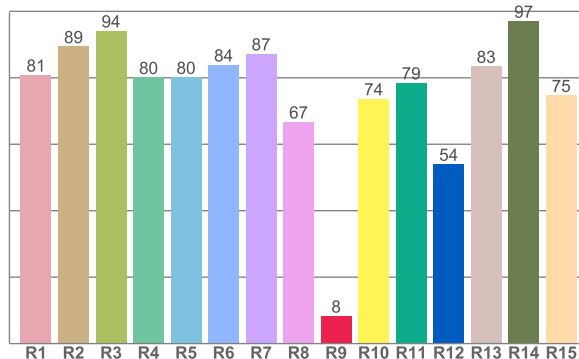
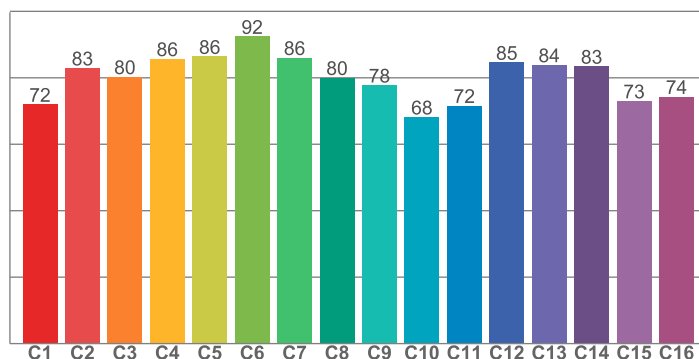
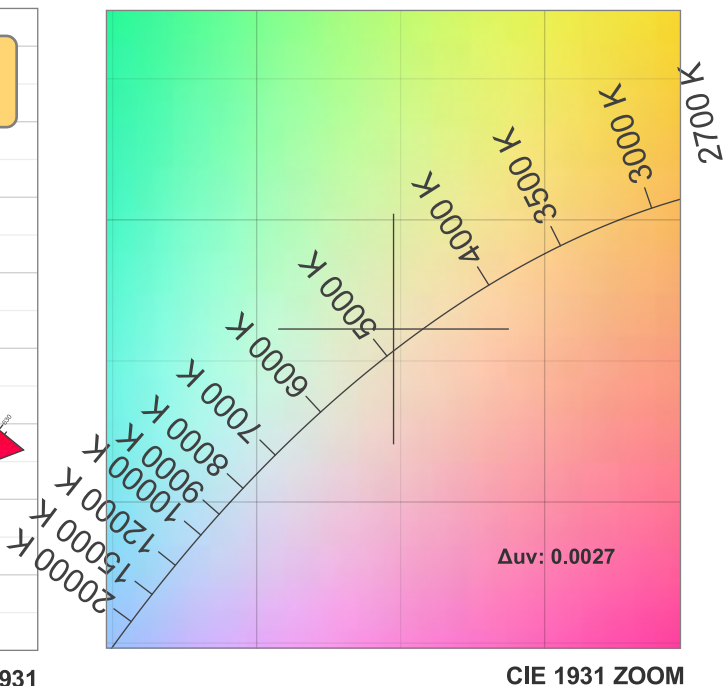
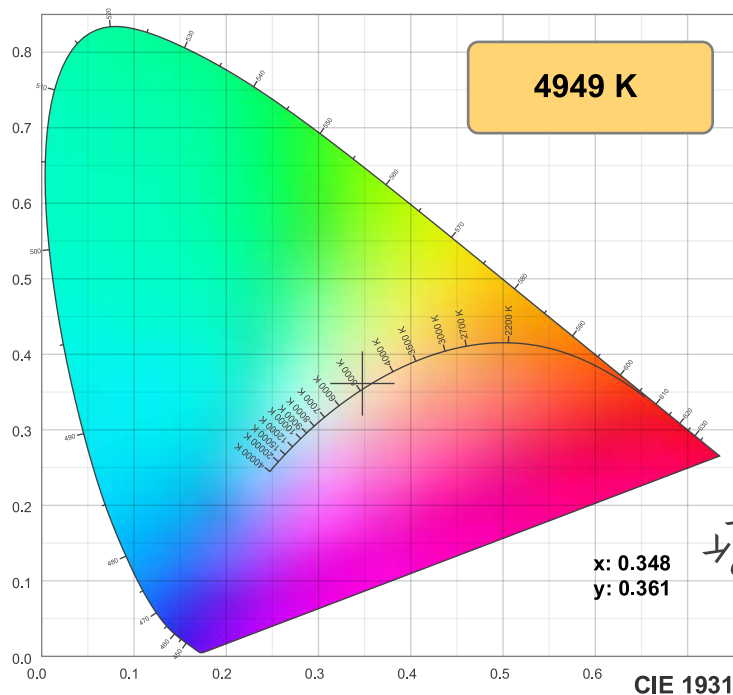
Spectra



Power



Color details



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
80.9	89.4	94.2	80.1	80.1	83.9	87.2	66.7	8.3	73.7	78.5	54.0	83.5	97.1	74.7

