

Light efficiency:



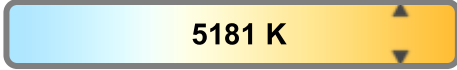
Output: 25840 lm

Light quality:



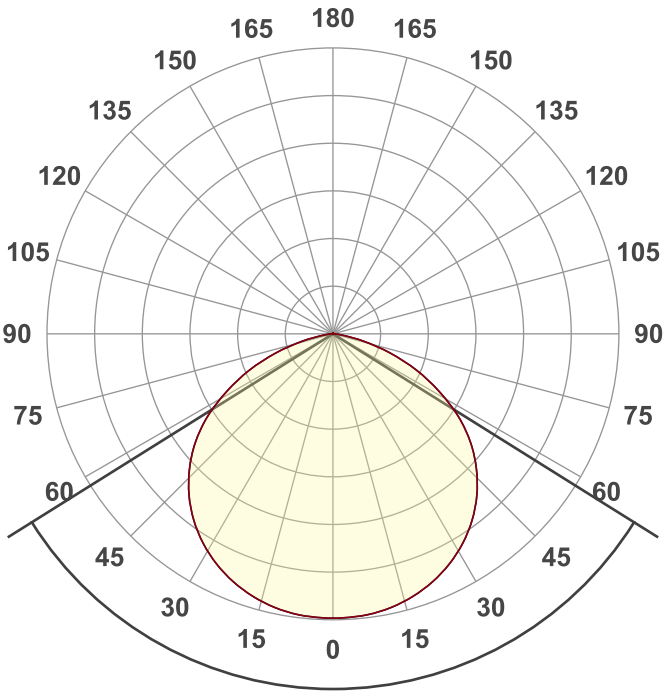
Peak: 8924 cd

Color temperature:



Power: 199.6 W

PF: 0.99



Product name:

HBUD-50K200W

Date and time:

3/4/2019 12:27:53 PM

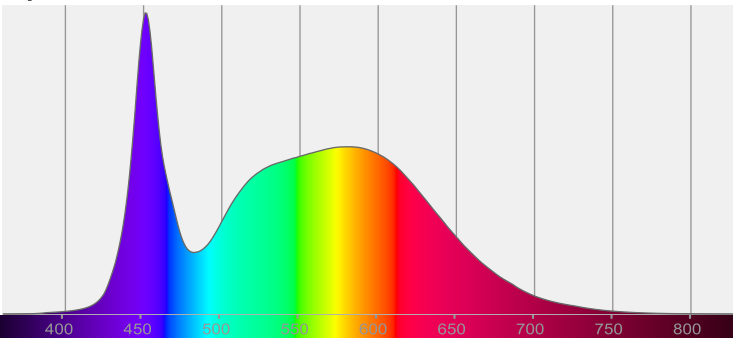
Beam angle

115.9°

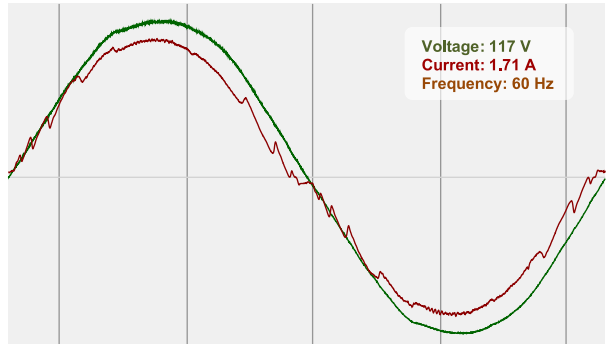


CIE 1931
x: 0.340
y: 0.348

Spectra



Power



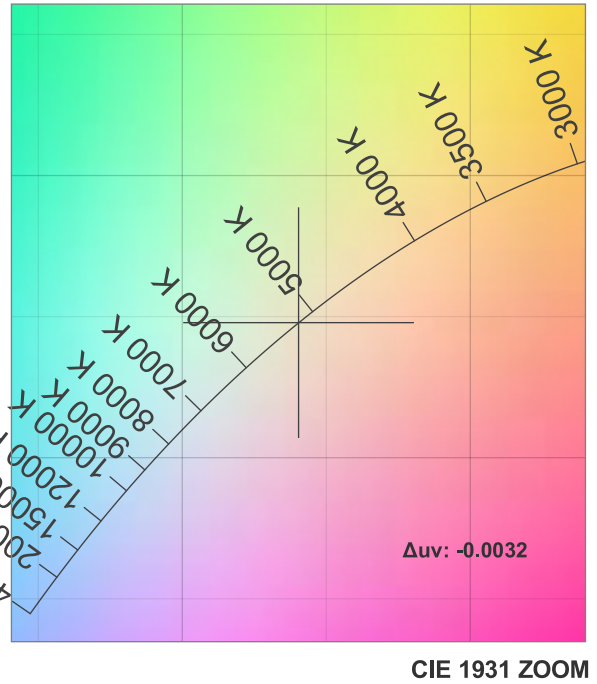
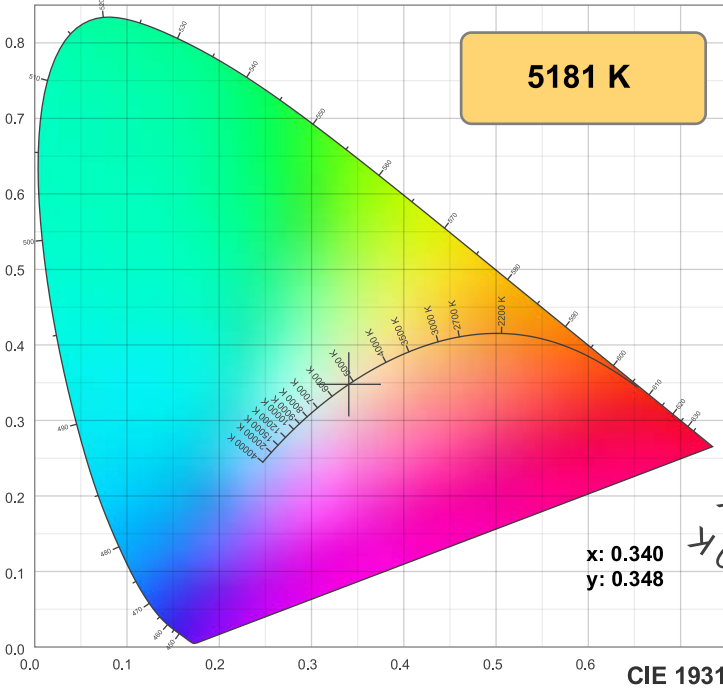
T 314.743.3067

