

Light efficiency:

119 Lumen/Watt

Light quality:

CRI: 83.3

Color temperature:

5212 K

Output: 23779 lm

Peak: 13985 cd

Power: 199.5 W

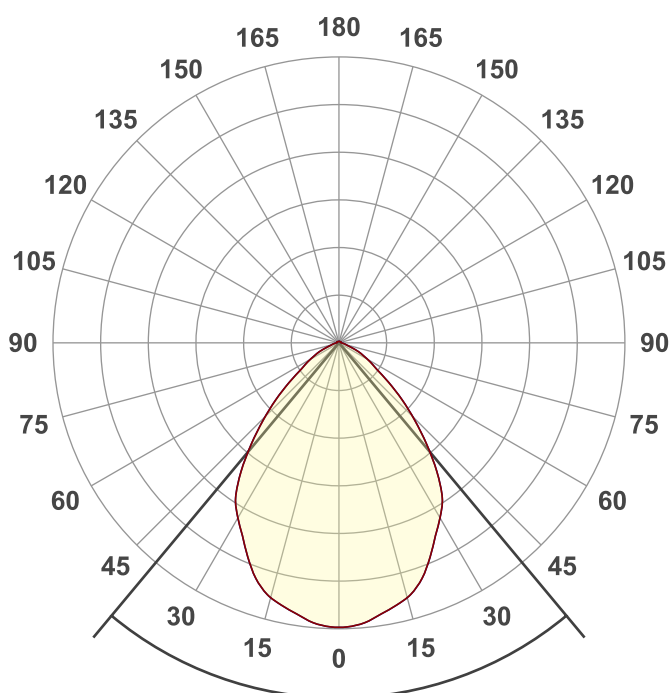
PF: 0.99

Product name:

HBUD-50K200W-PR

Date and time:

