

Light efficiency:



Output: 22081 lm

Light quality:



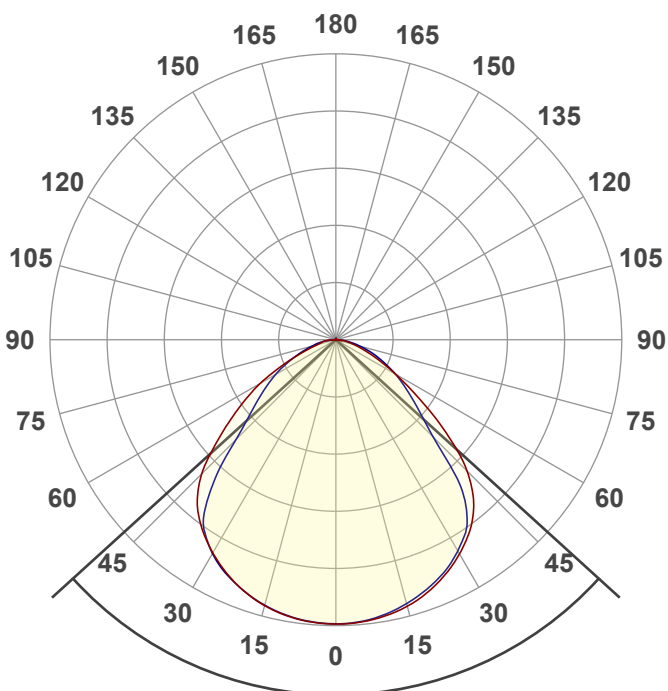
Peak: 9440 cd

Color temperature:



Power: 164.6 W

PF: 1.0



Product name:  
**LHBDS2-50K165ML-P1WH**

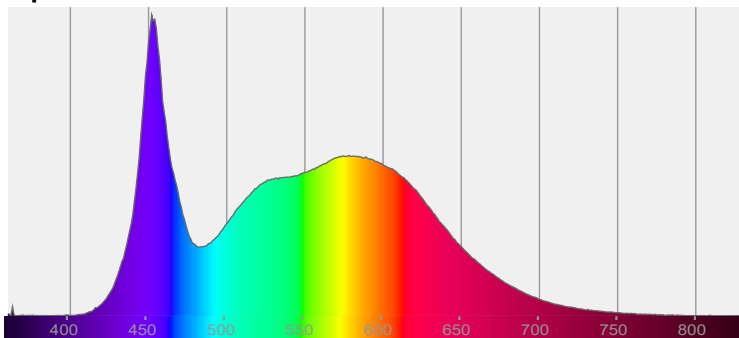
Date and time:  
**11/7/2022 11:10:25 AM**

Beam angle **95.5°**

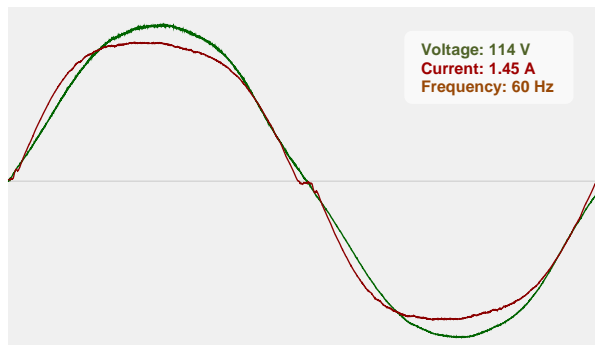


CIE 1931  
x: 0.336  
y: 0.341

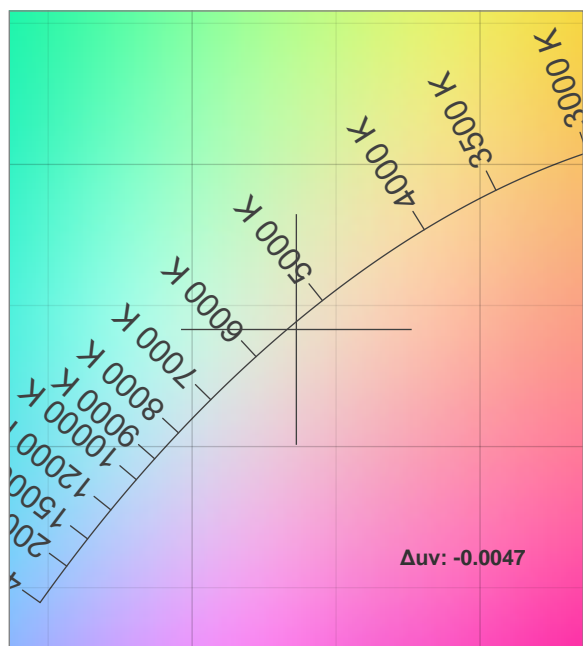
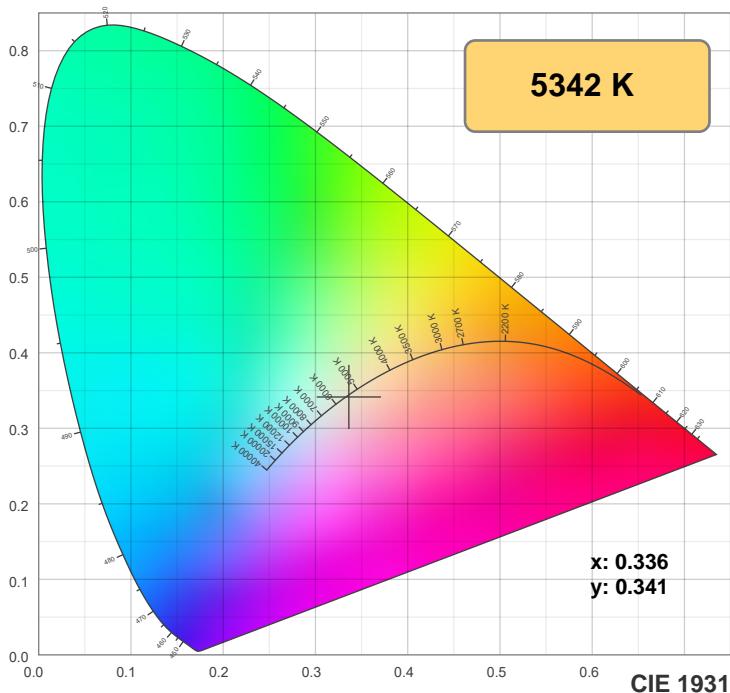
Spectra