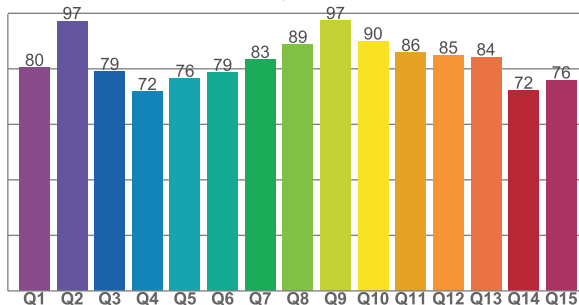
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
72.0	82.9	80.3	85.7	86.4	92.4	86.1	80.1	77.8	68.2	71.6	84.6	83.9	83.5	73.0	74.3

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
80.4	97.2	78.9	71.7	76.4	78.6	83.3	88.7	97.3	89.9	85.8	84.8	84.2	72.2	75.9

CQS: 81.4



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
4949 K	82.8	8.3	80.3	92.3	81.4	0.348	0.361	0.209	0.326	0.0027



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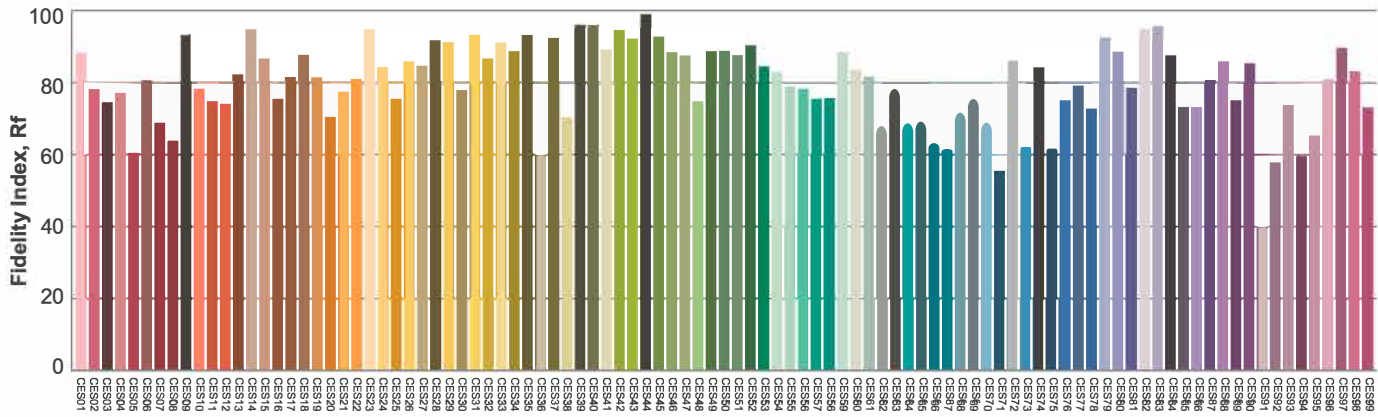
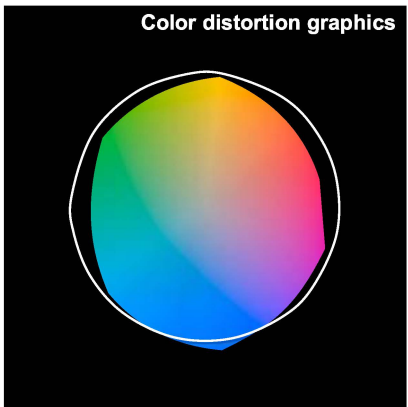
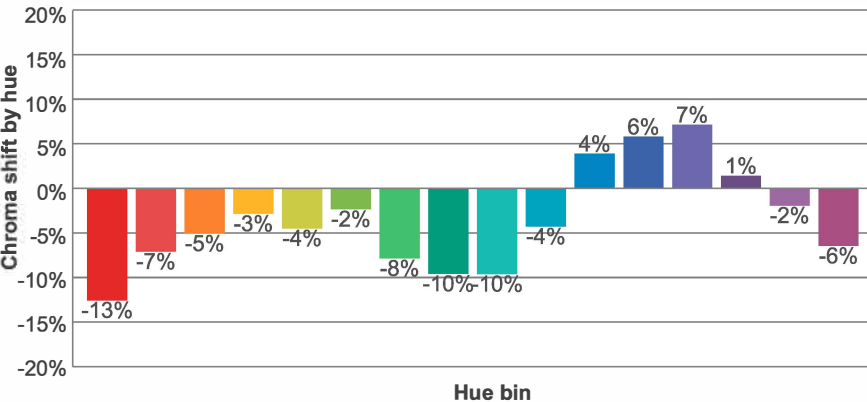
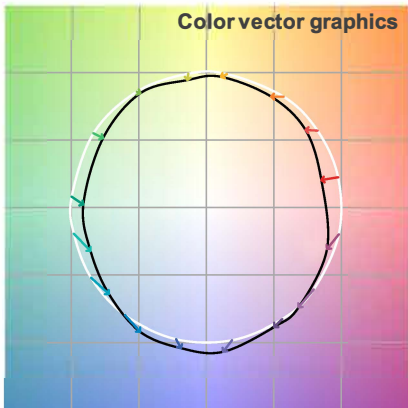
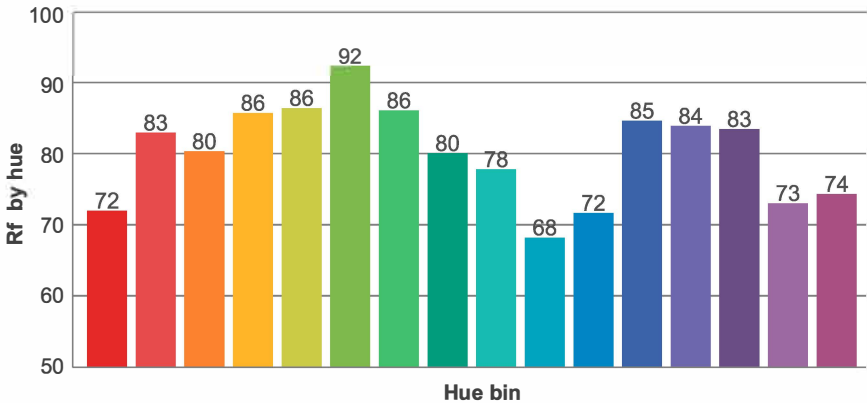
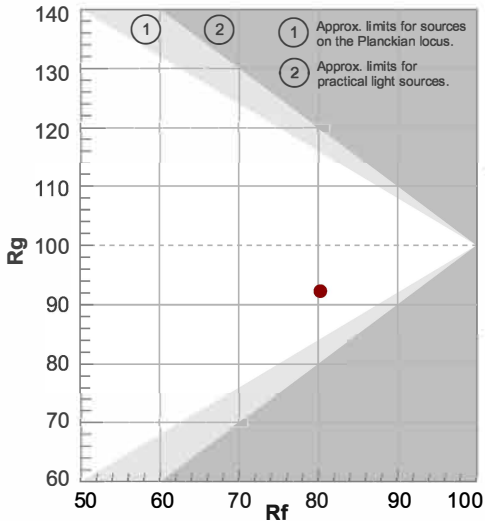
TM30 details