F 314.972.6202

email: commercial-sales@superbrightleds.com

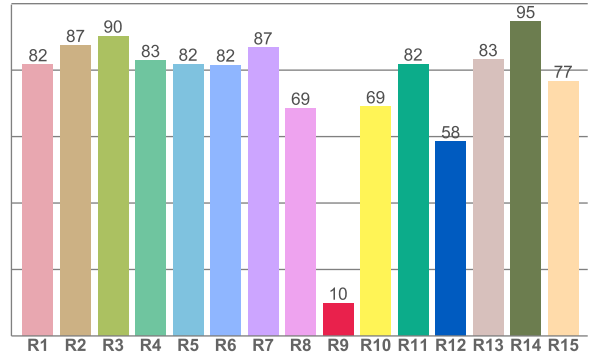
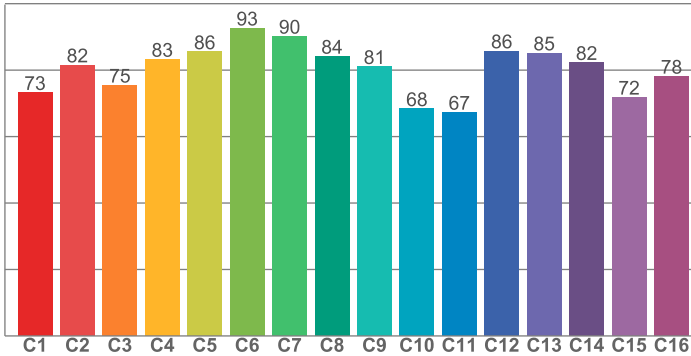
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Color details



TM30: 80.1

CRI: 82.6 (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
81.6	87.5	90.3	82.9	81.8	81.5	86.7	68.6	9.9	69.0	81.8	58.5	83.2	94.7	76.7

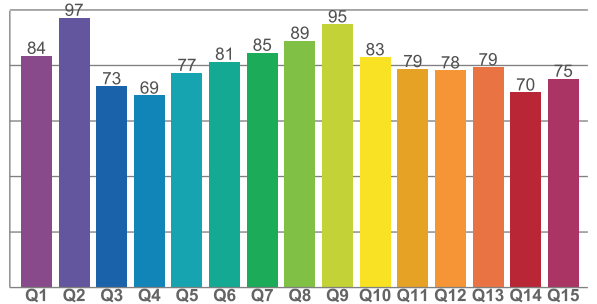
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
73.2	81.5	75.5	83.2	85.5	92.7	90.2	84.2	81.1	68.4	67.3	85.8	85.2	82.3	71.8	78.1

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
83.5	97.2	72.6	69.2	77.4	81.4	84.6	88.9	94.9	83.0	78.8	78.3	79.4	70.3	75.3

CQS: 79.4



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
5181 K	82.6	9.9	80.1	95.2	79.4	0.340	0.348	0.210	0.321	-0.0032