Power

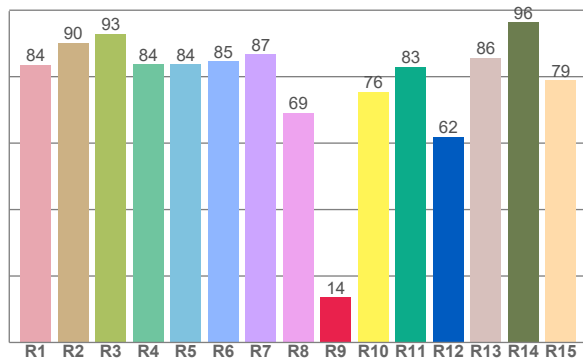
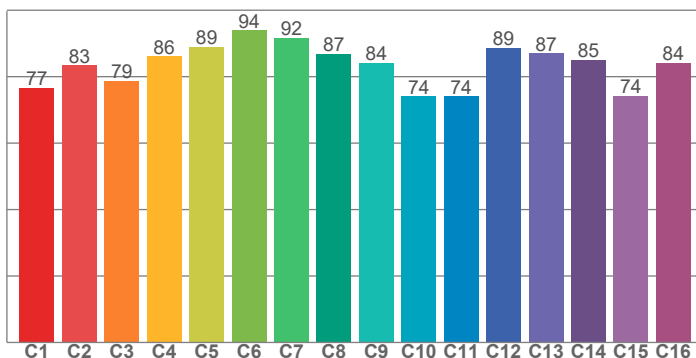


## Color Specifications



**TM30: 83.4**

**CRI: 84.4 (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
83.6	90.3	93.0	83.8	83.7	84.6	86.7	69.1	13.6	75.5	83.0	61.9	85.8	96.5	78.9

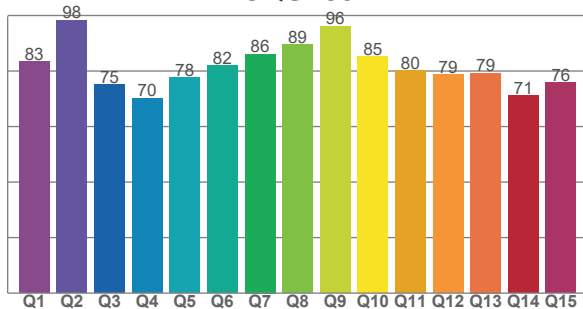
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
76.5	83.4	78.7	86.1	89.1	93.9	91.7	86.9	84.2	74.1	74.0	88.7	87.0	85.1	74.3	84.1

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
83.4	98.3	75.0	70.2	77.5	81.9	86.1	89.4	96.1	85.2	80.1	78.7	79.3	71.1	75.8

**CQS: 80.2**



## 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 division from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	$\Delta uv$
5342 K	84.4	13.6	83.4	95.7	80.2	0.336	0.341	0.209	0.319	-0.0047