Rf 80.3

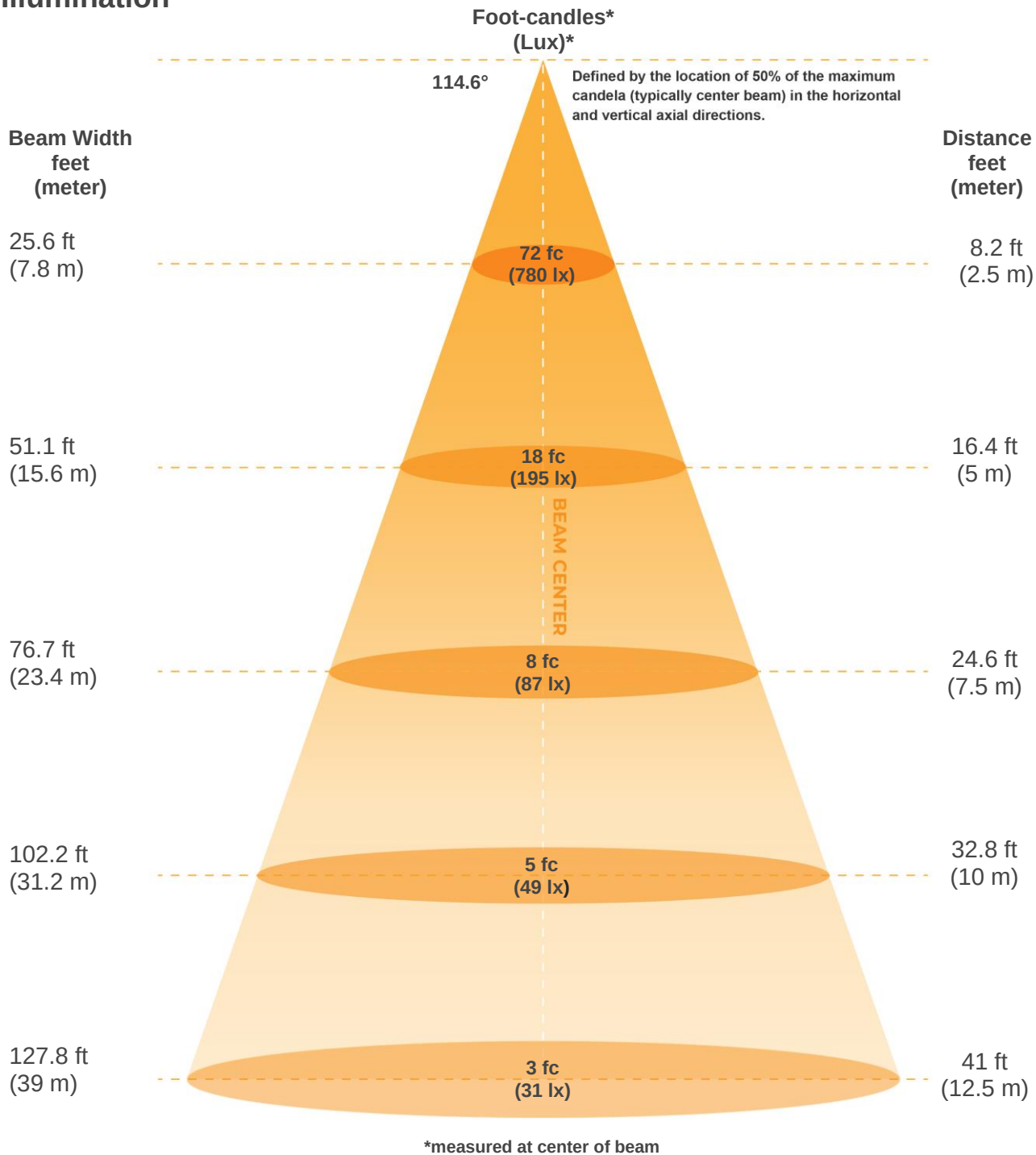
Rg 92.3

Gammut index Rg

Hue Bin	Graphic shifts (%)		
	R _f	Chroma	Hue
1	72	-13%	0%
2	83	-7%	5%
3	80	-5%	8%
4	86	-3%	4%
5	86	-4%	2%
6	92	-2%	-2%
7	86	-8%	-1%
8	80	-10%	4%
9	78	-10%	15%
10	68	-4%	17%
11	72	4%	16%
12	85	6%	5%
13	84	7%	-8%
14	83	1%	-8%
15	73	-2%	-17%
16	74	-6%	-12%



Illumination



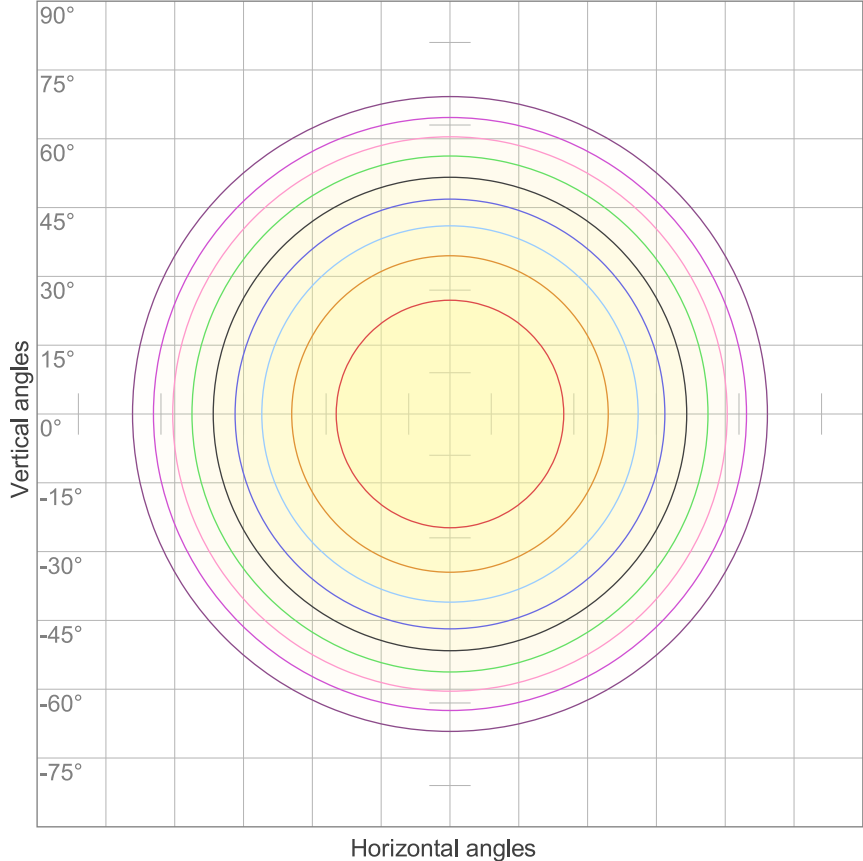
Beam intensities from 1-20m

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
4873lx	1218lx	541lx	305lx	195lx	135lx	99lx	76lx	60lx	49lx	40lx	34lx	29lx	25lx	22lx	19lx	17lx	15lx	13lx	12lx
452.7fc	113.2fc	50.3fcd	28.3fcd	18.1fcd	12.6fcd	9.2fcd	7.1fcd	5.6fcd	4.5fcd	3.7fcd	3.1fcd	2.7fcd	2.3fcd	2fcd	1.8fcd	1.6fcd	1.4fcd	1.3fcd	1.1fcd

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
114.6°	154.2°	166.3°	81.8%	55.5%