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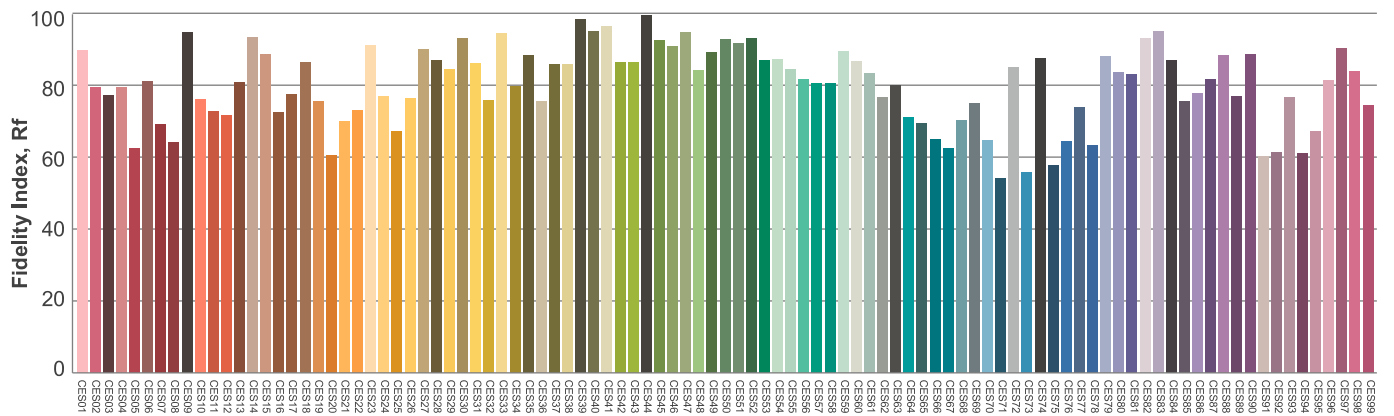
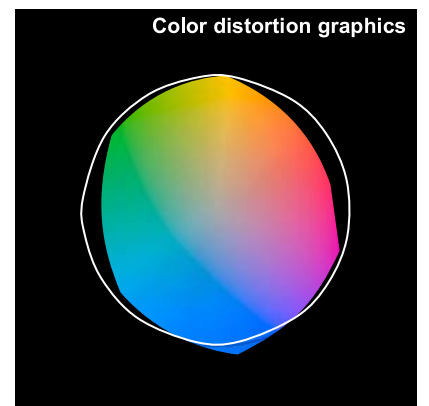
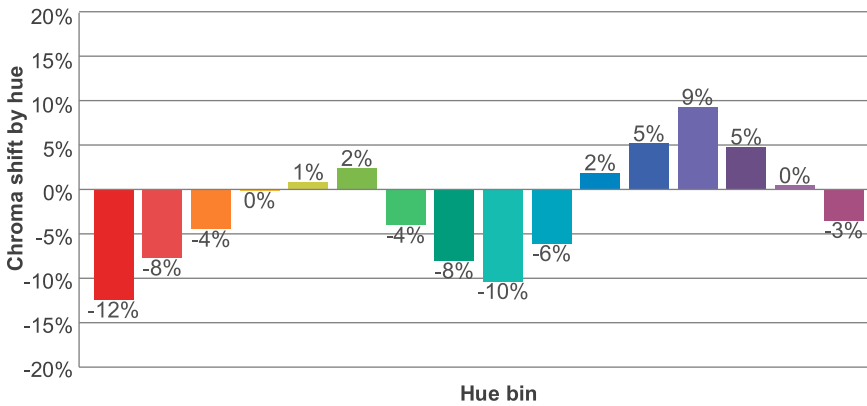
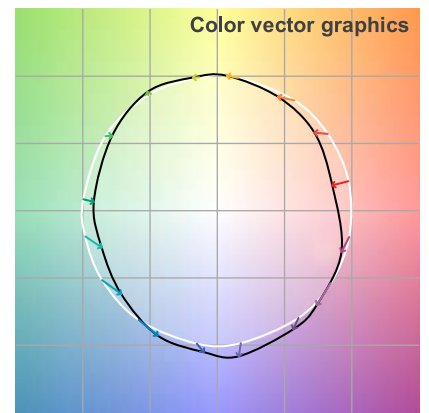
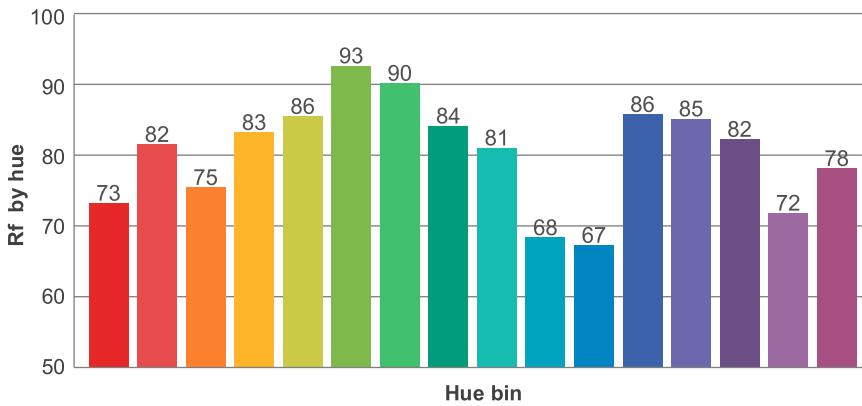
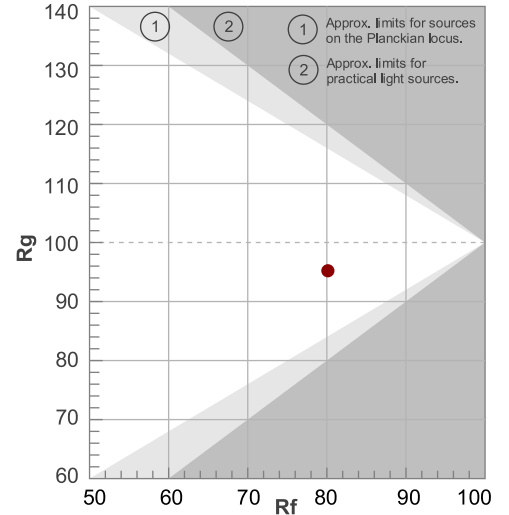
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TM30 details

Rf 80.1

Rg 95.2
Gammut index Rg

Hue Bin	Rf	Graphic shifts (%)	
		Chroma	Hue
1	73	-12%	-1%
2	82	-8%	6%
3	75	-4%	11%
4	83	0%	8%
5	86	1%	5%
6	93	2%	-1%
7	90	-4%	-3%
8	84	-8%	0%
9	81	-10%	10%
10	68	-6%	16%
11	67	2%	18%
12	86	5%	6%
13	85	9%	-3%
14	82	5%	-8%
15	72	0%	-19%
16	78	-3%	-12%