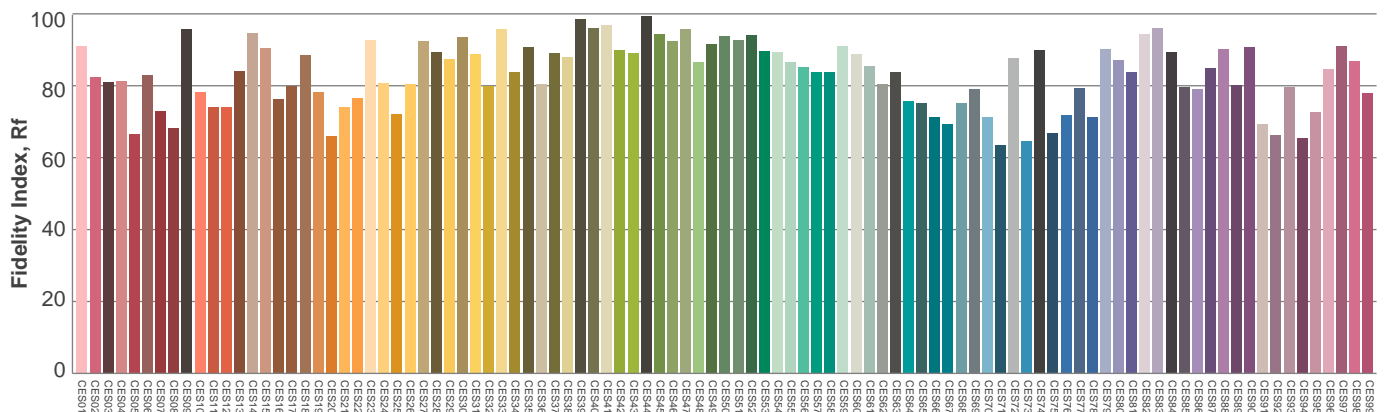
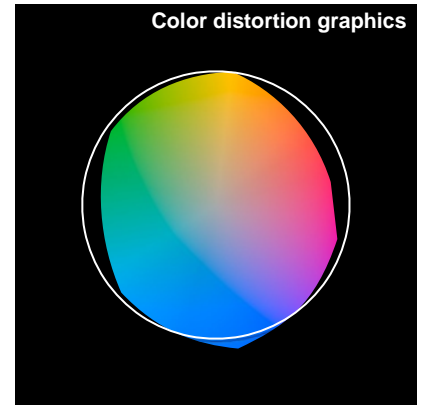
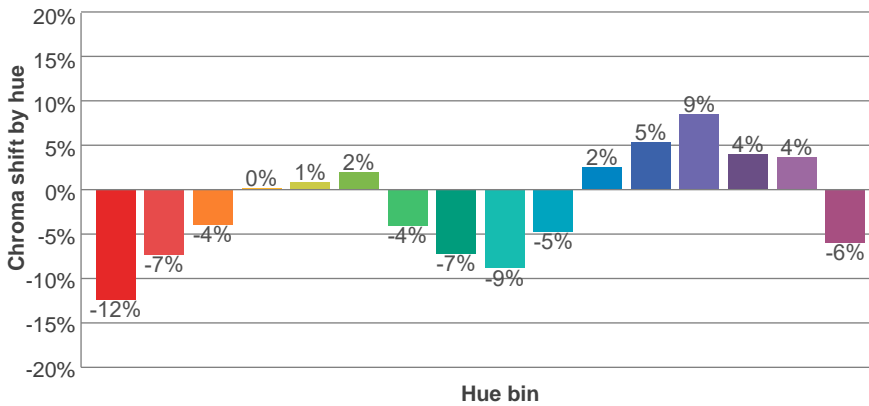
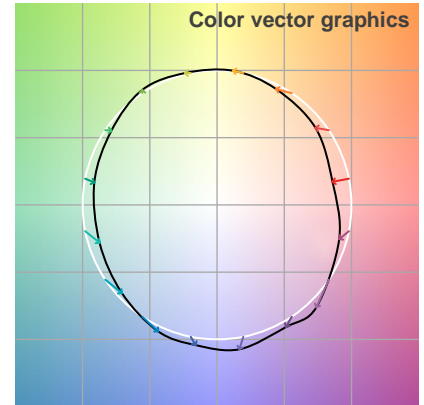
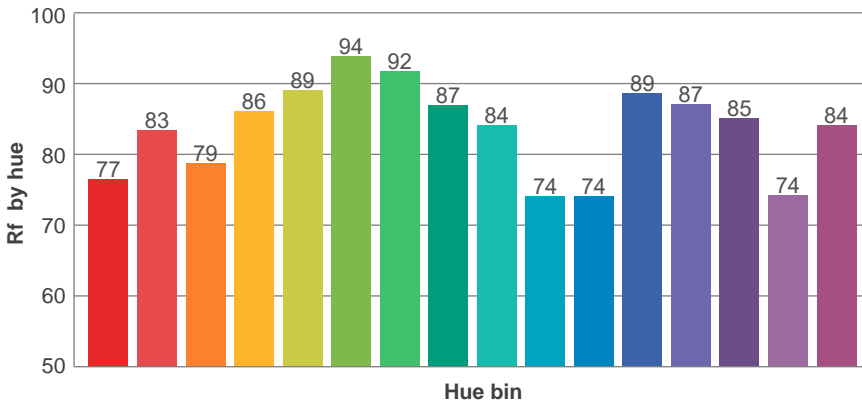
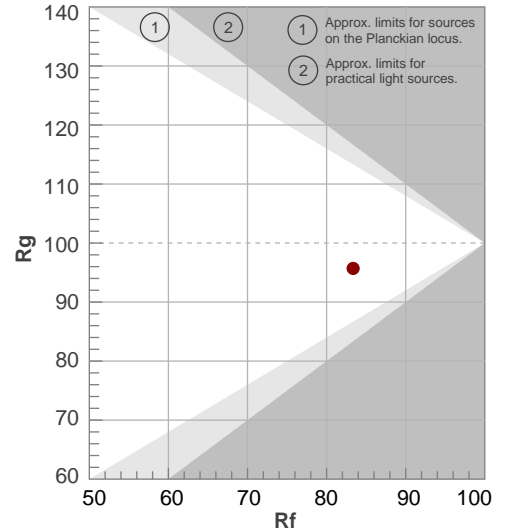


