Light efficiency:

135 Lumen/Watt

Light quality:

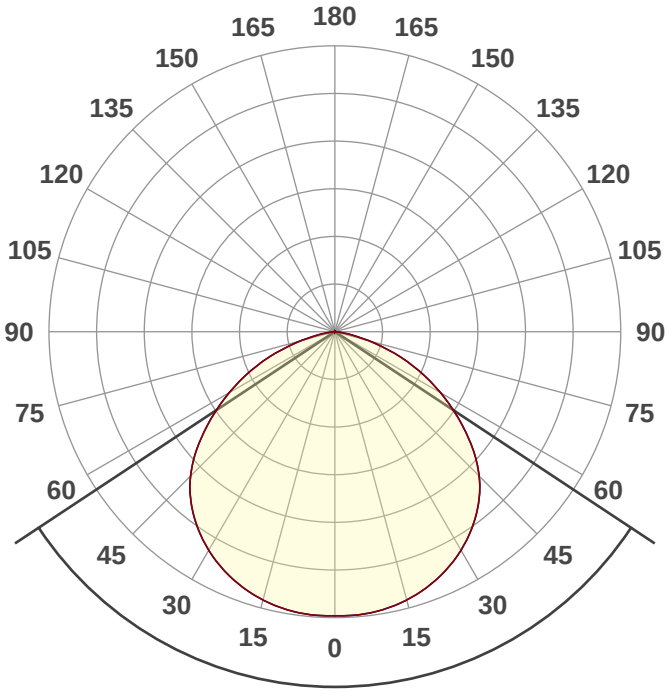
CRI: 72.3

Color temperature:

5174 K

Output: 8472 lm
Peak: 2988 cd

Power: 62.7 W
PF: 1.0



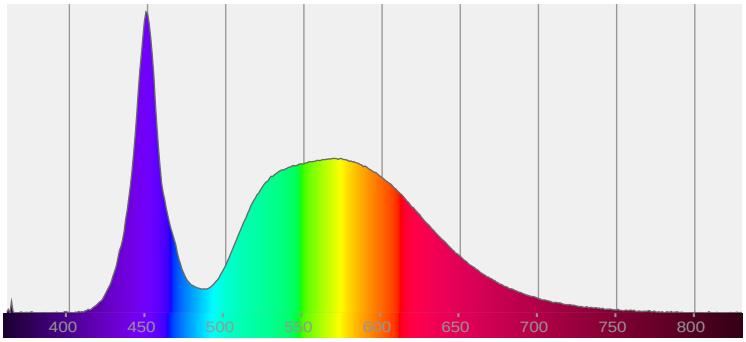
Beam angle 113°

CIE 1931
x: 0.341
y: 0.351

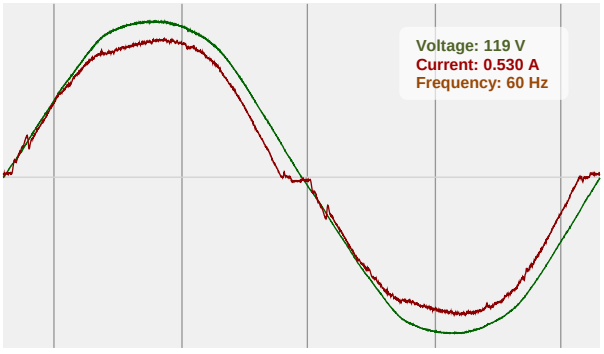
Product name:
HBU-50K60W

Date and time:
5/1/2019 9:44:24 AM

Spectra



Power



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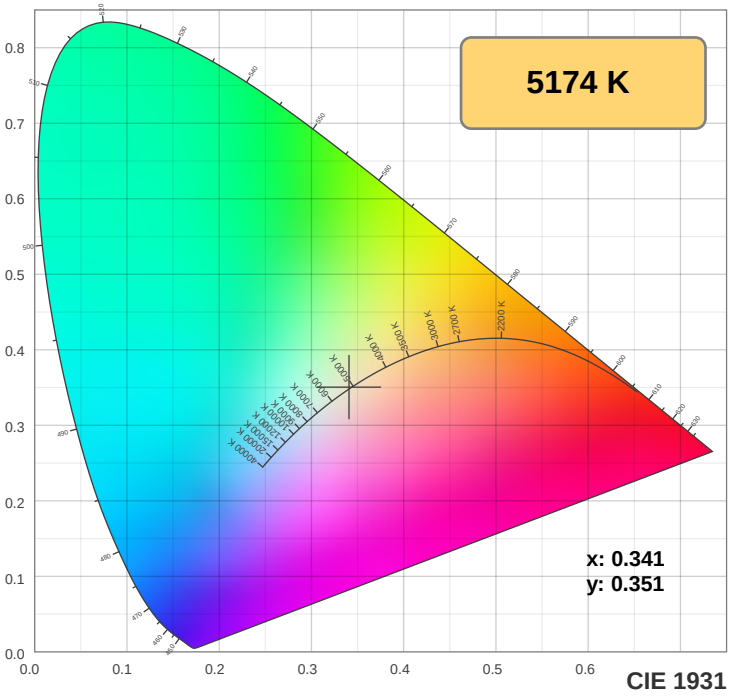
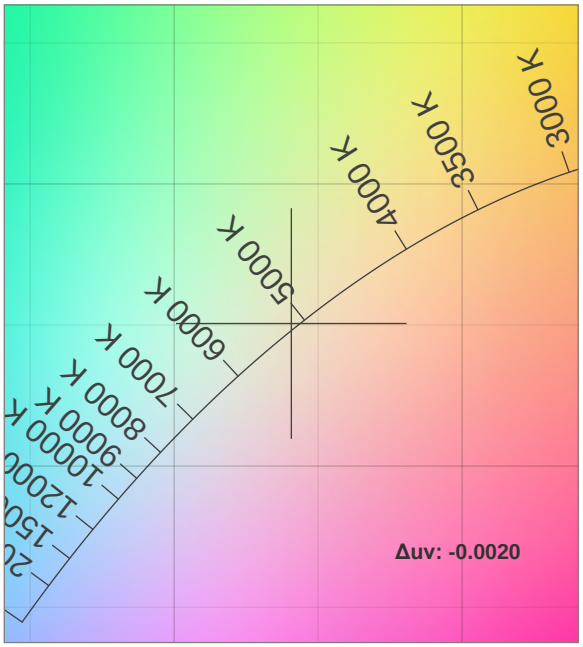
Color Specifications