Color Evaluation Sample



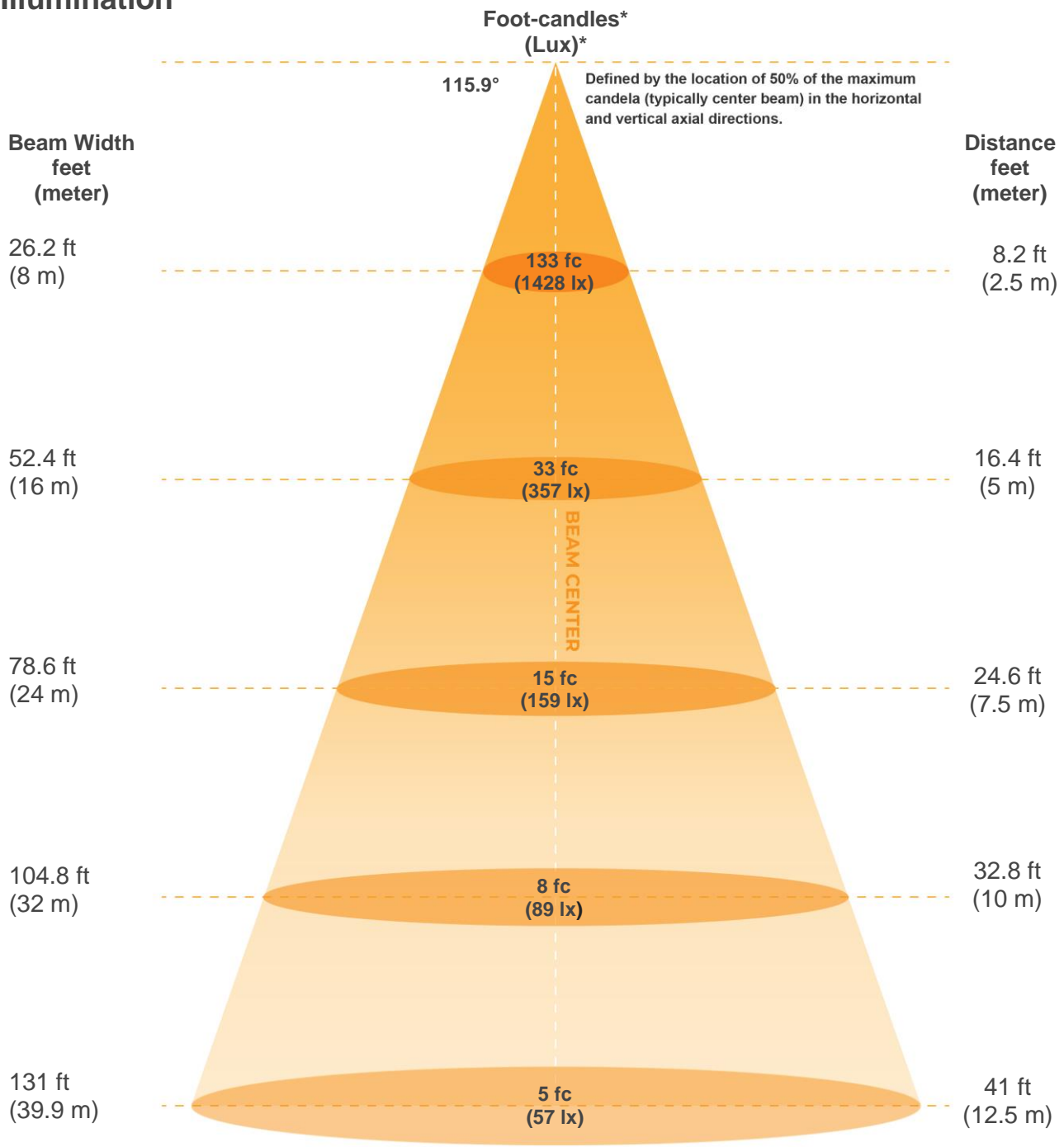
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Illumination



*measured at center of beam

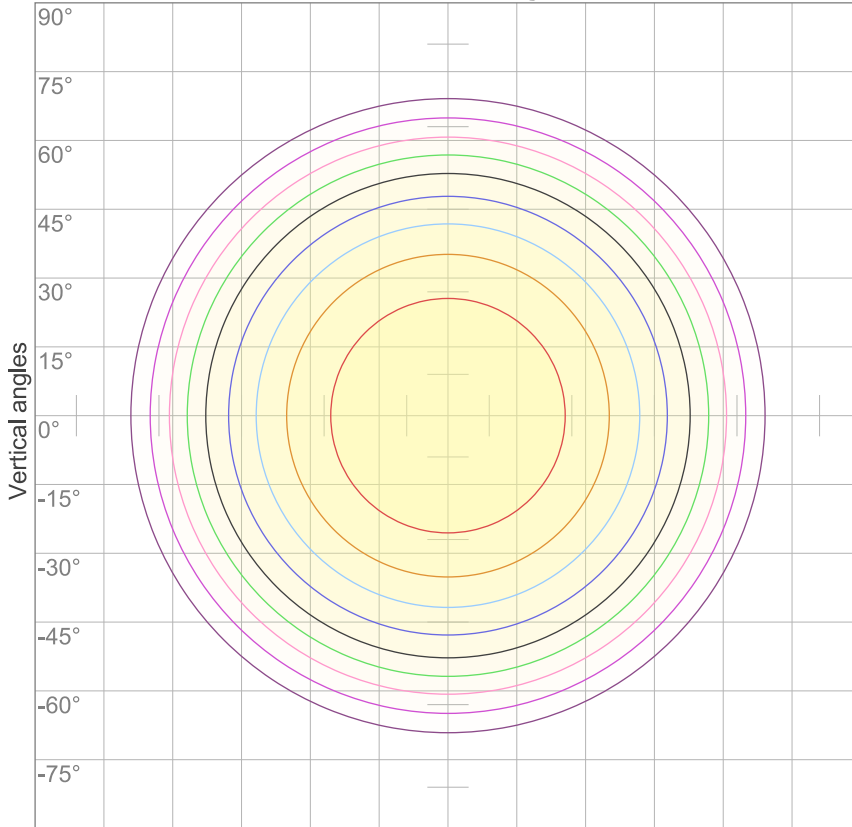
Beam intensities from 1-20m

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
8924lx	2231lx	992lx	558lx	357lx	248lx	182lx	139lx	110lx	89lx	74lx	62lx	53lx	46lx	40lx	35lx	31lx	28lx	25lx	22lx
829.1fc	207.3fc	92.1fcd	51.8fcd	33.2fcd	23fcd	16.9fcd	13fcd	10.2fcd	8.3fcd	6.9fcd	5.8fcd	4.9fcd	4.2fcd	3.7fcd	3.2fcd	2.9fcd	2.6fcd	2.3fcd	2.1fcd