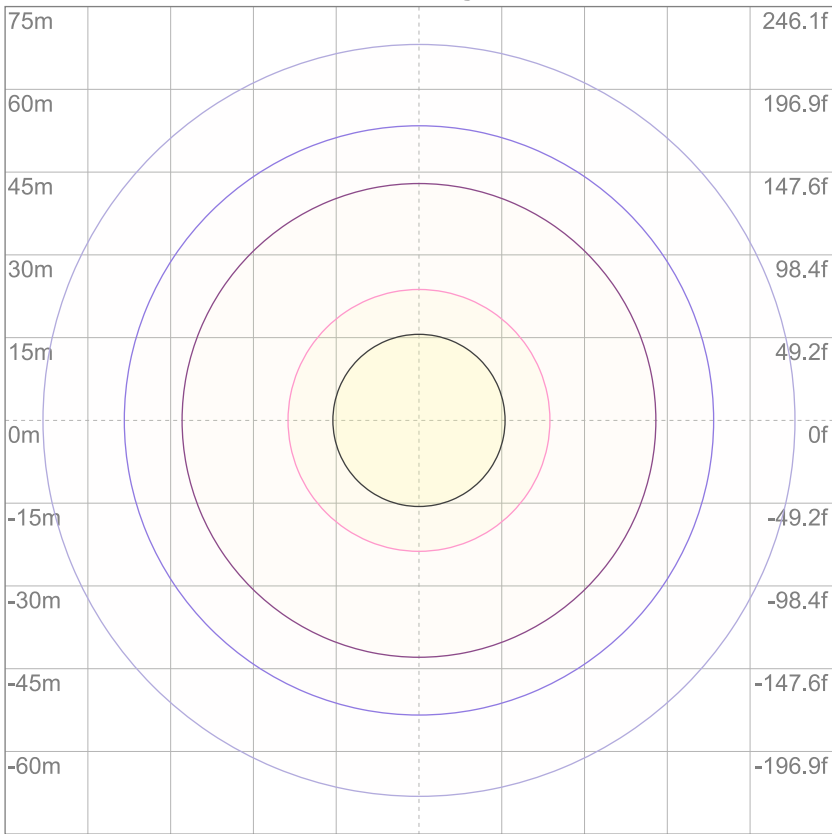
ISO Diagrams ISO candela diagram



10%	487 cd
20%	975 cd
30%	1462 cd
40%	1949 cd
50%	2436 cd
60%	2924 cd
70%	3411 cd
80%	3898 cd
90%	4385 cd

Conditions:
Number of c-planes: 16
Candela at center: 4873 cd

ISO lux diagram



3%	1.46 lx
5%	2.44 lx
10%	4.87 lx
30%	14.6 lx
50%	24.4 lx

Conditions:
Number of c-planes: 16
Lux at center: 48.7 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	35.6	36.9	35.9	37.1	37.4	35.6	36.9	35.9	37.1	37.4
	3H	36.8	38.0	37.2	38.3	38.6	36.8	38.0	37.2	38.3	38.6
	4H	37.2	38.3	37.5	38.6	38.9	37.2	38.3	37.5	38.6	38.9
	6H	37.3	38.3	37.7	38.6	39.0	37.3	38.3	37.7	38.6	39.0
	8H	37.3	38.3	37.7	38.6	38.9	37.3	38.3	37.7	38.6	38.9
	12H	37.3	38.2	37.7	38.6	38.9	37.3	38.2	37.7	38.6	38.9
4H	2H	36.2	37.3	36.6	37.6	37.9	36.2	37.3	36.6	37.6	37.9
	3H	37.6	38.5	38.0	38.9	39.2	37.6	38.5	38.0	38.9	39.2
	4H	38.0	38.9	38.4	39.2	39.6	38.0	38.9	38.4	39.2	39.6
	6H	38.2	38.9	38.7	39.3	39.7	38.2	38.9	38.7	39.3	39.7
	8H	38.2	38.9	38.7	39.3	39.7	38.2	38.9	38.7	39.3	39.7
	12H	38.2	38.8	38.7	39.2	39.7	38.2	38.8	38.7	39.2	39.7
8H	4H	38.2	38.8	38.6	39.2	39.7	38.2	38.8	38.6	39.2	39.7
	6H	38.4	39.0	38.9	39.4	39.8	38.4	39.0	38.9	39.4	39.8
	8H	38.5	38.9	38.9	39.4	39.9	38.5	38.9	38.9	39.4	39.9
	12H	38.5	38.9	39.0	39.3	39.8	38.5	38.9	39.0	39.3	39.8
12H	4H	38.2	38.8	38.6	39.2	39.6	38.2	38.8	38.6	39.2	39.6
	6H	38.4	38.9	38.9	39.3	39.8	38.4	38.9	38.9	39.3	39.8
	8H	38.5	38.9	39.0	39.3	39.8	38.5	38.9	39.0	39.3	39.8
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 / -0.5					+0.3 / -0.5				
S = 2.0H		+0.7 / -1.0					+0.7 / -1.0				
Standard table		BK04					BK04				
Correction summand		21.0					21.0				
Corrected glare indices referring to 13891 lm total luminous flux											