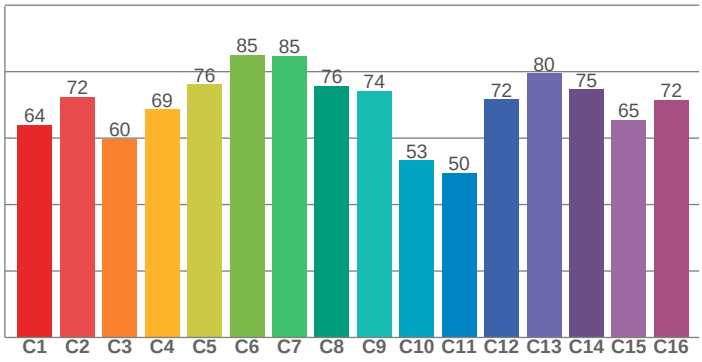


CIE 1931

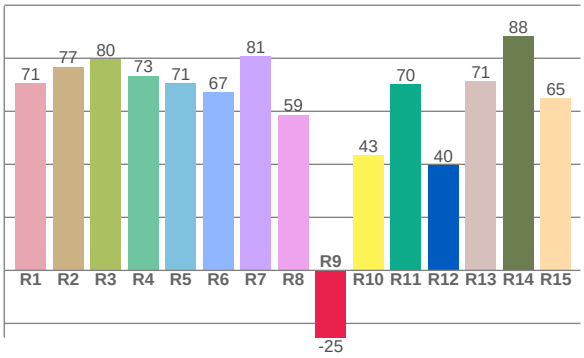


CIE 1931 ZOOM

TM30: 69.9



CRI: 72.3 (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
70.6	76.8	79.7	73.4	70.7	67.2	80.8	58.7	-25.3	43.4	70.2	39.6	71.4	88.4	64.9

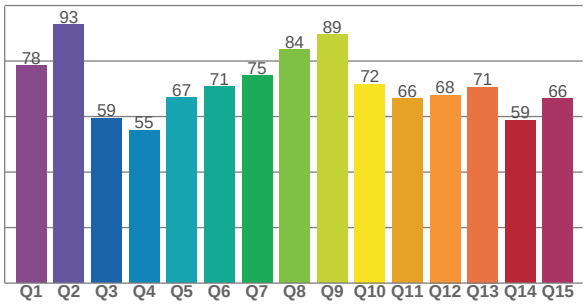
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
63.9	72.4	59.8	68.6	76.2	85.0	84.8	75.8	74.2	53.3	49.6	71.6	79.5	74.7	65.5	71.6

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
78.3	93.1	59.4	55.1	66.7	70.8	74.8	84.1	89.5	71.8	66.4	67.8	70.6	58.7	66.4

CQS: 69.7



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 diviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
5174 K	72.3	-25.3	69.9	93.7	69.7	0.341	0.351	0.209	0.322	-0.0020