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
115.9°	154.5°	166.9°	81.8%	55.1%



ISO Diagrams ISO candela diagram



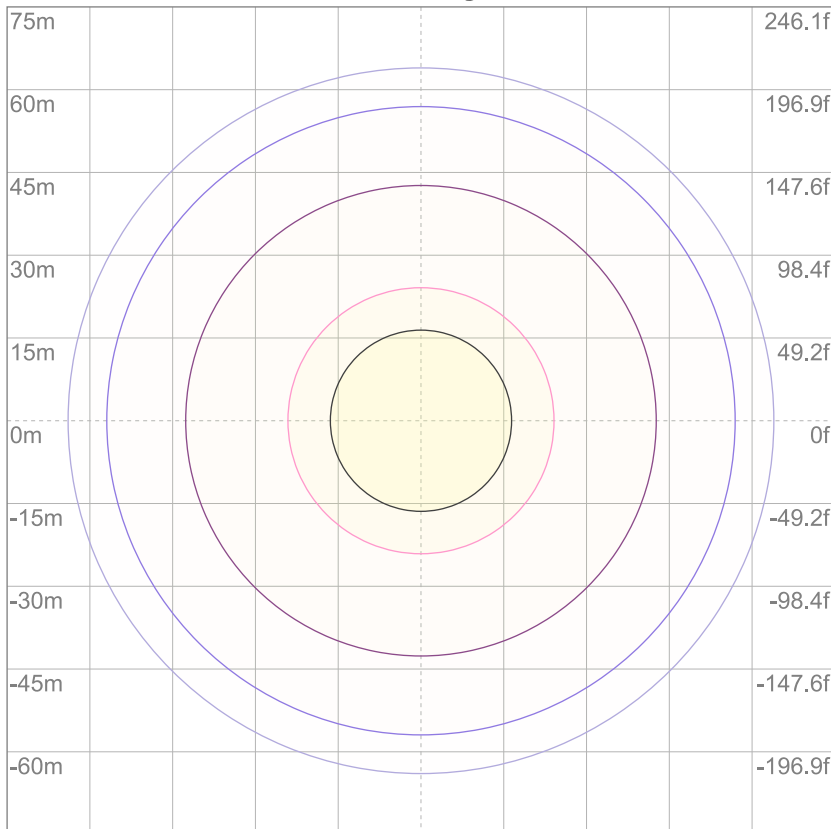
10%	892 cd
20%	1785 cd
30%	2677 cd
40%	3570 cd
50%	4462 cd
60%	5355 cd
70%	6247 cd
80%	7139 cd
90%	8032 cd

Conditions:

Number of c-planes: 16

Candela at center: 8924 cd

ISO lux diagram



3%	2.68 lx
5%	4.46 lx
10%	8.92 lx
30%	26.8 lx
50%	44.6 lx

Conditions:

Number of c-planes: 16

Lux at center: 89.2 lx

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



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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	37.8	39.1	38.1	39.3	39.6	37.8	39.1	38.1	39.3	39.6
	3H	39.0	40.2	39.4	40.5	40.7	39.0	40.2	39.4	40.5	40.7
	4H	39.4	40.5	39.7	40.8	41.1	39.4	40.5	39.7	40.8	41.1
	6H	39.5	40.6	39.9	40.9	41.2	39.5	40.6	39.9	40.9	41.2
	8H	39.5	40.5	39.9	40.8	41.2	39.5	40.5	39.9	40.8	41.2
	12H	39.5	40.5	39.9	40.8	41.1	39.5	40.5	39.9	40.8	41.1
4H	2H	38.4	39.5	38.7	39.8	40.1	38.4	39.5	38.7	39.8	40.1
	3H	39.8	40.7	40.2	41.0	41.4	39.8	40.7	40.2	41.0	41.4
	4H	40.2	41.1	40.6	41.4	41.8	40.2	41.1	40.6	41.4	41.8
	6H	40.4	41.2	40.9	41.5	41.9	40.4	41.2	40.9	41.5	41.9
	8H	40.5	41.1	40.9	41.5	42.0	40.5	41.1	40.9	41.5	42.0
	12H	40.5	41.1	40.9	41.5	41.9	40.5	41.1	40.9	41.5	41.9
8H	4H	40.4	41.0	40.8	41.4	41.9	40.4	41.0	40.8	41.4	41.9
	6H	40.7	41.2	41.1	41.6	42.1	40.7	41.2	41.1	41.6	42.1
	8H	40.7	41.2	41.2	41.6	42.1	40.7	41.2	41.2	41.6	42.1
	12H	40.7	41.1	41.2	41.6	42.1	40.7	41.1	41.2	41.6	42.1
12H	4H	40.4	41.0	40.8	41.4	41.8	40.4	41.0	40.8	41.4	41.8
	6H	40.7	41.1	41.1	41.6	42.1	40.7	41.1	41.1	41.6	42.1
	8H	40.7	41.1	41.2	41.6	42.1	40.7	41.1	41.2	41.6	42.1
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		23.3					23.3				
Corrected glare indices referring to 25840 lm total luminous flux											