## TM30 Report

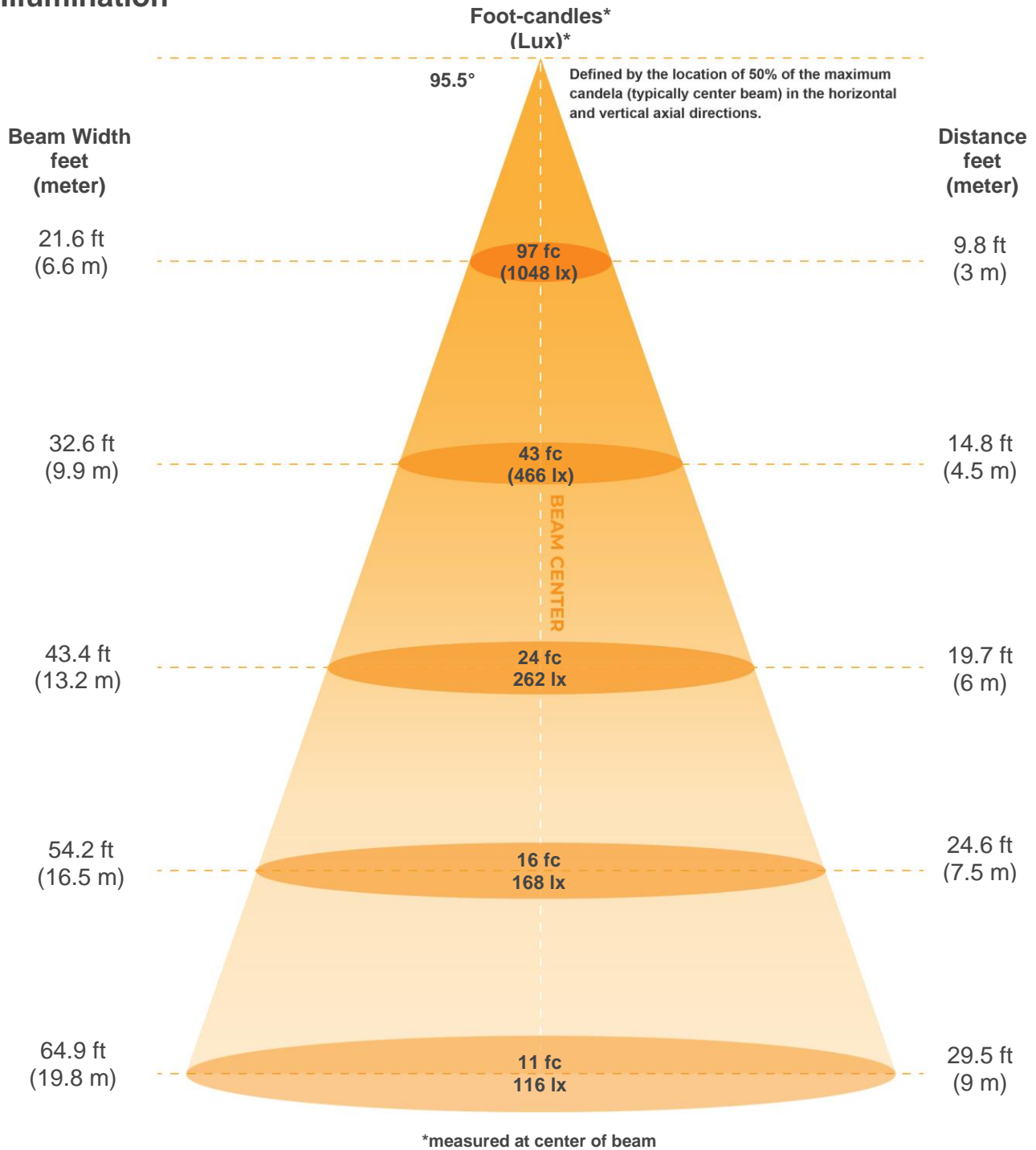
**Rf 83.4**  
Fidelity index Rf

**Rg 95.7**  
Gammut index Rg

Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	77	-12%	0%
2	83	-7%	7%
3	79	-4%	11%
4	86	0%	8%
5	89	1%	4%
6	94	2%	-1%
7	92	-4%	-2%
8	87	-7%	1%
9	84	-9%	11%
10	74	-5%	15%
11	74	2%	16%
12	89	5%	5%
13	87	9%	-5%
14	85	4%	-8%
15	74	4%	-22%
16	84	-6%	-7%