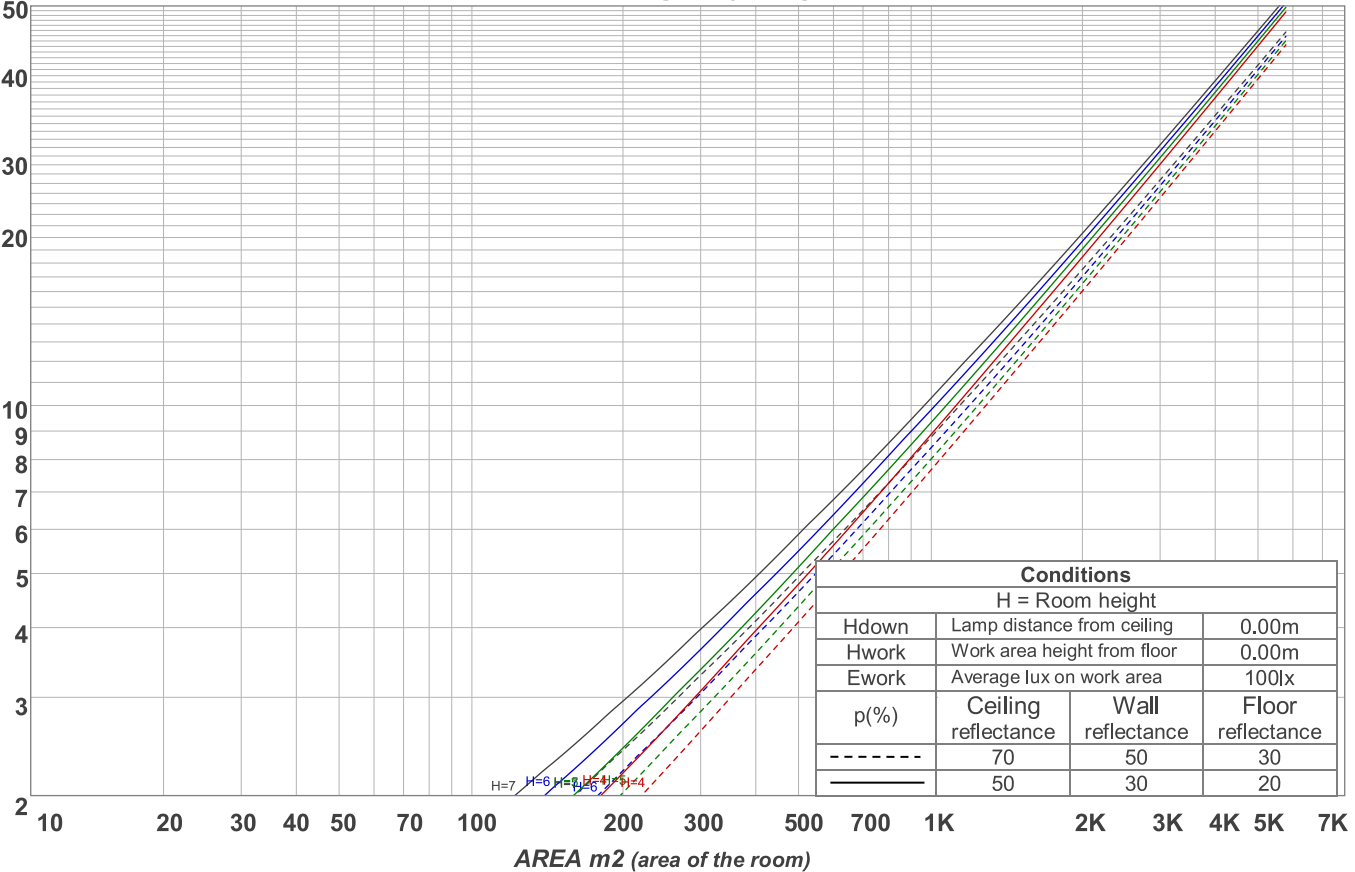
Light planning

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	94	92	90	91	89	87	85
2	100	92	85	80	97	90	84	79	86	81	77	83	79	75	80	76	73	71
3	91	81	73	66	88	79	72	66	76	70	65	73	68	63	71	66	62	60
4	83	72	63	56	81	70	62	56	68	61	55	65	59	54	63	58	54	51
5	77	64	55	48	74	63	54	48	61	53	48	59	52	47	57	51	47	44
6	71	57	49	42	69	56	48	42	55	47	42	53	46	41	51	45	41	39
7	65	52	43	37	64	51	43	37	50	42	37	48	41	36	47	41	36	34
8	61	47	39	33	59	47	39	33	45	38	33	44	37	33	43	37	32	30
9	57	43	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	26	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°
462 lm	1336 lm	2055 lm	2522 lm	2640 lm	2353 lm	1660 lm	719 lm	95.6 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
5.20 lm	5.54 lm	6.53 lm	7.32 lm	7.39 lm	6.94 lm	5.36 lm	3.50 lm	1.23 lm