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TM30 Report

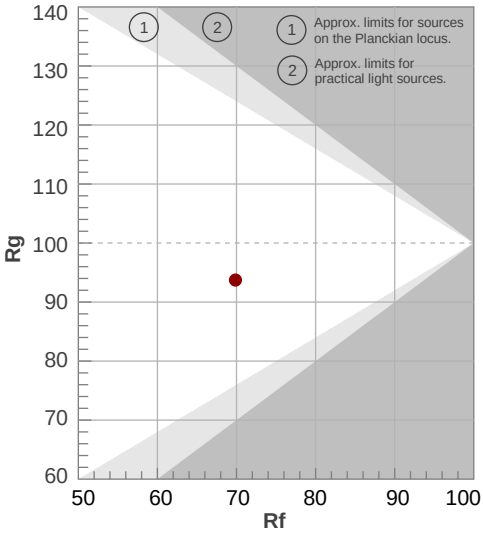
Rf 69.9

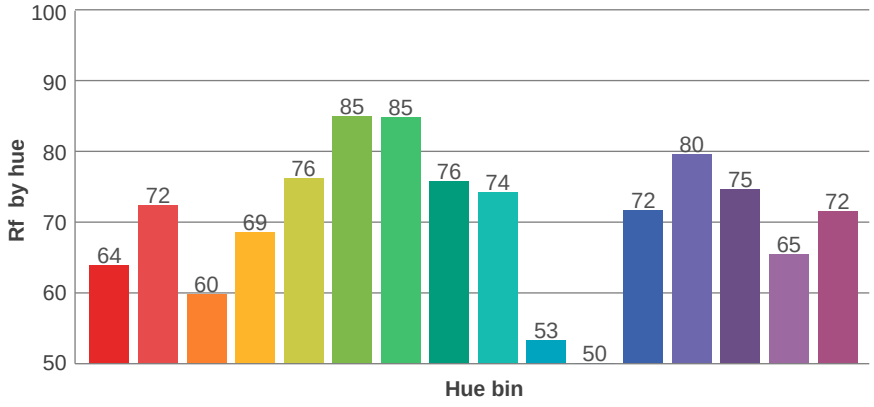
Fidelity index Rf

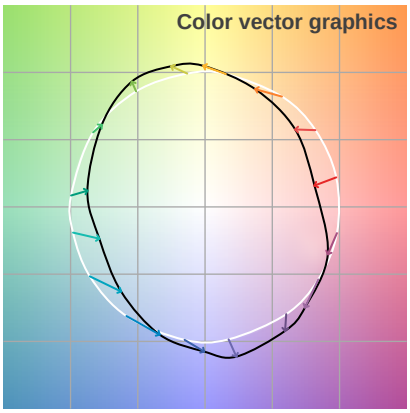
Rg 93.7

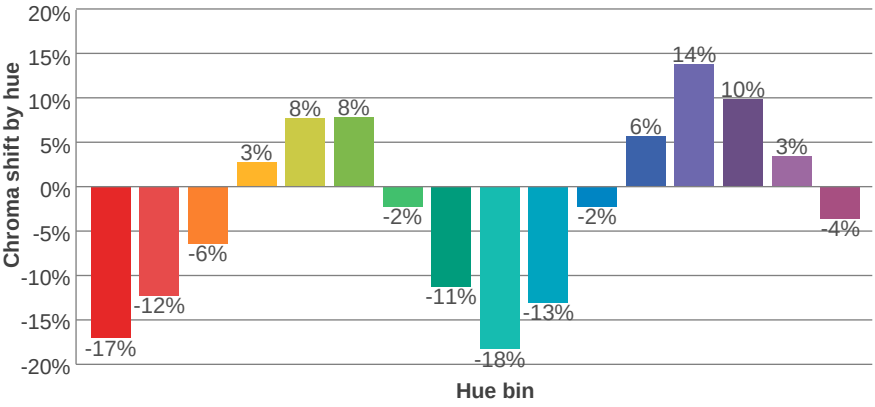
Gammut index Rg

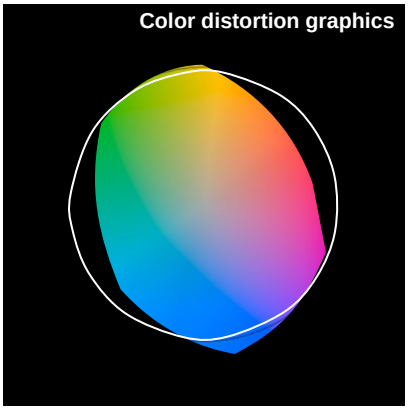
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	64	-17%	-3%
2	72	-12%	9%
3	60	-6%	20%
4	69	3%	18%
5	76	8%	11%
6	85	8%	-1%
7	85	-2%	-8%
8	76	-11%	-6%
9	74	-18%	8%
10	53	-13%	22%
11	50	-2%	28%
12	72	6%	16%
13	80	14%	3%
14	75	10%	-8%
15	65	3%	-23%
16	72	-4%	-17%