3/4/2019 12:58:34 PM



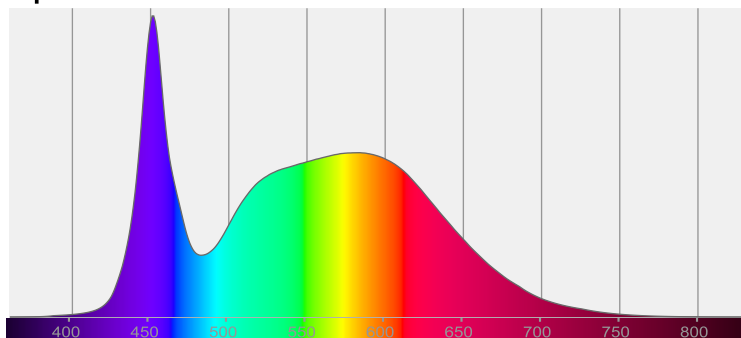
Beam angle

79.6°

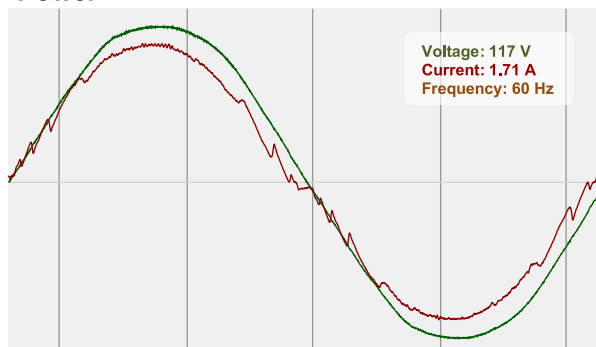


CIE 1931
x: 0.339
y: 0.346

Spectra



Power



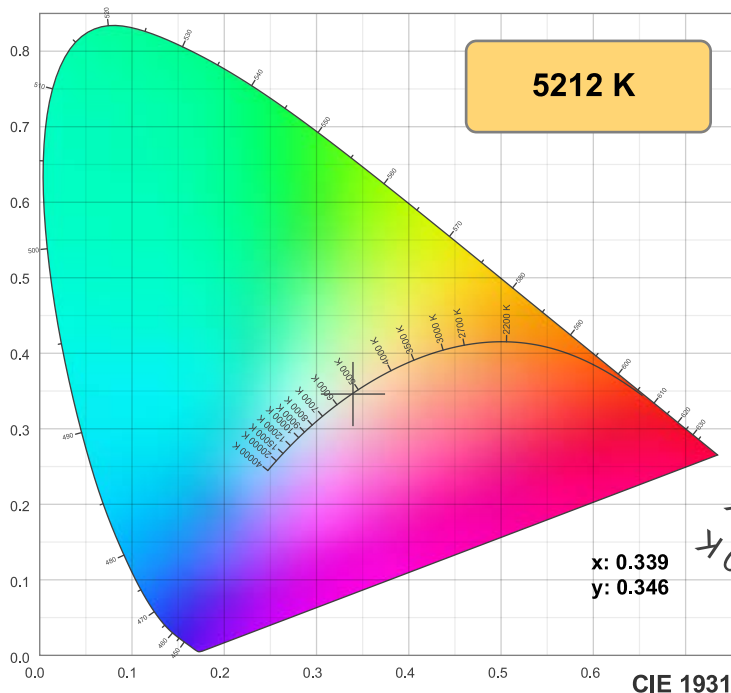
T 314.743.3067

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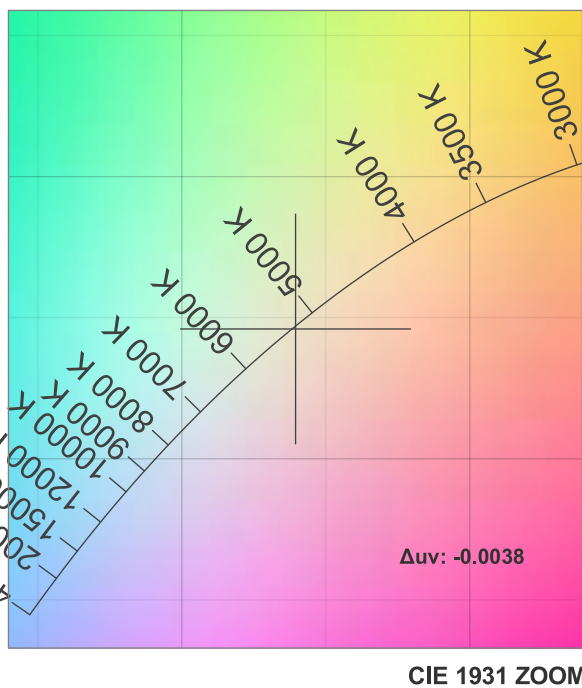
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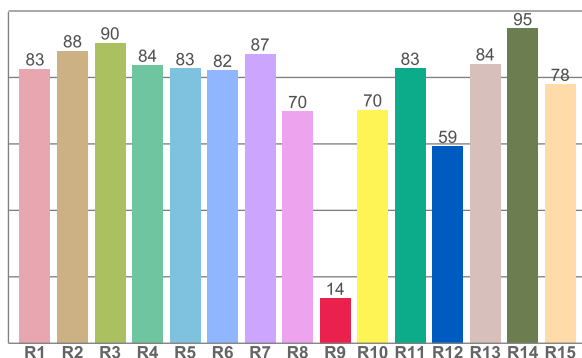
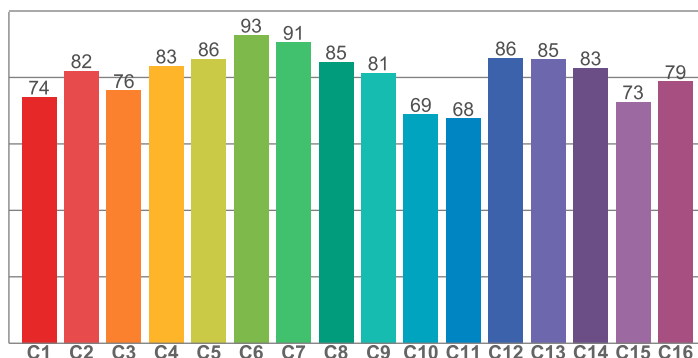
Color details



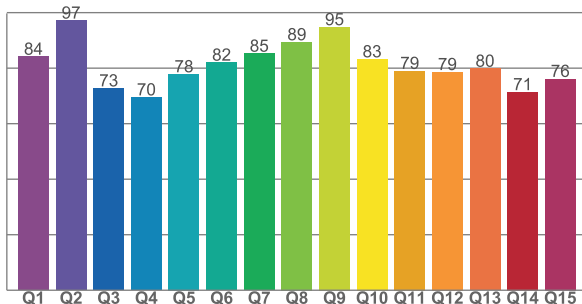
TM30: 80.5



CRI: 83.3 (R1-R8)



CQS: 79.9



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
82.6	88.0	90.4	83.7	82.7	82.2	87.1	69.8	13.6	70.2	82.8	59.3	84.1	94.7	78.0

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
74.1	82.0	76.0	83.5	85.6	92.7	90.6	84.7	81.4	68.9	67.6	85.9	85.4	82.9	72.7	78.7

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
84.2	97.2	72.8	69.5	77.8	82.0	85.3	89.4	94.8	83.2	79.1	78.6	79.8	71.4	76.2

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
5212 K	83.3	13.6	80.5	95.6	79.9	0.339	0.346	0.210	0.321	-0.0038