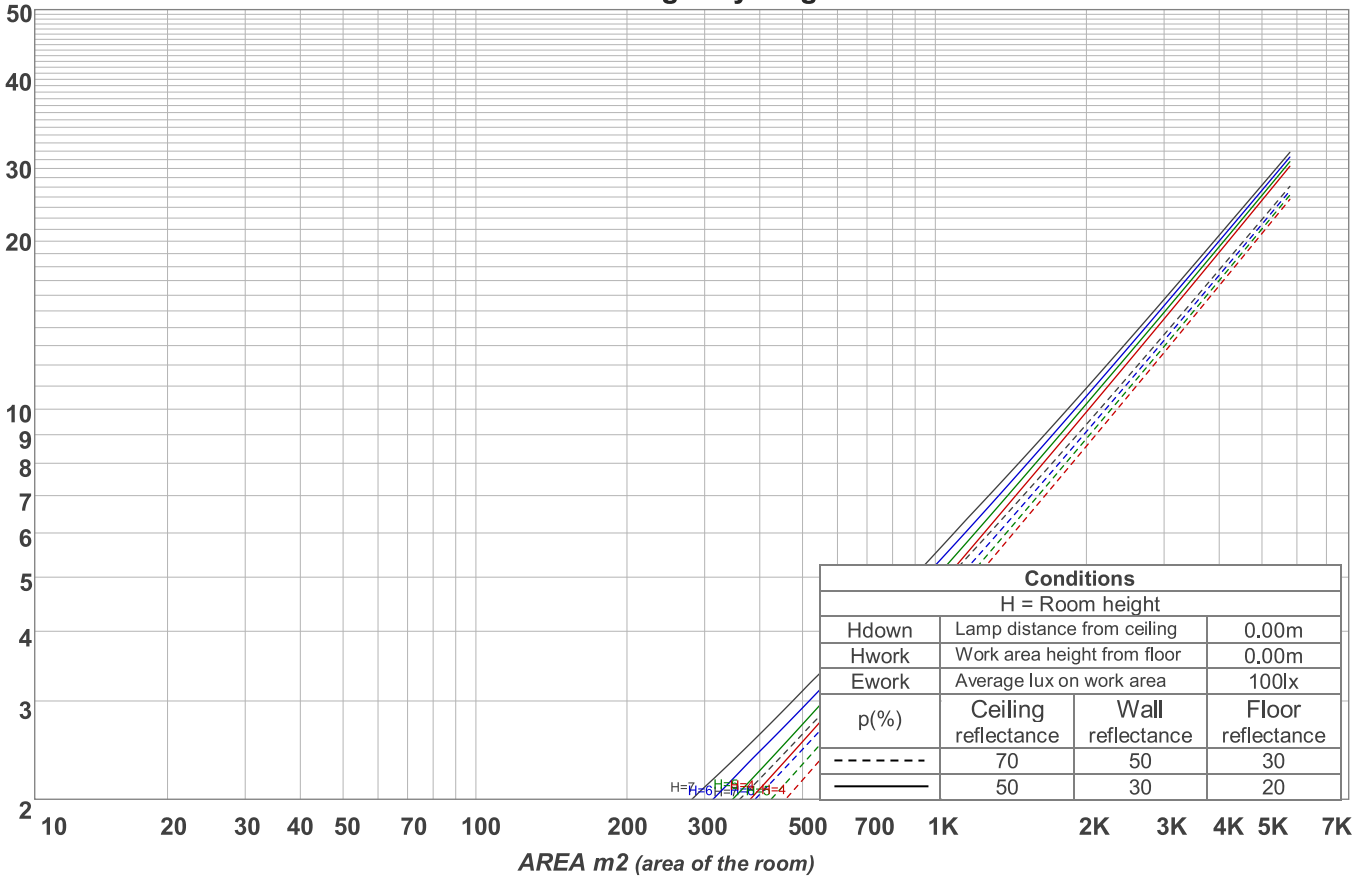
Light planning

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	50	30	10	0
Floor reflectance	20	20	20	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	64	73	68	63	71	66	62	60			
4	83	71	63	56	81	70	62	56	67	60	55	65	59	54	63	58	53	51			
5	76	64	55	48	74	63	54	48	60	53	47	58	52	47	57	51	46	44			
6	71	57	48	42	69	56	48	42	54	47	41	53	46	41	51	45	41	39			
7	65	52	43	37	64	51	43	37	49	42	37	48	41	36	47	41	36	34			
8	61	47	39	33	59	47	38	33	45	38	33	44	37	32	43	37	32	30			
9	57	43	35	30	55	43	35	29	42	34	29	40	34	29	39	33	29	27			
10	53	40	32	27	52	39	32	27	38	31	27	37	31	26	36	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°
848 lm	2456 lm	3788 lm	4668 lm	4933 lm	4435 lm	3099 lm	1347 lm	176 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
8.88 lm	10.4 lm	12.4 lm	13.6 lm	14.1 lm	12.8 lm	10.2 lm	6.63 lm	2.29 lm