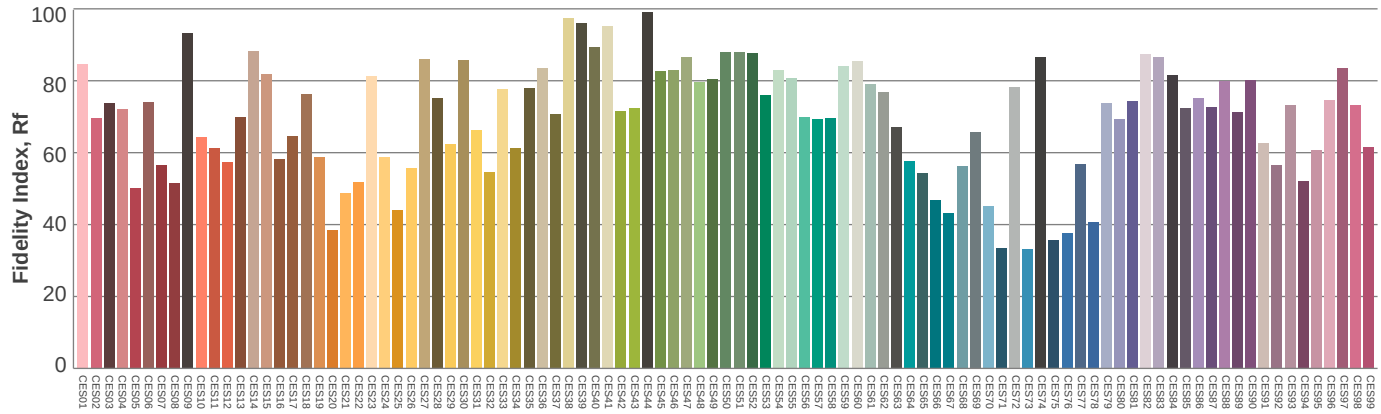












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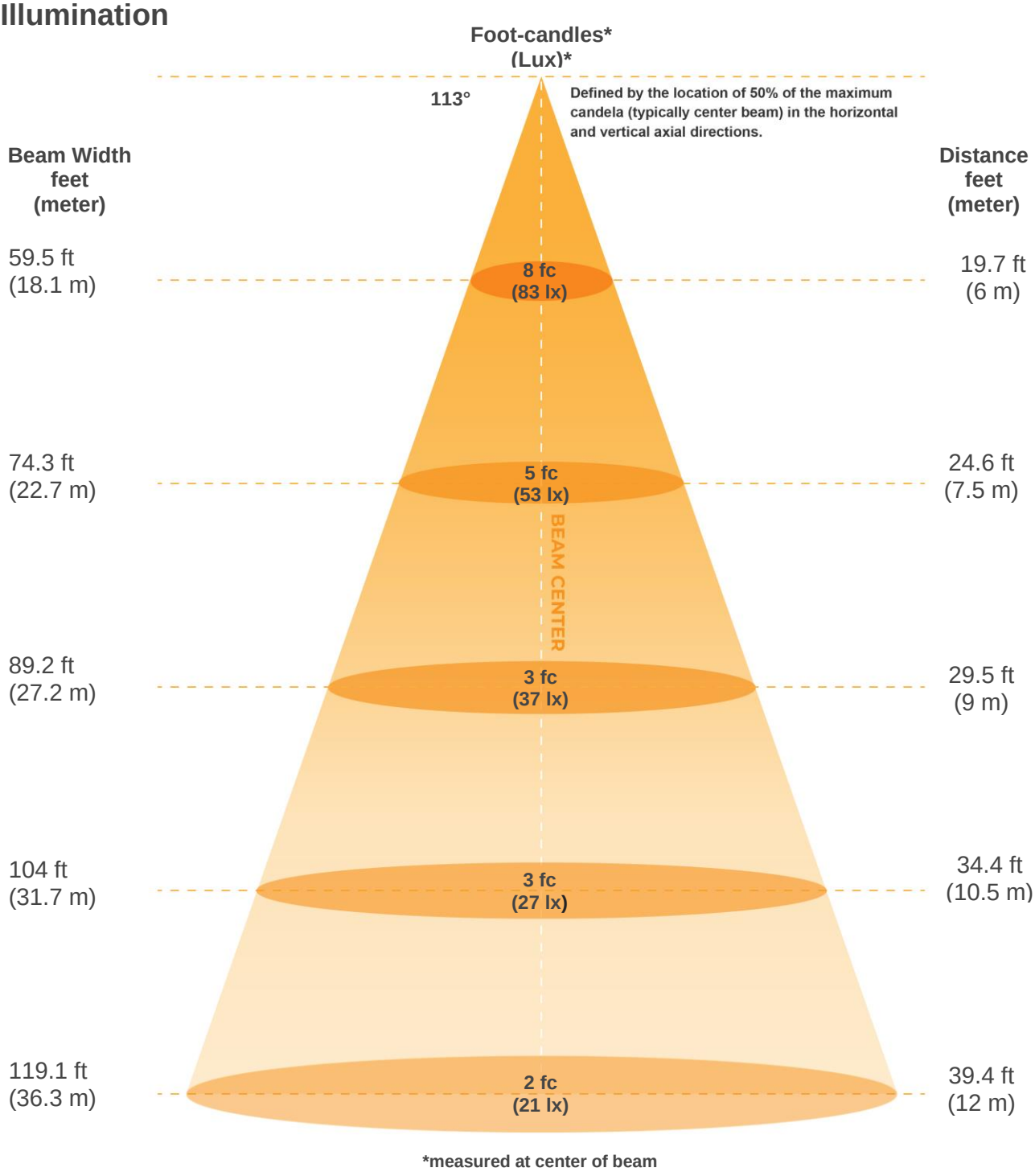
Illumination



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
2988lx	747lx	332lx	187lx	120lx	83lx	61lx	47lx	37lx	30lx	25lx	21lx	18lx	15lx	13lx	12lx	10lx	9lx	8lx	7lx
277.6fc	69.4fcd	30.8fcd	17.3fcd	11.1fcd	7.7fcd	5.7fcd	4.3fcd	3.4fcd	2.8fcd	2.3fcd	1.9fcd	1.6fcd	1.4fcd	1.2fcd	1.1fcd	1fcd	0.9fcd	0.8fcd	0.7fcd

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
113°	**153.4°**	**165.9°**	**82.8%**	**56.5%**