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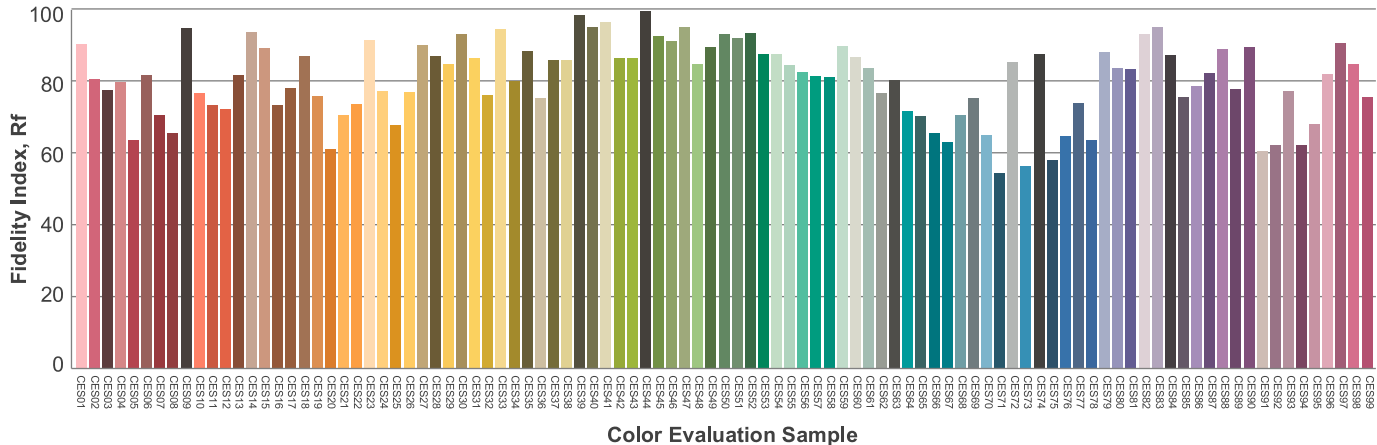
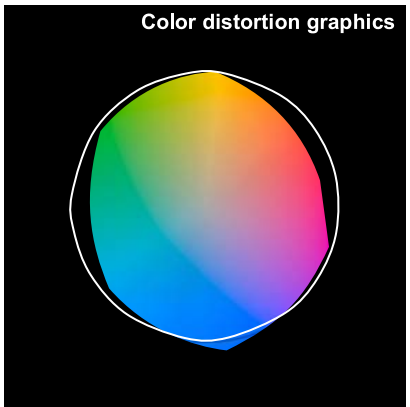
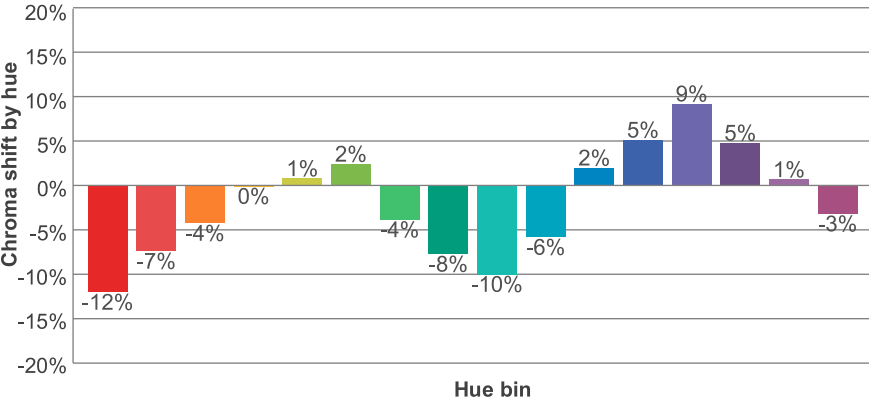
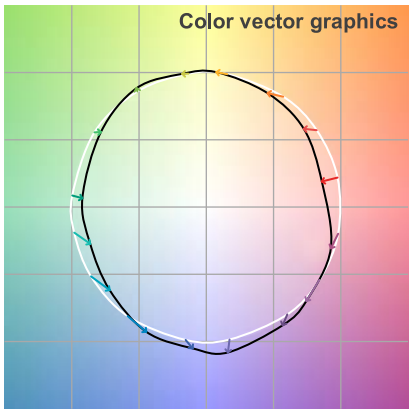
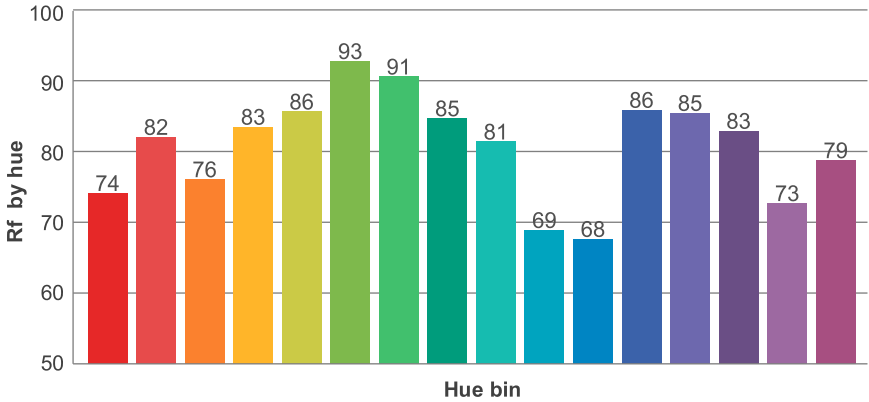
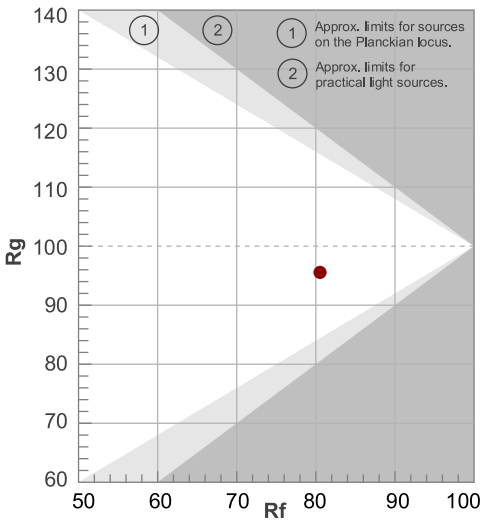
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TM30 details