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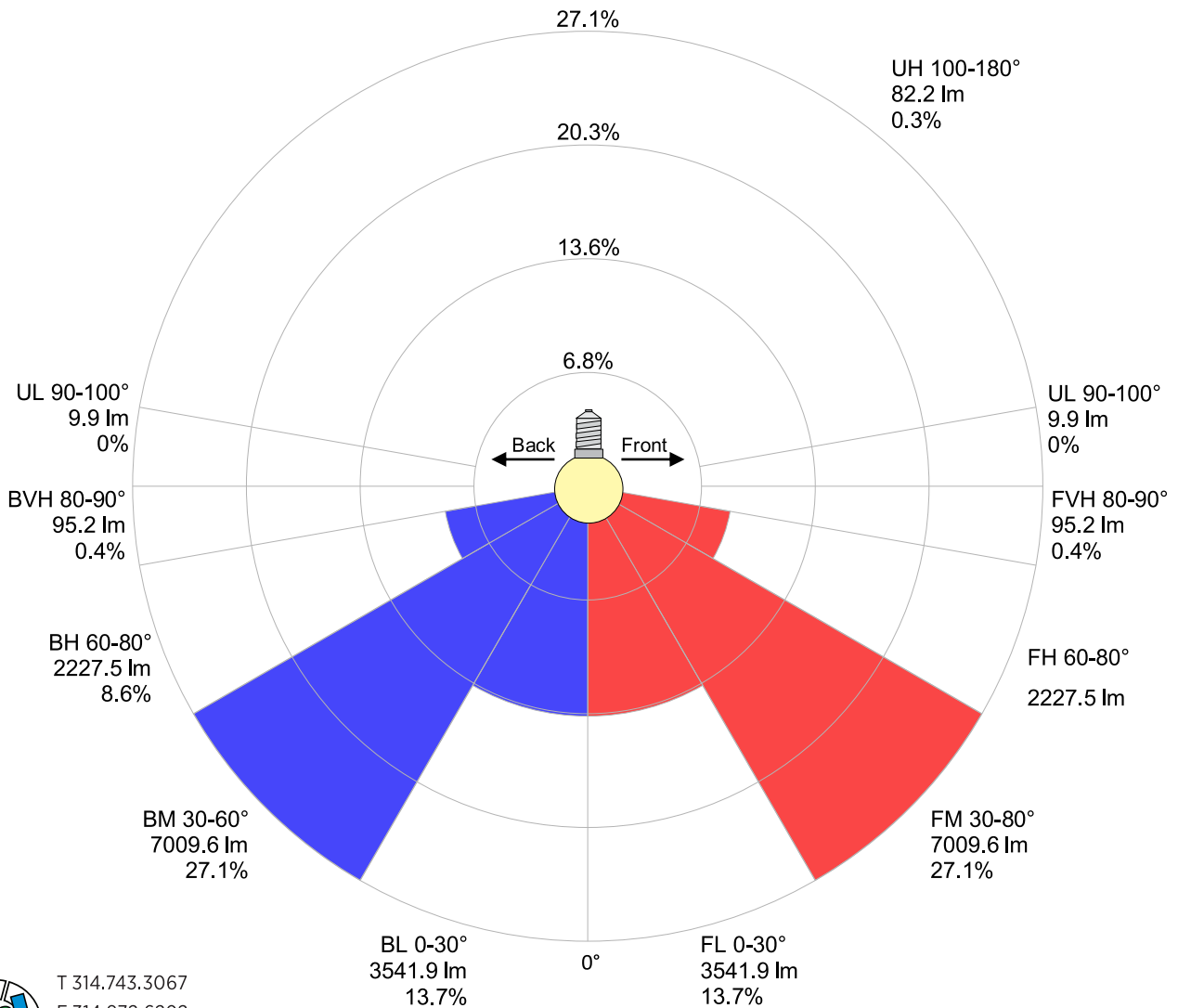
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Road report

LCS table

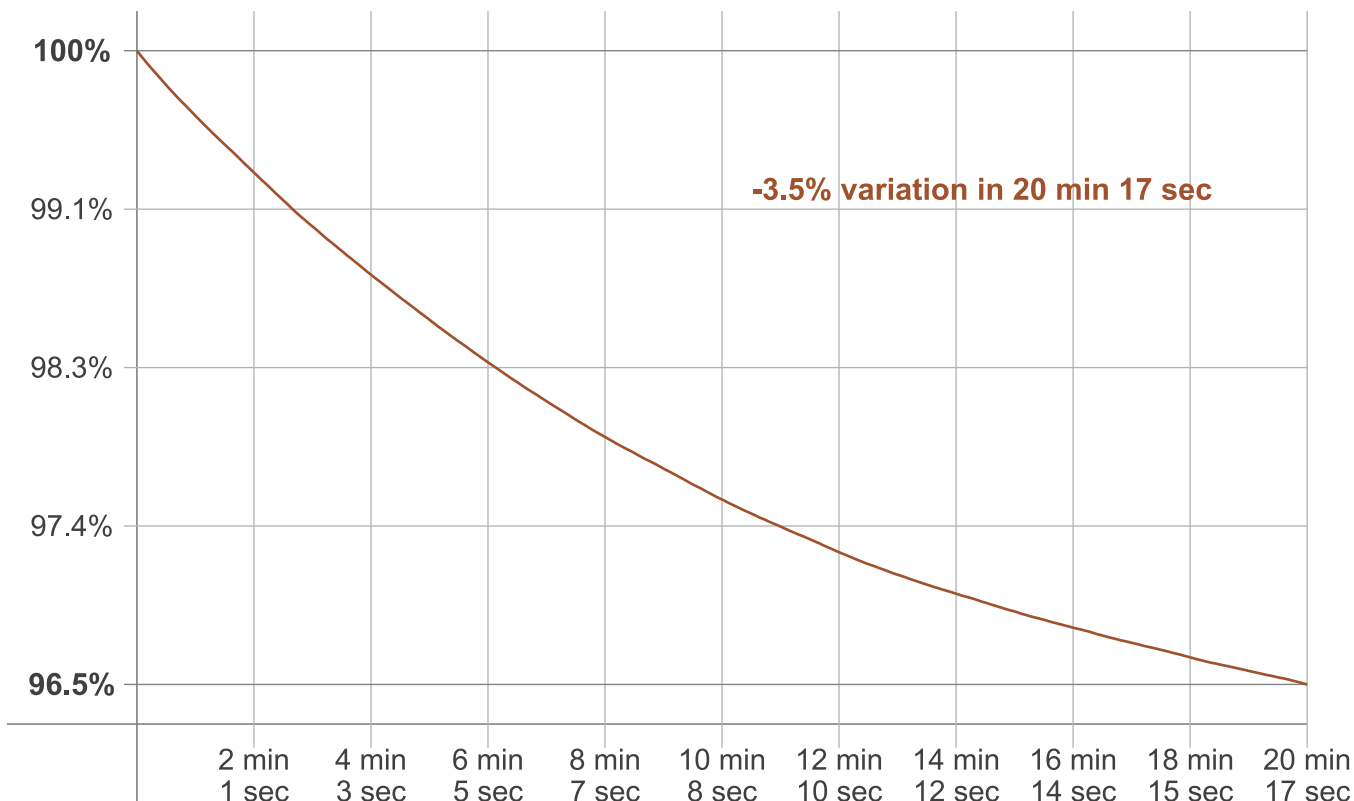
BUG rating:	B4 U3 G2	
Forward light	Lumens	Lumens %
Low(0-30):	3541.9	13.7%
Medium(30-60):	7009.6	27.1%
High(60-80):	2227.5	8.6%
Very high(80-90):	95.2	0.4%
Back light		
Low(0-30):	3541.9	13.7%
Medium(30-60):	7009.6	27.1%
High(60-80):	2227.5	8.6%
Very high(80-90):	95.2	0.4%
Uplight		
Low(90-100):	9.9	0%
High(100-180):	82.2	0.3%