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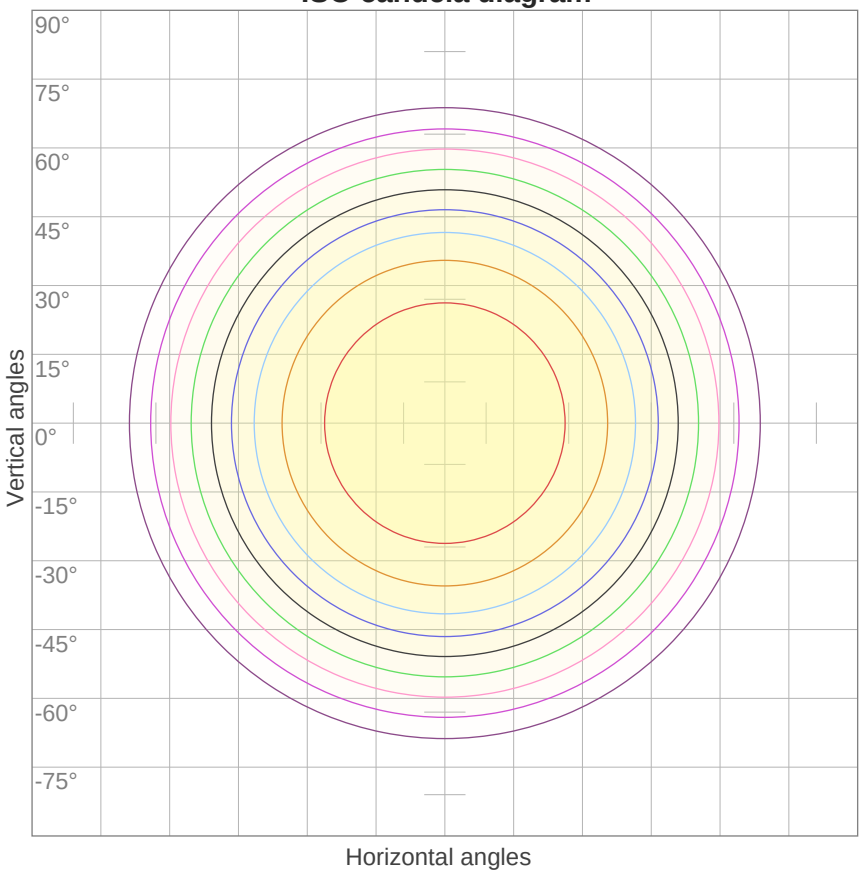
ISO Diagrams

ISO candela diagram



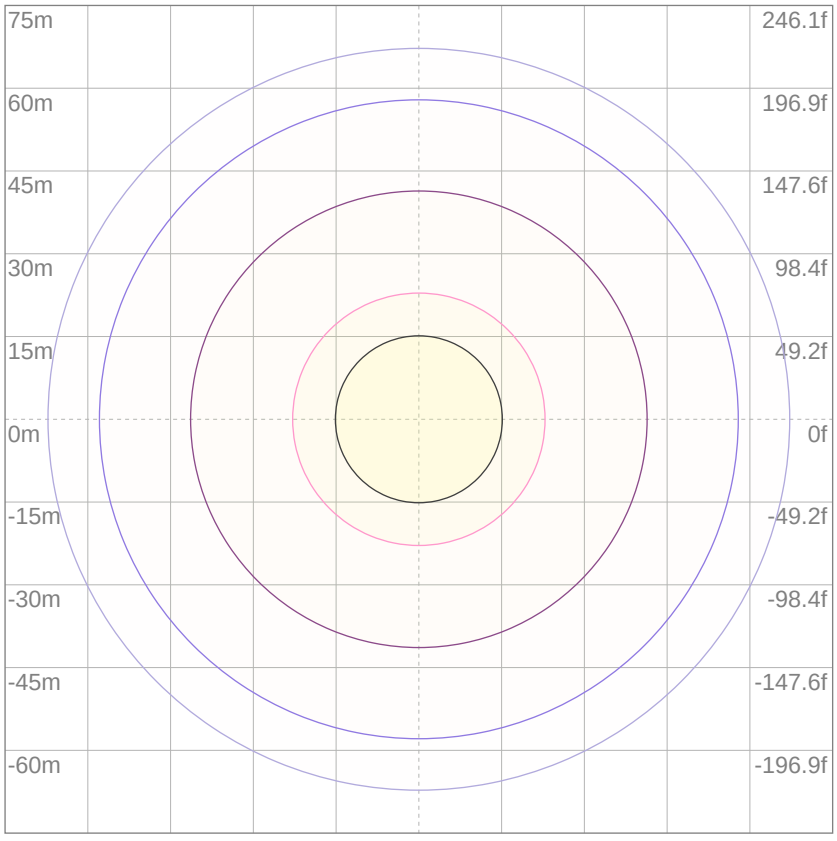
10%	299 cd
20%	598 cd
30%	896 cd
40%	1195 cd
50%	1494 cd
60%	1793 cd
70%	2092 cd
80%	2390 cd
90%	2689 cd

Conditions:

Number of c-planes: 16

Candela at center: 2988 cd

ISO lux diagram



3%	0.896 lx
5%	1.49 lx
10%	2.99 lx
30%	8.96 lx
50%	14.9 lx

Conditions:

Number of c-planes: 16

Lux at center: 29.9 lx

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

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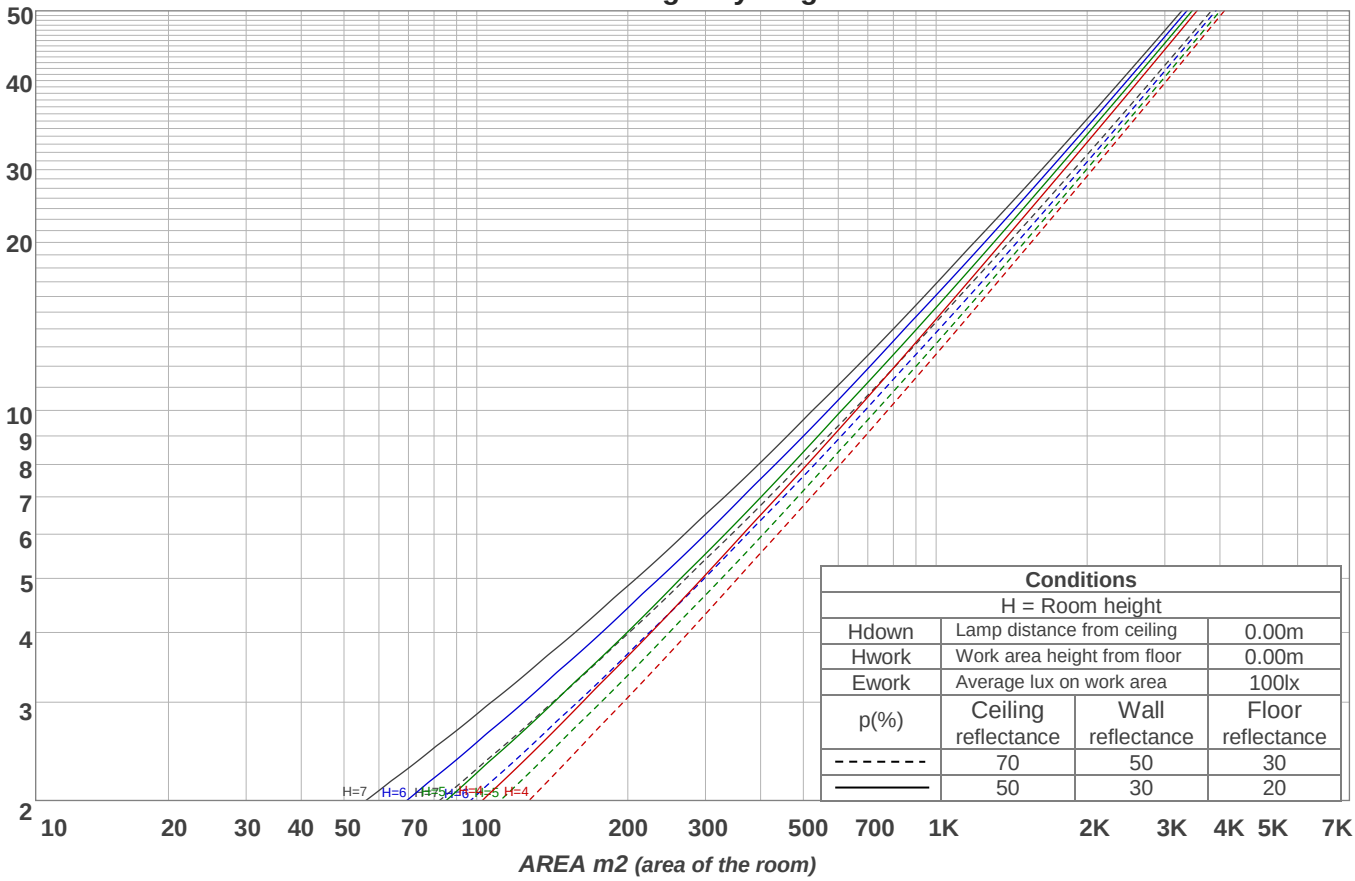
Light Planning

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	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72
3	91	81	73	67	89	80	72	66	77	70	65	74	68	64	71	67	63	61
4	84	72	63	57	81	71	63	56	68	61	56	66	60	55	64	58	54	52
5	77	64	55	49	75	63	55	49	61	54	48	59	53	48	57	52	47	45
6	71	58	49	43	69	57	49	43	55	48	42	53	47	42	52	46	41	39
7	66	52	44	38	64	52	43	38	50	43	37	49	42	37	47	41	37	35
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	35	30	42	35	30	41	34	30	40	34	30	28
10	54	40	33	27	52	40	32	27	39	32	27	38	31	27	37	31	27	25

Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
284 lm	825 lm	1275 lm	1572 lm	1647 lm	1415 lm	968 lm	410 lm	56.5 lm

90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
2.33 lm	2.10 lm	2.40 lm	2.93 lm	3.12 lm	3.04 lm	2.41 lm	1.60 lm	0.545 lm