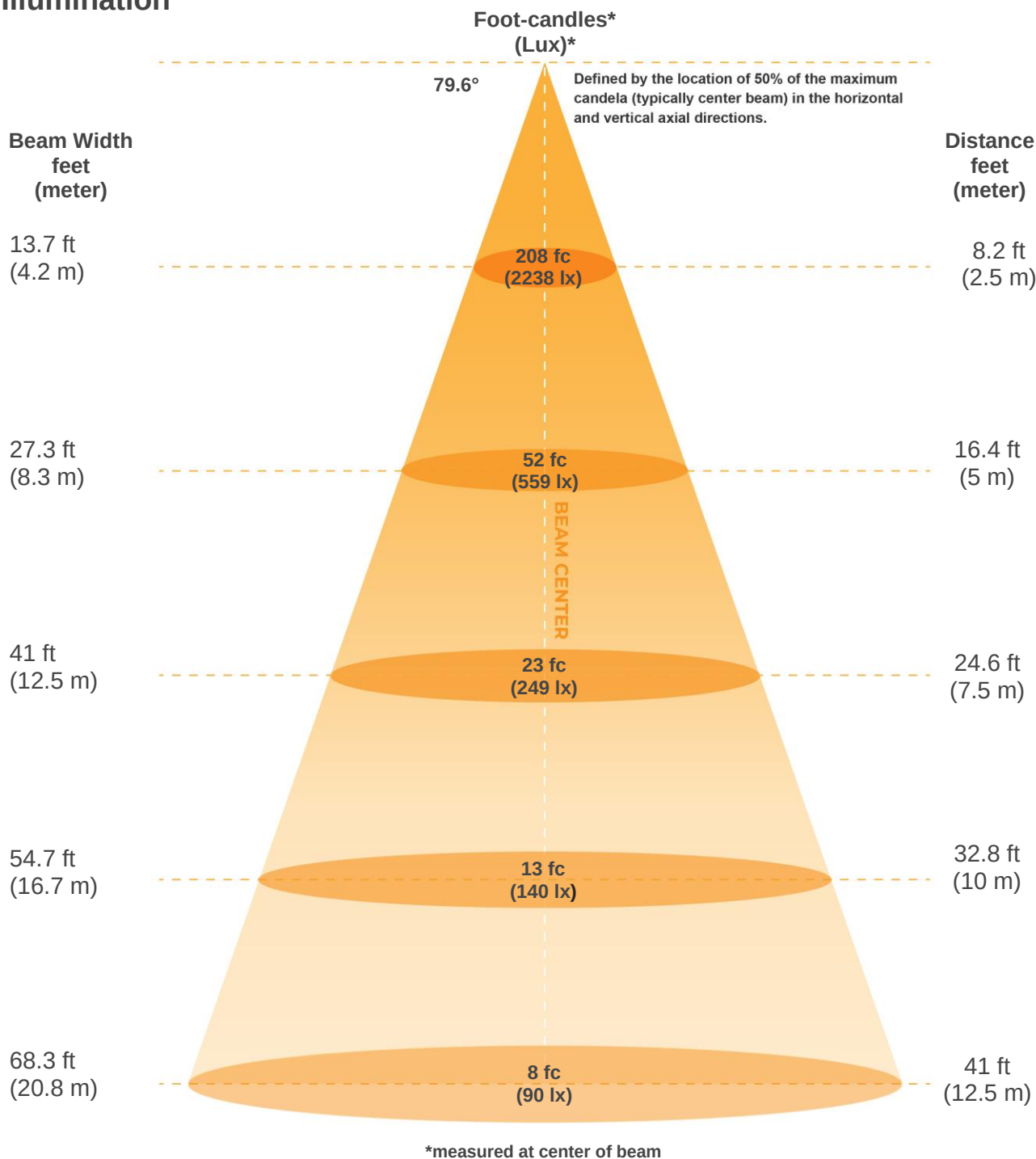
Rf 80.5

Rg 95.6
Gammut index Rg

Hue Bin	Ri	Graphic shifts (%)	
		Chroma	Hue
1	74	-12%	-1%
2	82	-7%	6%
3	76	-4%	11%
4	83	0%	8%
5	86	1%	5%
6	93	2%	-1%
7	91	-4%	-3%
8	85	-8%	0%
9	81	-10%	10%
10	69	-6%	16%
11	68	2%	18%
12	86	5%	6%
13	85	9%	-3%
14	83	5%	-7%
15	73	1%	-18%
16	79	-3%	-12%



Illumination



Beam intensities from 1-20m

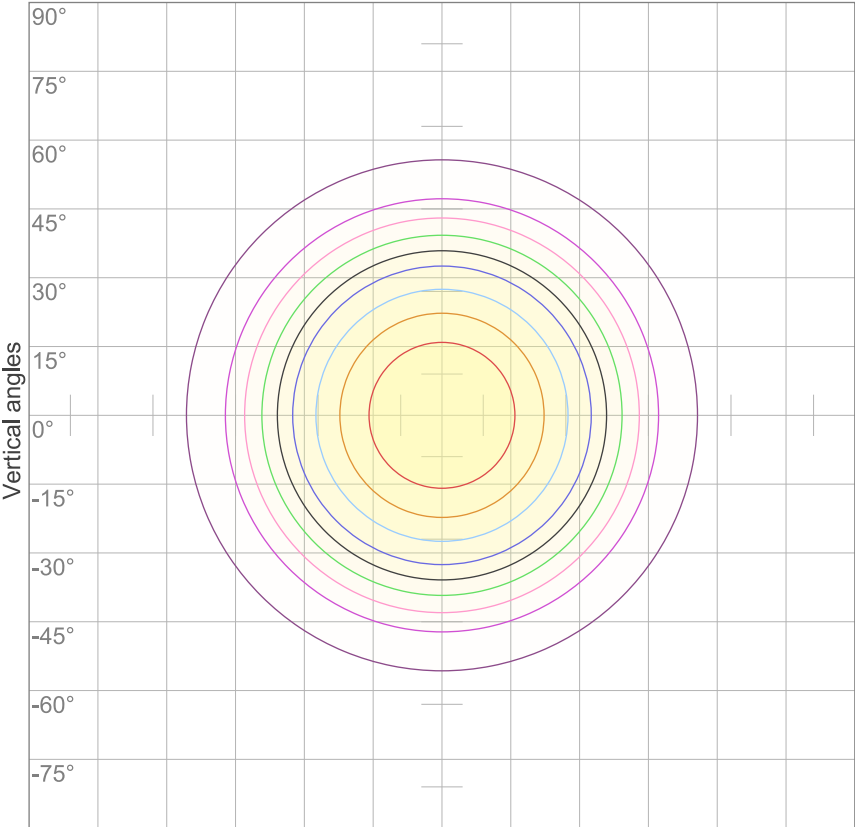
1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
3.3ft	6.6ft	9.8ft	13.1ft	16.4ft	19.7ft	23ft	26.2ft	29.5ft	32.8ft	36.1ft	39.4ft	42.7ft	45.9ft	49.2ft	52.5ft	55.8ft	59.1ft	62.3ft	65.6ft
13985lx	3496lx	1554lx	874lx	559lx	388lx	285lx	219lx	173lx	140lx	116lx	97lx	83lx	71lx	62lx	55lx	48lx	43lx	39lx	35lx
1299.3fcd	324.8fcd	144.4fcd	81.2fcd	52fcd	36.1fcd	26.5fcd	20.3fcd	16fcd	13fcd	10.7fcd	9fcd	7.7fcd	6.6fcd	5.8fcd	5.1fcd	4.5fcd	4fcd	3.6fcd	3.2fcd