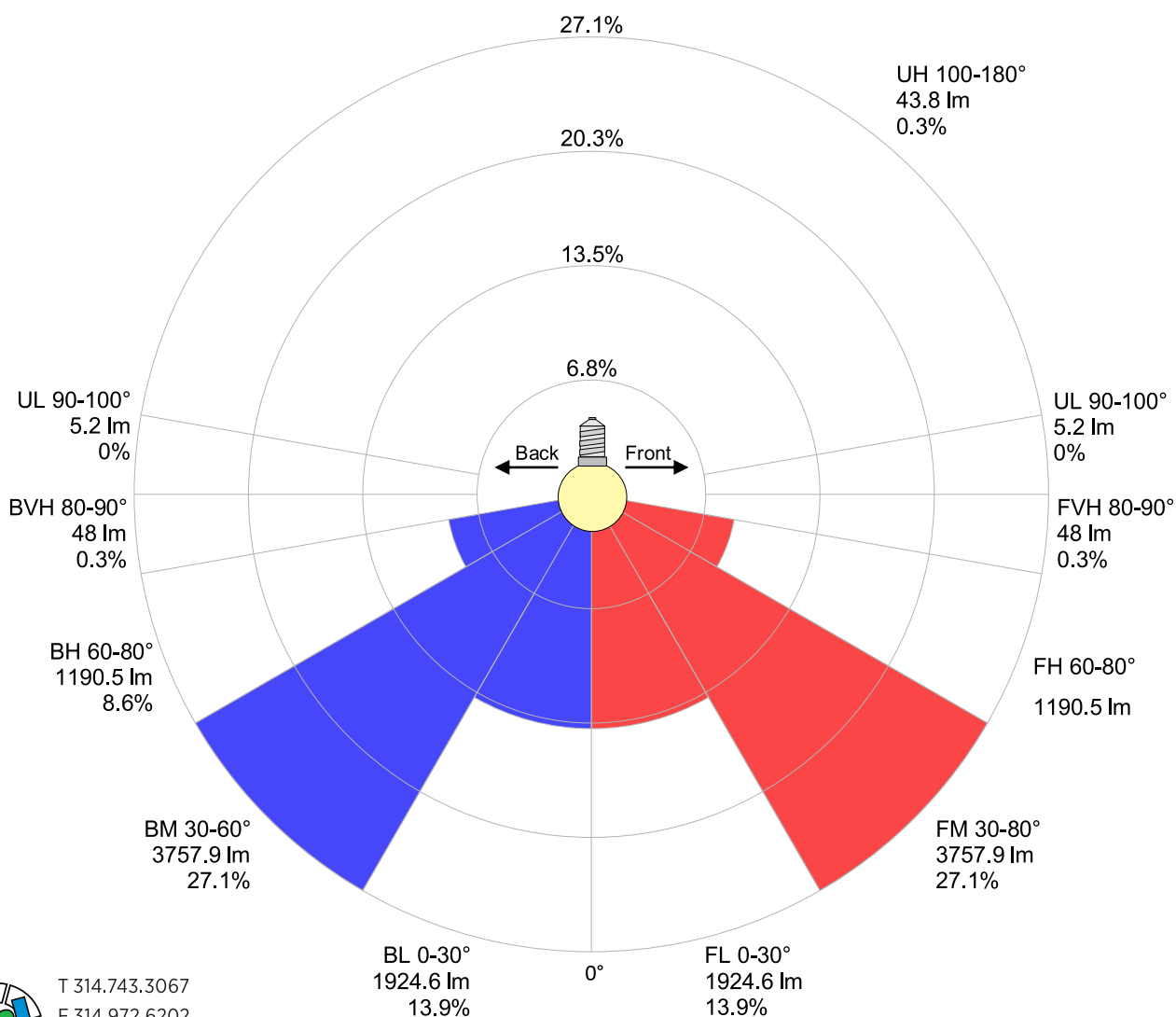


Road report

LCS table

BUG rating:	B3 U2 G1	
Forward light	Lumens	Lumens %
Low(0-30):	1924.6	13.9%
Medium(30-60):	3757.9	27.1%
High(60-80):	1190.5	8.6%
Very high(80-90):	48	0.3%
Back light		
Low(0-30):	1924.6	13.9%
Medium(30-60):	3757.9	27.1%
High(60-80):	1190.5	8.6%
Very high(80-90):	48	0.3%
Uplight		
Low(90-100):	5.2	0%
High(100-180):	43.8	0.3%