**Illumination**



**Beam intensities from 1-20m**

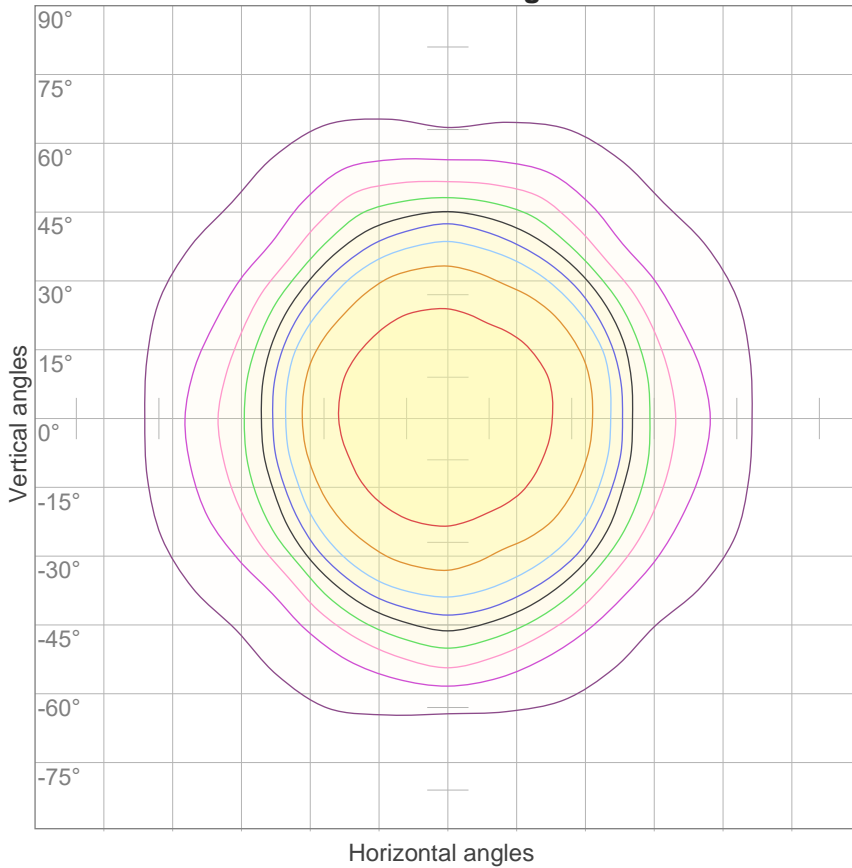
1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
3.3ft	6.6ft	9.8ft	13.1ft	16.4ft	19.7ft	23ft	26.2ft	29.5ft	32.8ft	36.1ft	39.4ft	42.7ft	45.9ft	49.2ft	52.5ft	55.8ft	59.1ft	62.3ft	65.6ft
9428lx	2357lx	1048lx	589lx	377lx	262lx	192lx	147lx	116lx	94lx	78lx	65lx	56lx	48lx	42lx	37lx	33lx	29lx	26lx	24lx
875.9fc	219fcd	97.3fcd	54.7fcd	35fcd	24.3fcd	17.9fcd	13.7fcd	10.8fcd	8.8fcd	7.2fcd	6.1fcd	5.2fcd	4.5fcd	3.9fcd	3.4fcd	3fcd	2.7fcd	2.4fcd	2.2fcd

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
95.5°	148.1°	171°	86.6%	65.4%



**ISO Diagrams**

**ISO candela diagram**



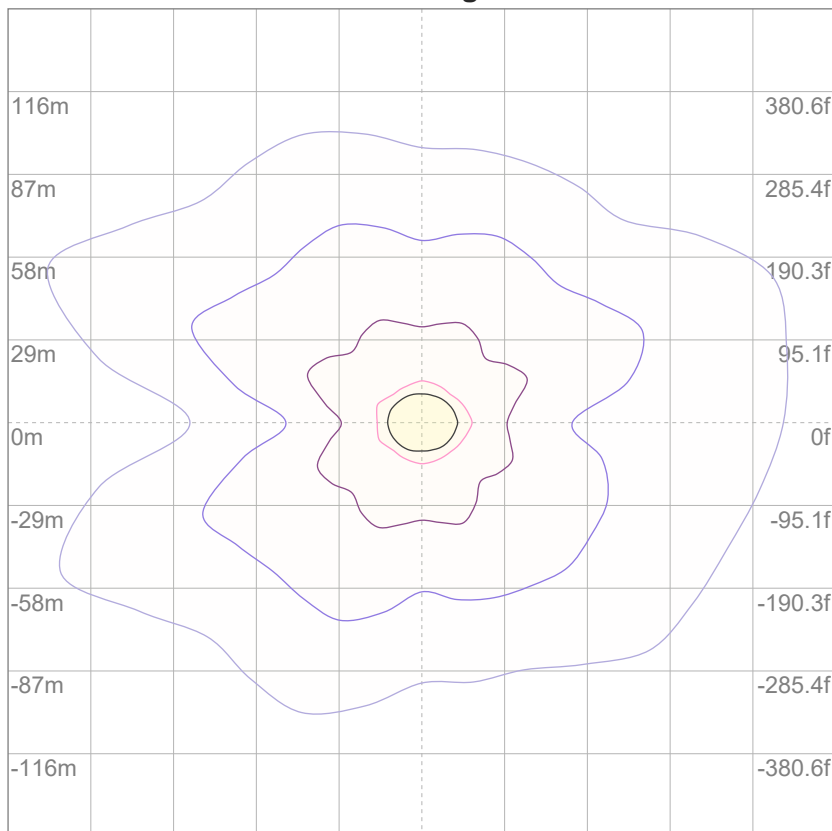
10%	943 cd
20%	1886 cd
30%	2828 cd
40%	3771 cd
50%	4714 cd
60%	5657 cd
70%	6600 cd
80%	7543 cd
90%	8485 cd

Conditions:

Number of c-planes: 16

Candela at center: 9428 cd

**ISO lux diagram**



3%	2.83 lx
5%	4.71 lx
10%	9.43 lx
30%	28.3 lx
50%	47.1 lx

Conditions:

Number of c-planes: 16

Lux at center: 94.3 lx

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

Mounting height: 10 meters (33 feet) **UGR**



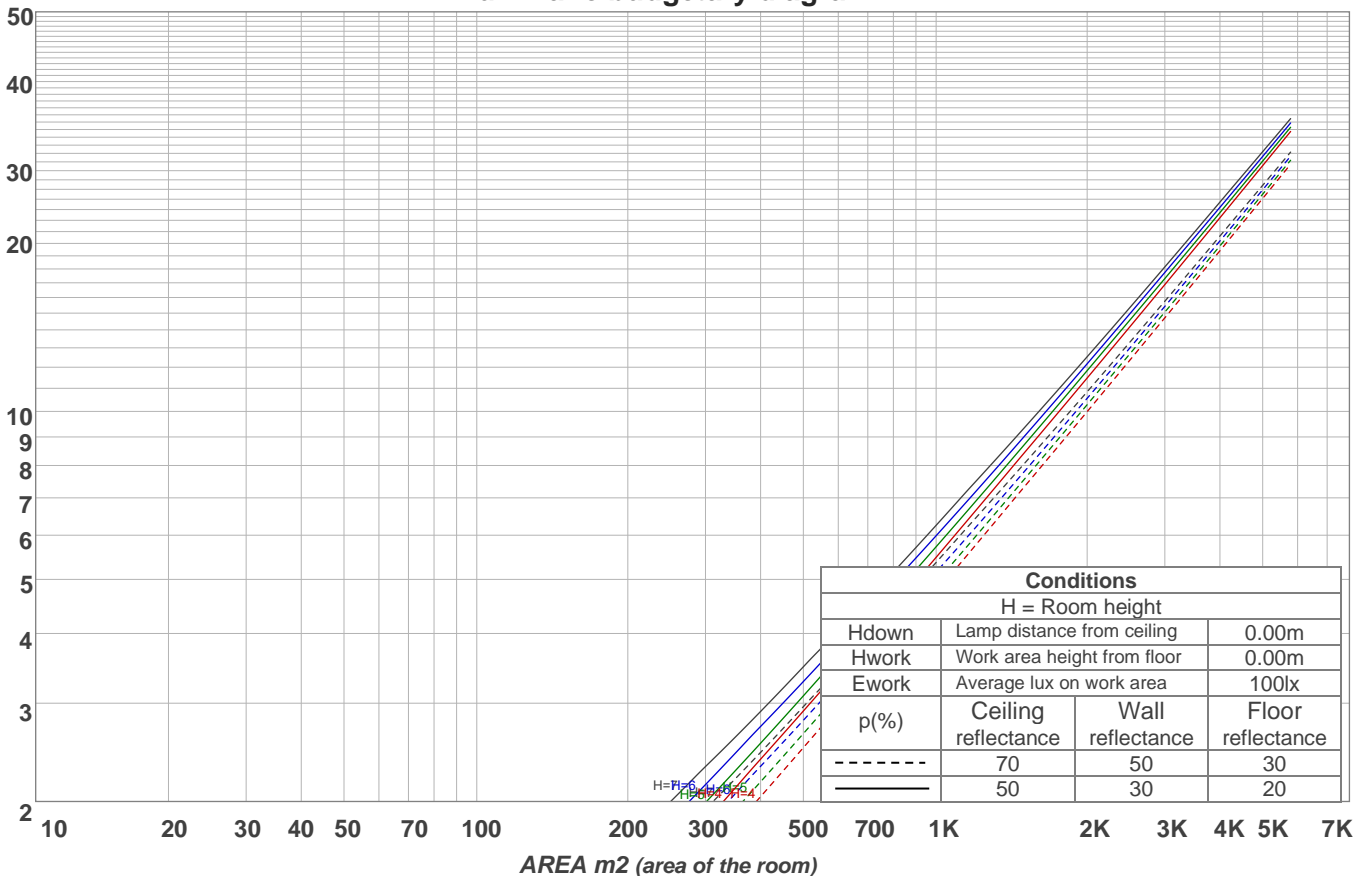
## Light Planning

### 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	20	0
<b>RCR</b>	<b>(RCR: Room Cavity Ratio)</b>																		
	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	106	102	99	107	103	100	97	99	96	94	95	93	91	92	90	88	86	
2	101	94	88	83	99	92	86	82	88	84	80	85	81	78	82	79	76	74	
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66	64	
4	86	75	67	61	84	74	66	60	71	65	60	69	63	59	67	62	58	56	
5	80	68	59	53	77	67	59	53	64	58	52	62	56	52	61	55	51	49	
6	74	61	53	47	72	60	53	47	59	52	46	57	51	46	55	50	46	44	
7	69	56	48	42	67	55	47	42	54	47	42	52	46	41	51	45	41	39	
8	64	51	43	38	63	51	43	38	49	42	37	48	42	37	47	41	37	35	
9	60	47	39	34	59	47	39	34	46	39	34	44	38	34	43	38	34	32	
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	40	35	31	29	

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°
894 lm	2576 lm	3942 lm	4744 lm	4216 lm	2747 lm	1623 lm	943 lm	307 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
11.4 lm	8.89 lm	10.8 lm	12.5 lm	13.2 lm	12.4 lm	10.4 lm	7.06 lm	2.48 lm