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
79.6°	123.9°	152°	90.5%	74.0%



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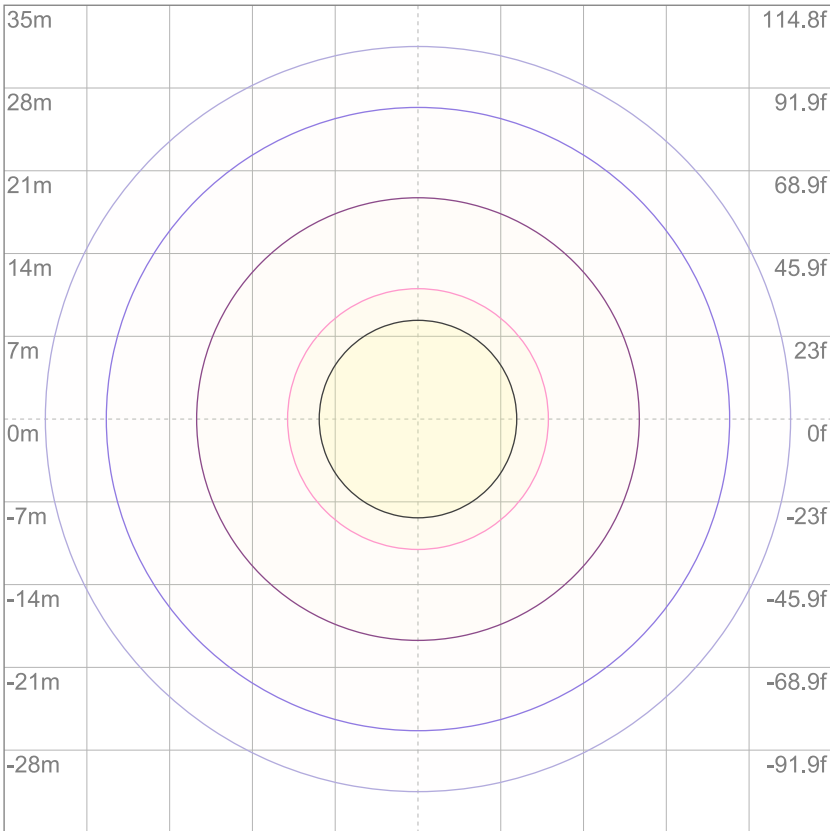
ISO Diagrams ISO candela diagram



10%	1399 cd
20%	2797 cd
30%	4196 cd
40%	5594 cd
50%	6993 cd
60%	8391 cd
70%	9790 cd
80%	11188 cd
90%	12587 cd

Conditions:
Number of c-planes: 16
Candela at center: 13985 cd

Horizontal angles
ISO lux diagram



3%	4.20 lx
5%	6.99 lx
10%	14.0 lx
30%	42.0 lx
50%	69.9 lx

Conditions:
Number of c-planes: 16
Lux at center: 140 lx

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

Mounting height: 10 meters (33 feet)



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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	34.3	35.3	34.6	35.5	35.8	34.3	35.3	34.6	35.5	35.8
	3H	34.6	35.5	35.0	35.8	36.1	34.6	35.5	35.0	35.8	36.1
	4H	34.7	35.5	35.0	35.8	36.2	34.7	35.5	35.0	35.8	36.2
	6H	34.8	35.5	35.1	35.9	36.2	34.8	35.5	35.1	35.9	36.2
	8H	34.8	35.5	35.2	35.9	36.2	34.8	35.5	35.2	35.9	36.2
	12H	34.8	35.6	35.2	35.9	36.3	34.8	35.6	35.2	35.9	36.3
4H	2H	34.4	35.3	34.8	35.6	35.9	34.4	35.3	34.8	35.6	35.9
	3H	34.9	35.6	35.3	35.9	36.3	34.9	35.6	35.3	35.9	36.3
	4H	35.0	35.6	35.4	36.0	36.4	35.0	35.6	35.4	36.0	36.4
	6H	35.2	35.7	35.6	36.1	36.5	35.2	35.7	35.6	36.1	36.5
	8H	35.2	35.7	35.7	36.2	36.6	35.2	35.7	35.7	36.2	36.6
	12H	35.3	35.8	35.8	36.2	36.7	35.3	35.8	35.8	36.2	36.7
8H	4H	35.0	35.5	35.5	35.9	36.4	35.0	35.5	35.5	35.9	36.4
	6H	35.3	35.6	35.7	36.1	36.6	35.3	35.6	35.7	36.1	36.6
	8H	35.4	35.7	35.9	36.2	36.7	35.4	35.7	35.9	36.2	36.7
	12H	35.6	35.9	36.1	36.4	36.9	35.6	35.9	36.1	36.4	36.9
12H	4H	35.0	35.4	35.5	35.9	36.4	35.0	35.4	35.5	35.9	36.4
	6H	35.3	35.6	35.8	36.1	36.6	35.3	35.6	35.8	36.1	36.6
	8H	35.4	35.7	36.0	36.2	36.8	35.4	35.7	36.0	36.2	36.8
Variation of the observer position for the luminaire distance S											
S = 1.0H		+0.6 / -1.0					+0.6 / -1.0				
S = 1.5H		+1.3 / -1.8					+1.3 / -1.8				
S = 2.0H		+2.6 / -2.7					+2.6 / -2.7				
Standard table		BK02					BK02				
Correction summand		17.6					17.6				
Corrected glare indices referring to 23779 lm total luminous flux											