LCS graph

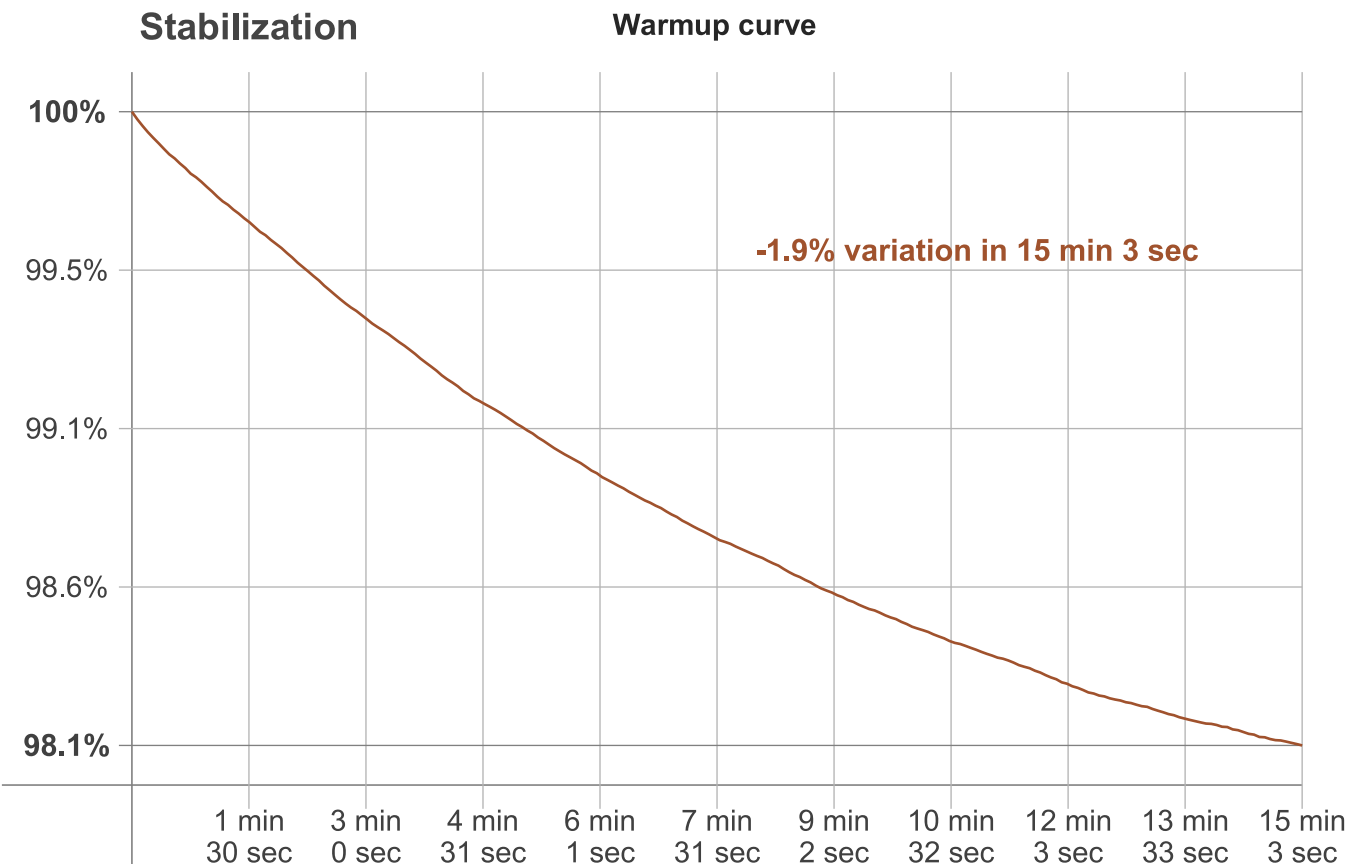


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Warmup result	
Warmup time:	15 min 3 sec
Warmup variation	-1.9%

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

Color temperature change		
CCT start	CCT change	CCT end
4908 K	+41 K	4949 K

Output change		
Output start	Output change	Output end
14150 lm	-259 lm	13891 lm