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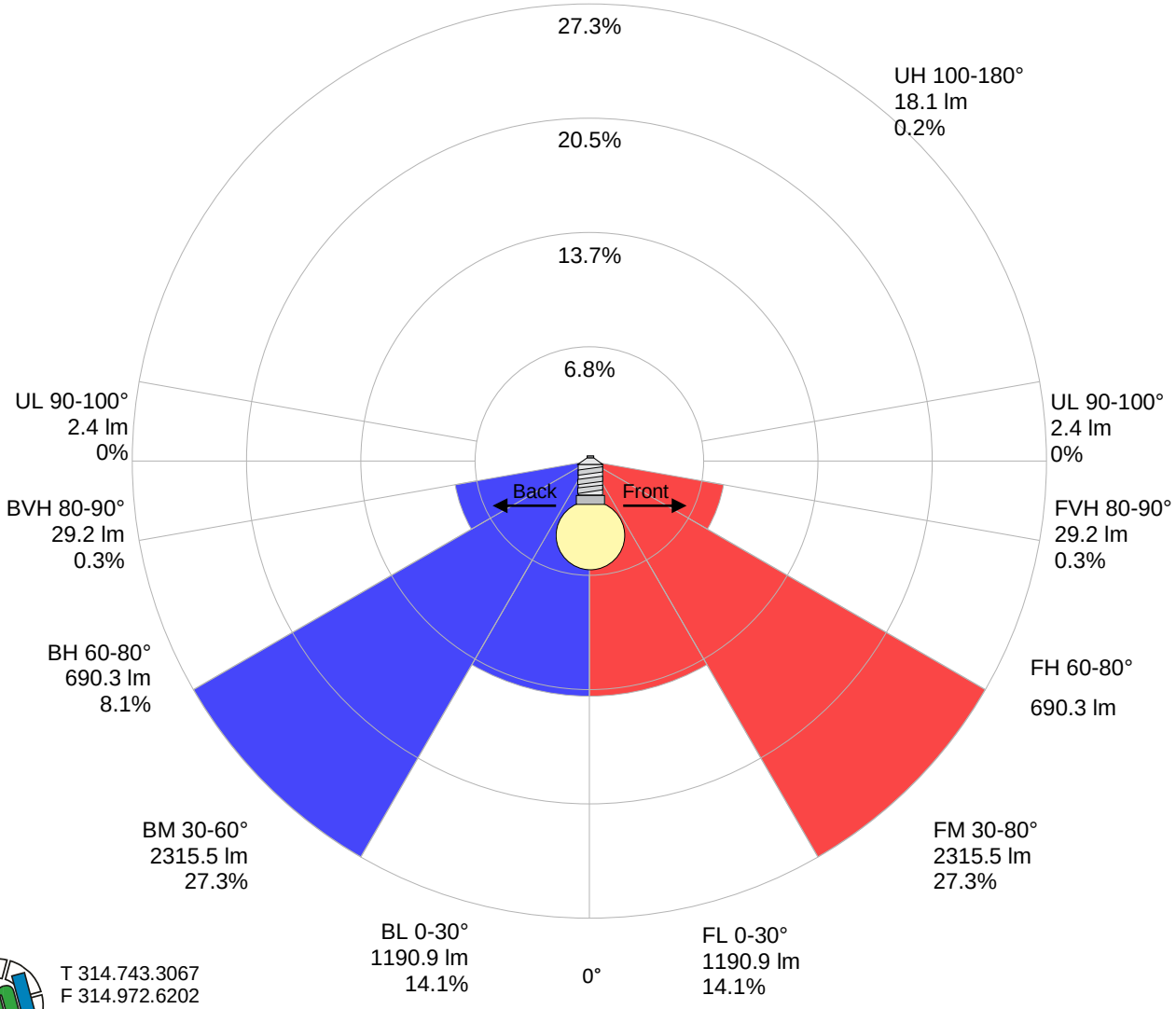
Road Report

LCS table

BUG rating:	B3 U2 G1	
Forward light	Lumens	Lumens %
Low(0-30):	1190.9	14.1%
Medium(30-60):	2315.5	27.3%
High(60-80):	690.3	8.1%
Very high(80-90):	29.2	0.3%
Back light		
Low(0-30):	1190.9	14.1%
Medium(30-60):	2315.5	27.3%
High(60-80):	690.3	8.1%
Very high(80-90):	29.2	0.3%
Uplight		
Low(90-100):	2.4	0%
High(100-180):	18.1	0.2%

LCS graph



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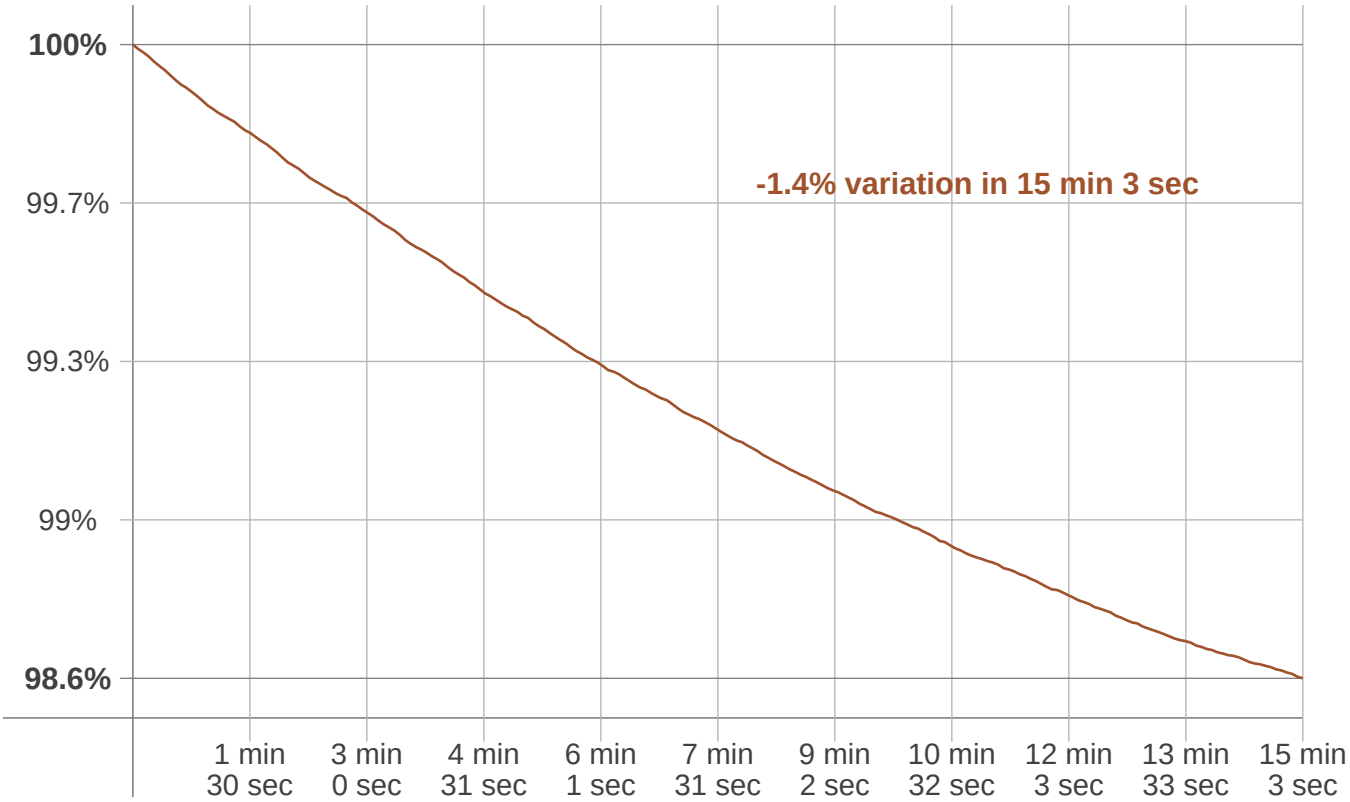
Stabilization