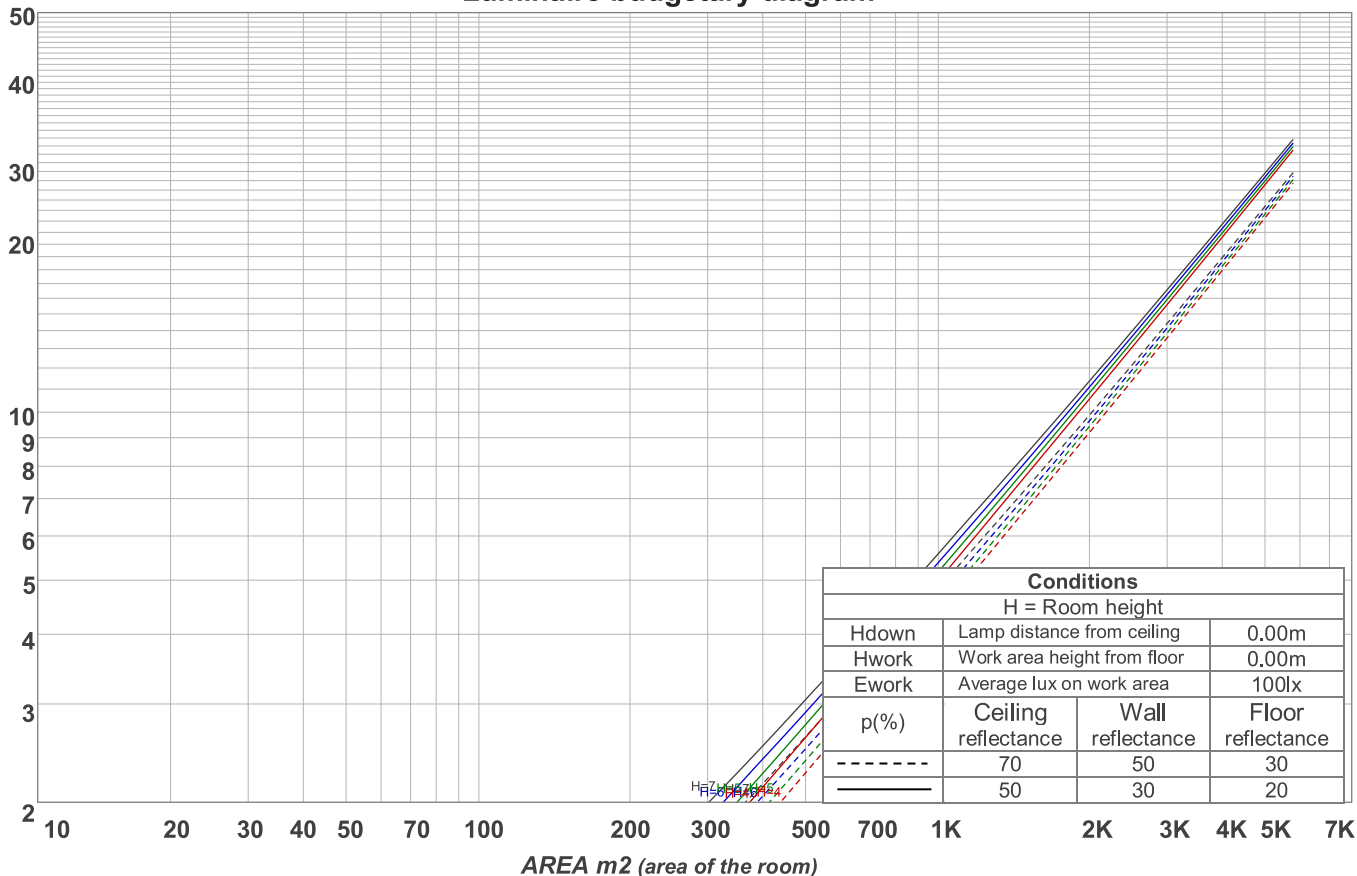
Light planning

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	105	105	105	100	100	100	98
1	111	107	104	101	108	105	102	99	100	98	95	96	94	92	92	90	89	87
2	103	97	91	87	100	95	90	85	91	87	83	87	84	81	84	81	79	77
3	96	87	81	75	93	86	80	75	82	77	73	80	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	55
6	77	66	59	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°
1307 lm	3637 lm	5062 lm	5382 lm	3987 lm	2137 lm	1086 lm	416 lm	196 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
105 lm	99.6 lm	108 lm	86.9 lm	65.7 lm	45.9 lm	30.6 lm	19.5 lm	7.29 lm