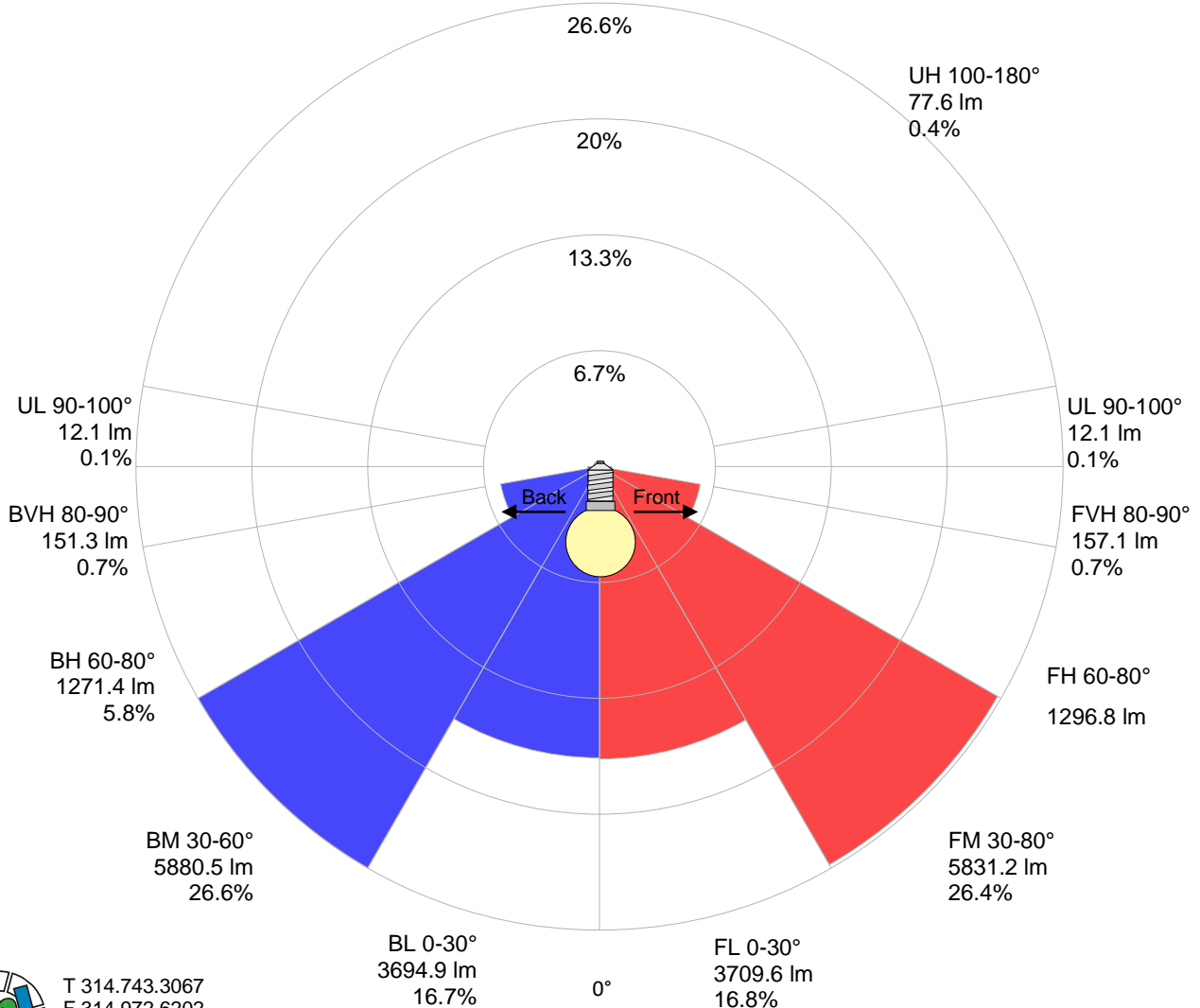


**Road Report**

**LCS table**

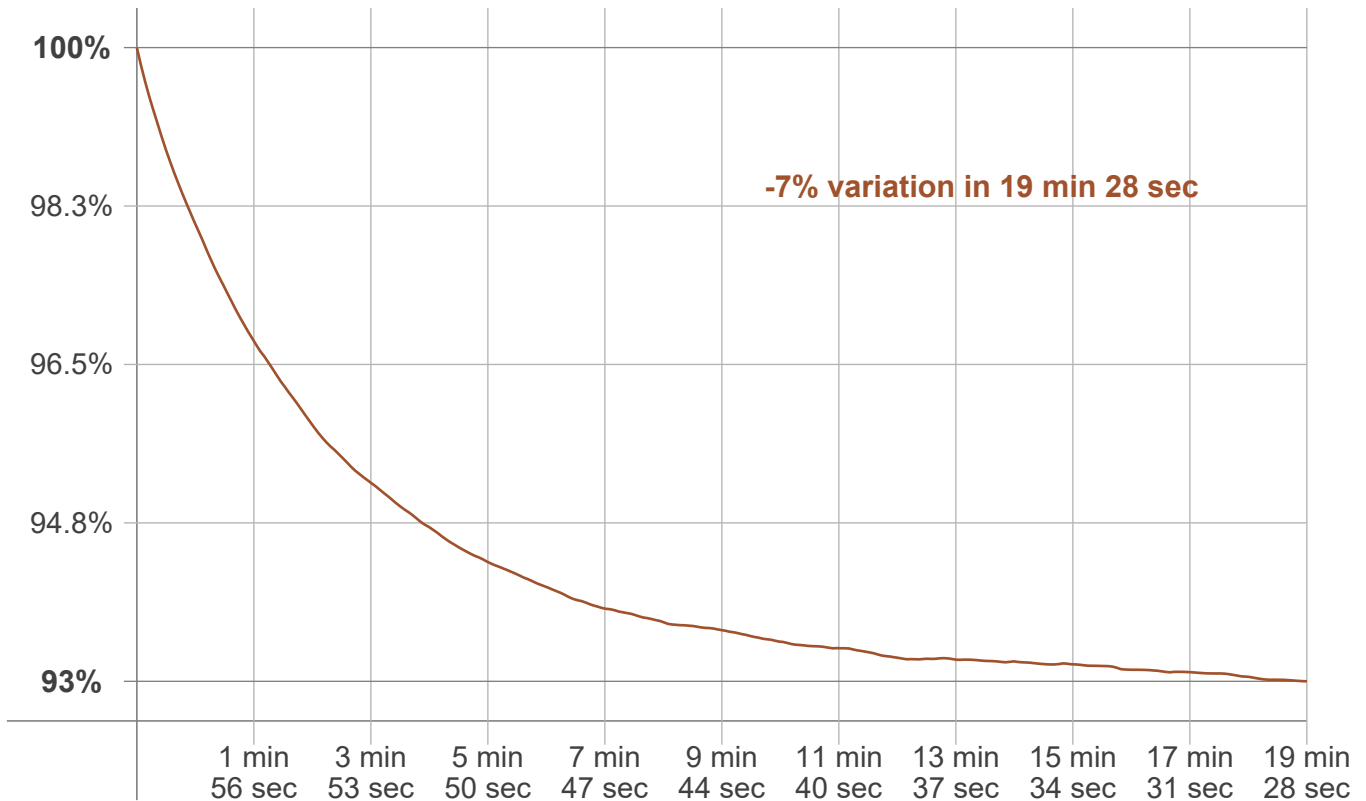
<b>BUG rating:</b>	<b>B4 U3 G3</b>	
<b>Forward light</b>	Lumens	Lumens %
Low(0-30):	3709.6	16.8%
Medium(30-60):	5831.2	26.4%
High(60-80):	1296.8	5.9%
Very high(80-90):	157.1	0.7%
<b>Back light</b>		
Low(0-30):	3694.9	16.7%
Medium(30-60):	5880.5	26.6%
High(60-80):	1271.4	5.8%
Very high(80-90):	151.3	0.7%
<b>Uplight</b>		
Low(90-100):	12.1	0.1%
High(100-180):	77.6	0.4%