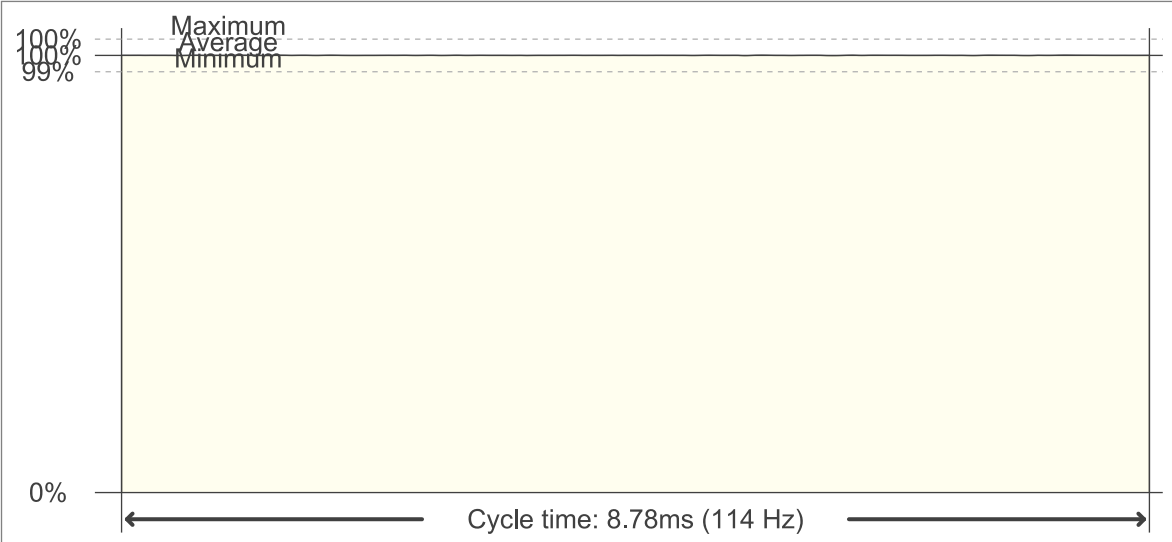


Flicker

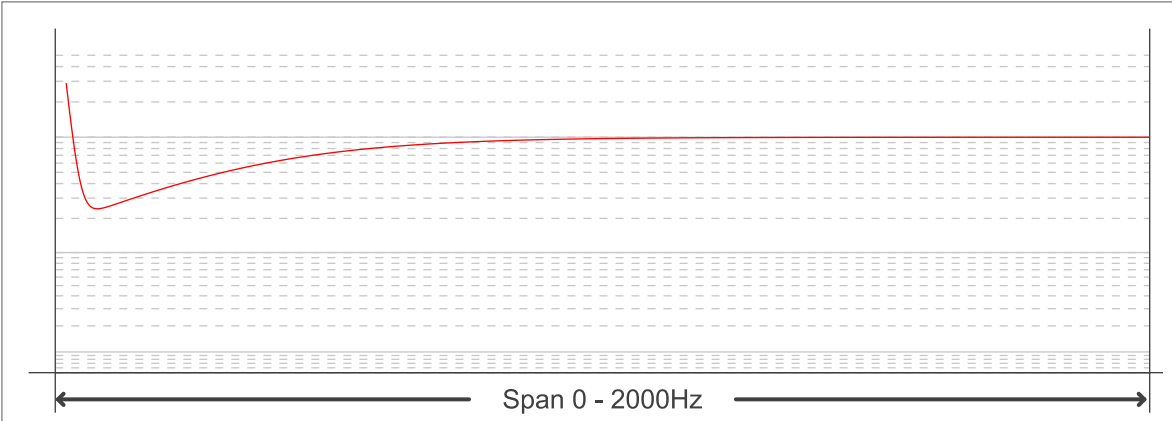
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



Flicker results:

Flicker frequency:	113.96 Hz
Flicker index:	0
Flicker percentage:	0.16 %
SVM: (Visual flicker)	0

Flicker conditions:

Sample rate:	40000 samples/second
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