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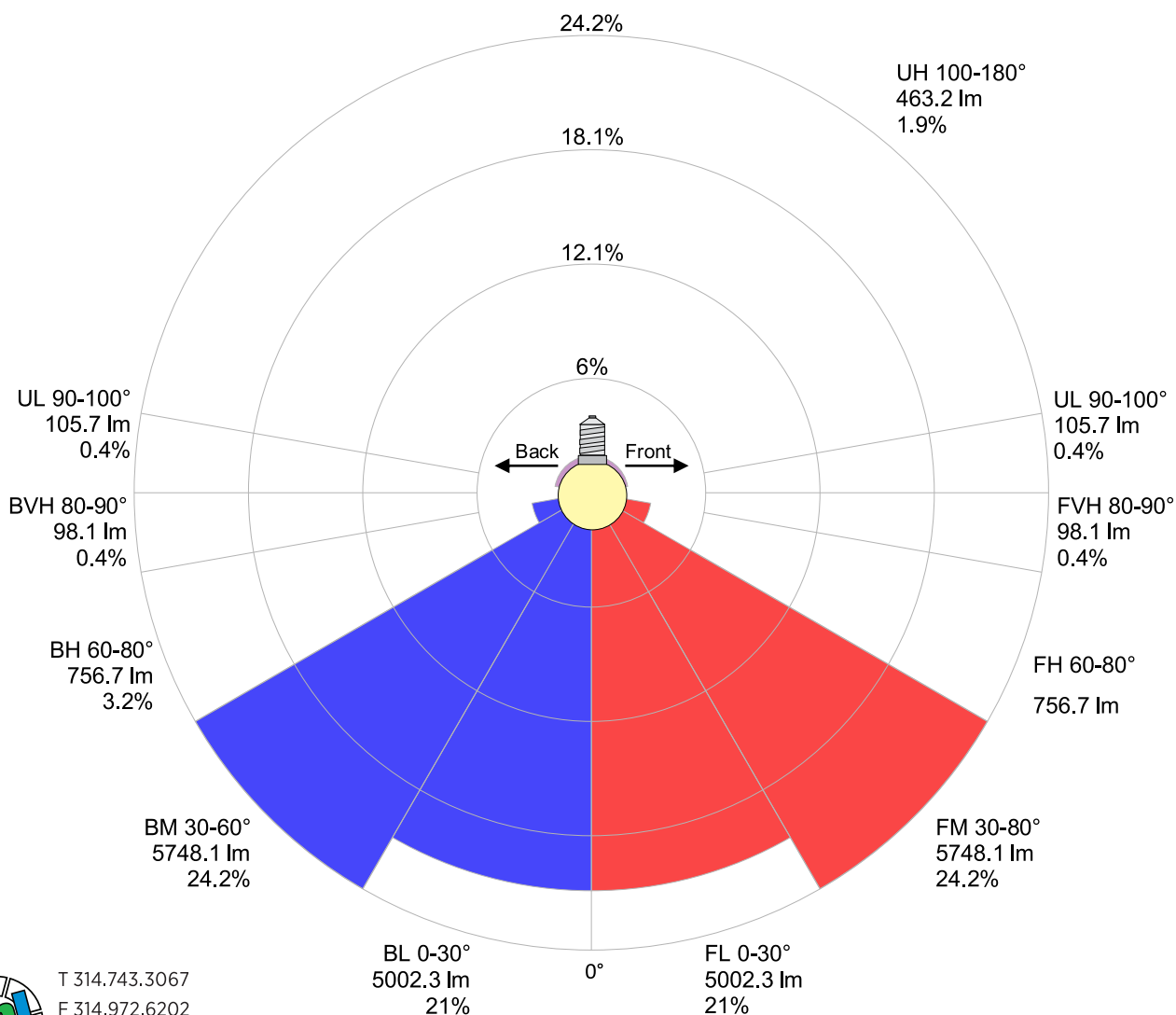
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Road Report

LCS table

BUG rating:	B5 U3 G1	
Forward light	Lumens	Lumens %
Low(0-30):	5002.3	21%
Medium(30-60):	5748.1	24.2%
High(60-80):	756.7	3.2%
Very high(80-90):	98.1	0.4%
Back light		
Low(0-30):	5002.3	21%
Medium(30-60):	5748.1	24.2%
High(60-80):	756.7	3.2%
Very high(80-90):	98.1	0.4%
Uplight		
Low(90-100):	105.7	0.4%
High(100-180):	463.2	1.9%

LCS graph



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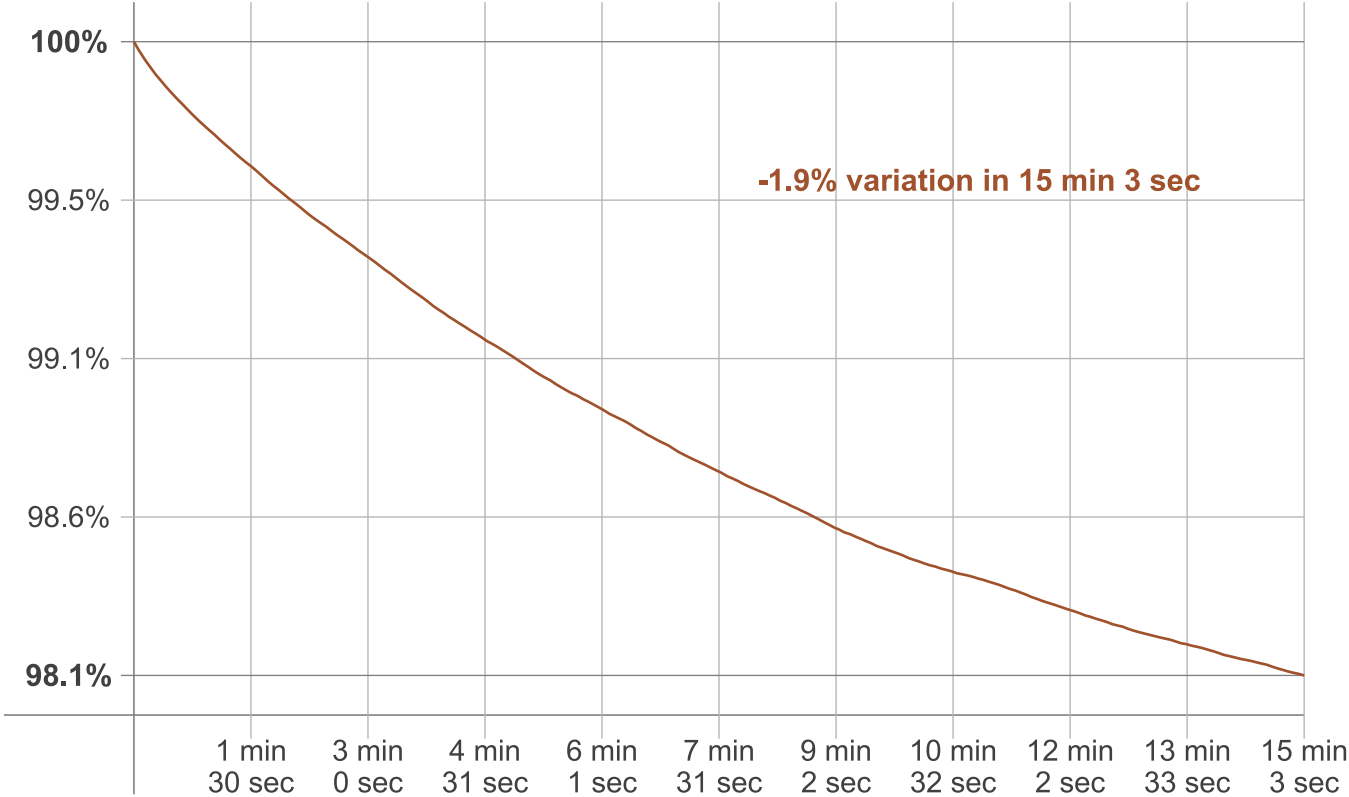
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Stabilization