LCS graph



Stabilization

Warmup curve



Warmup result

Warmup time:	20 min 17 sec
Warmup variation	-3.5%

Warmup conditions

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

Color temperature change

CCT start	CCT change	CCT end
5100 K	+81 K	5181 K

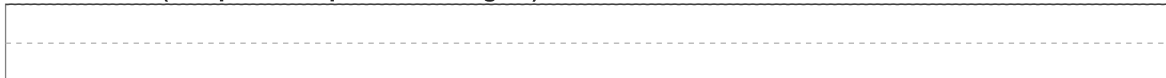
Output change

Output start	Output change	Output end
26747 lm	-906 lm	25840 lm

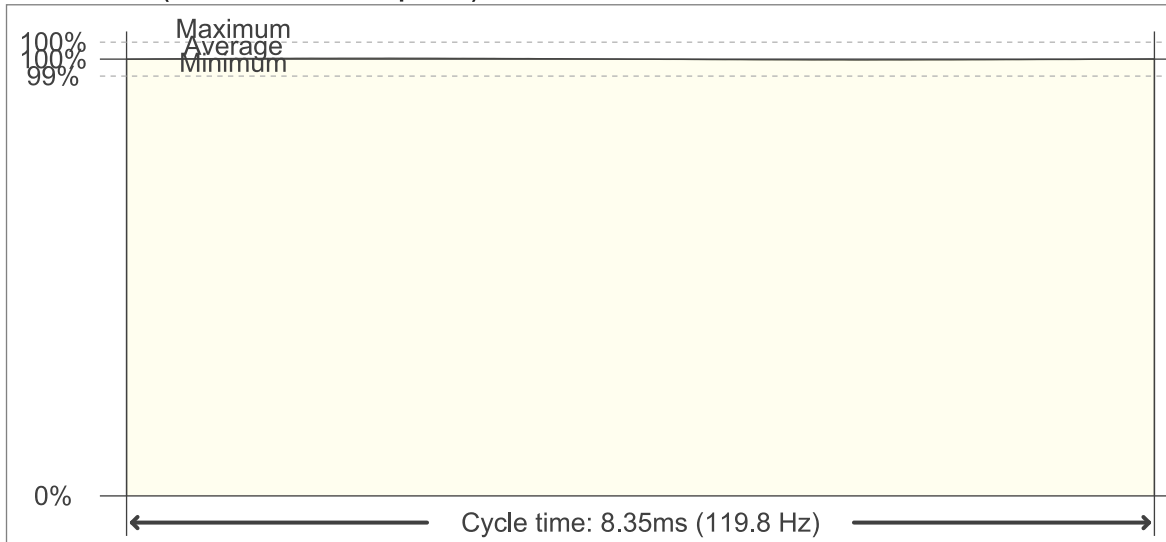


Flicker

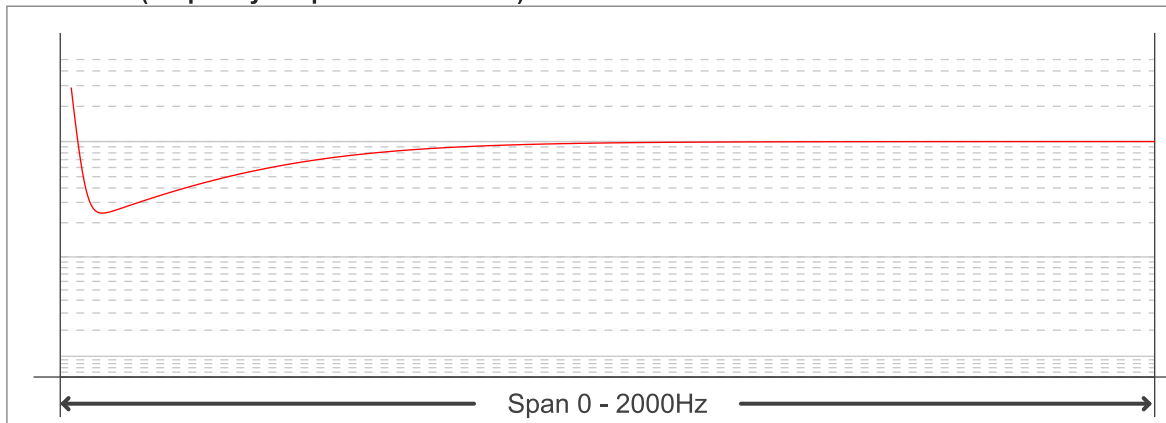
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



Flicker results:

Flicker frequency:	119.76 Hz
Flicker index:	0
Flicker percentage:	0.26 %
SVM: (Visual flicker)	0.01

Flicker conditions:

Sample rate:	40000 samples/second
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