Warmup curve



Warmup result

Warmup time:	**15 min 3 sec**
Warmup variation	**-1.4%**

Warmup conditions

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

Color temperature change

CCT start	CCT change	CCT end
5154 K	+20 K	5174 K

Output change

Output start	Output change	Output end
8588 lm	-115 lm	8472 lm

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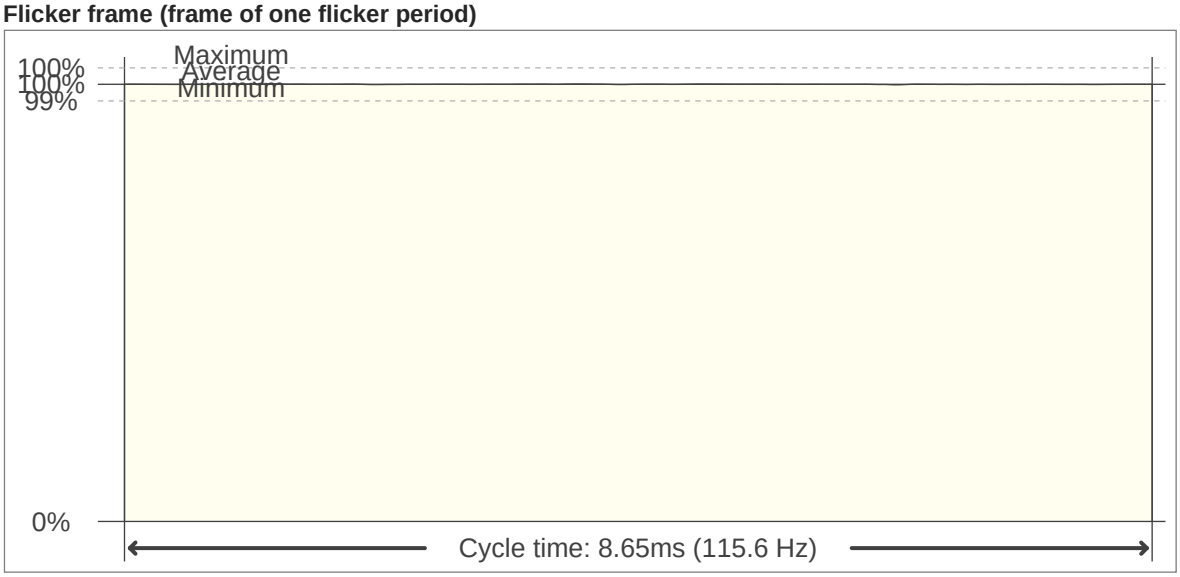
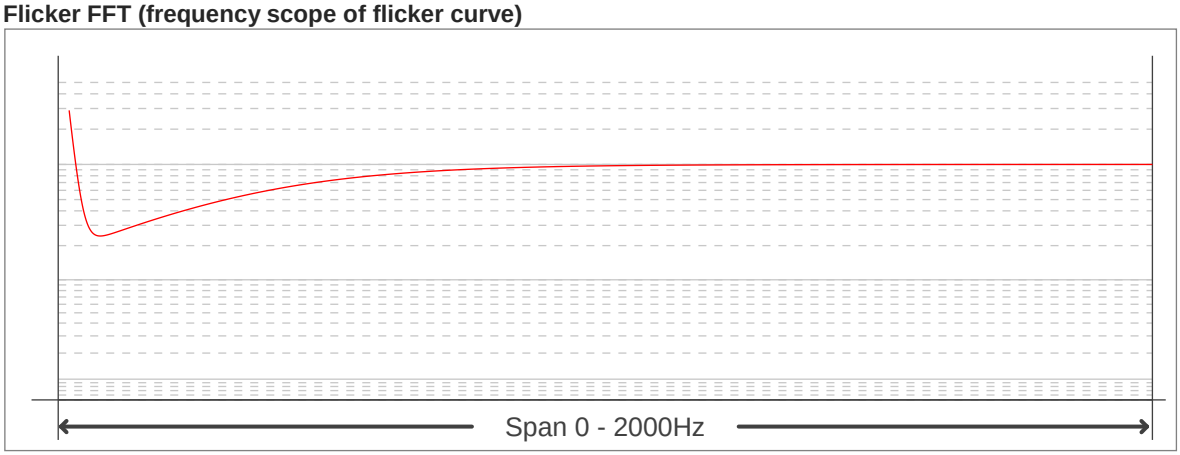
Flicker

Flicker curve (complete sampled flicker signal)

Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



Flicker results:

Flicker frequency:	**115.61 Hz**
Flicker index:	**0**
Flicker percentage:	**0.18 %**
SVM: (Visual flicker)	**0**

Flicker conditions:

Sample rate:	**40000 samples/second**

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