Warmup curve



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
5173 K	+39 K	5212 K

Output change

Output start	Output change	Output end
24216 lm	-437 lm	23779 lm

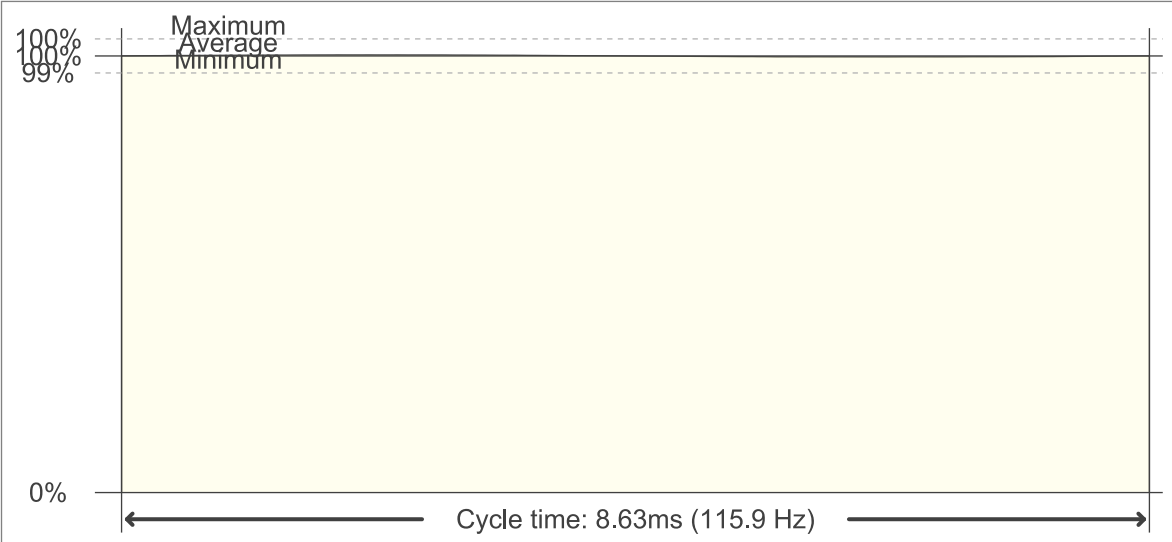


Flicker

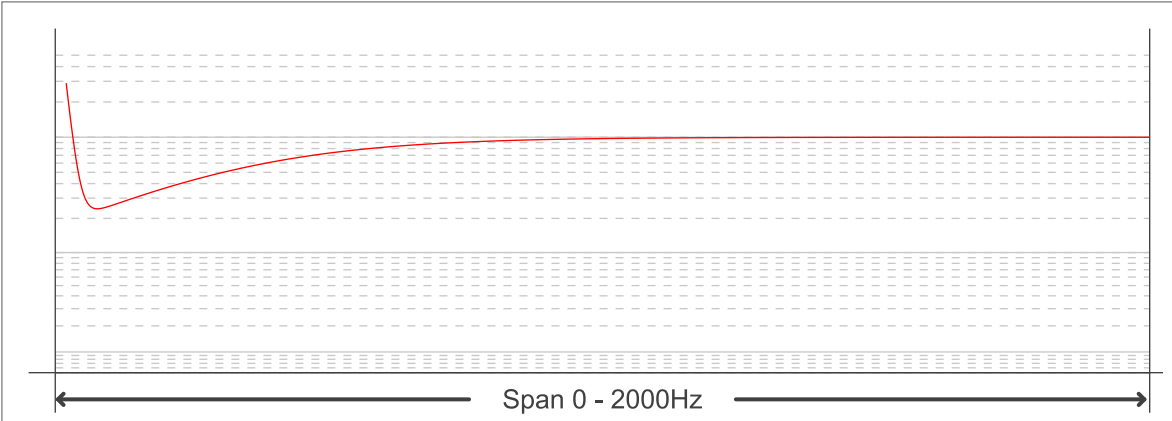
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



Flicker results:

Flicker frequency:	115.94 Hz
Flicker index:	0
Flicker percentage:	0.26 %
SVM: (Visual flicker)	0.01

Flicker conditions:

Sample rate:	40000 samples/second
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