**LCS graph**



**Stabilization**

**Warmup curve**



**Warmup result**

<b>Warmup time:</b>	<b>Lamp stabilized in 19 min 28 sec</b>
<b>Warmup variation</b>	<b>-7.0%</b>

**Warmup conditions**

<b>Stable period:</b>	<b>15 min</b>
<b>Stable change max:</b>	<b>2.0%</b>
<b>Minimum time:</b>	<b>15 min</b>

**Color temperature change**

CCT start	CCT change	CCT end
5186 K	+156 K	5342 K

**Output change**

Output start	Output change	Output end
23615 lm	-1534 lm	22081 lm



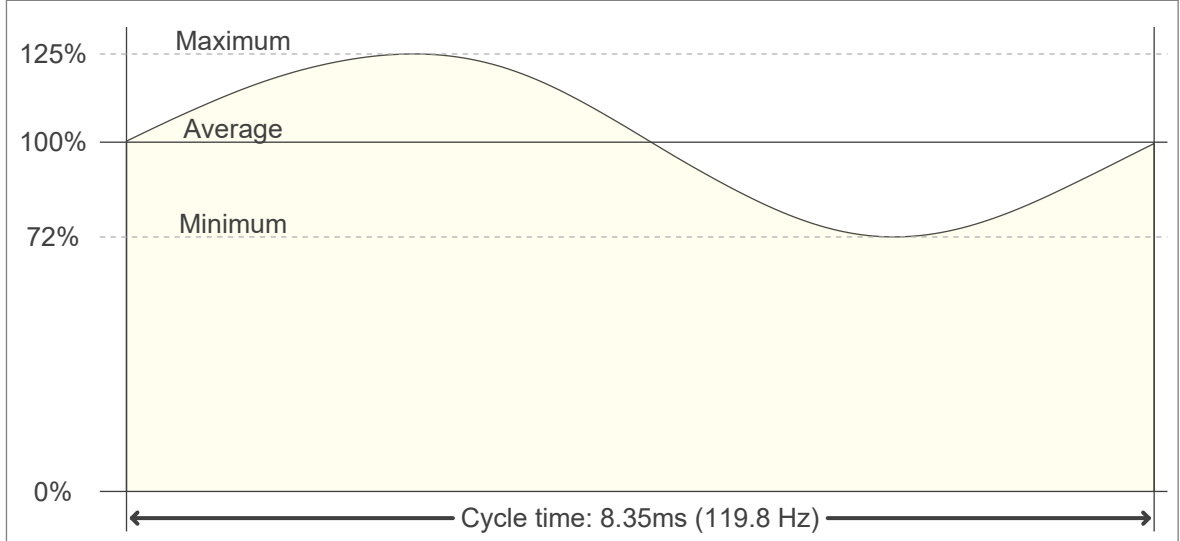


## Flicker Specifications

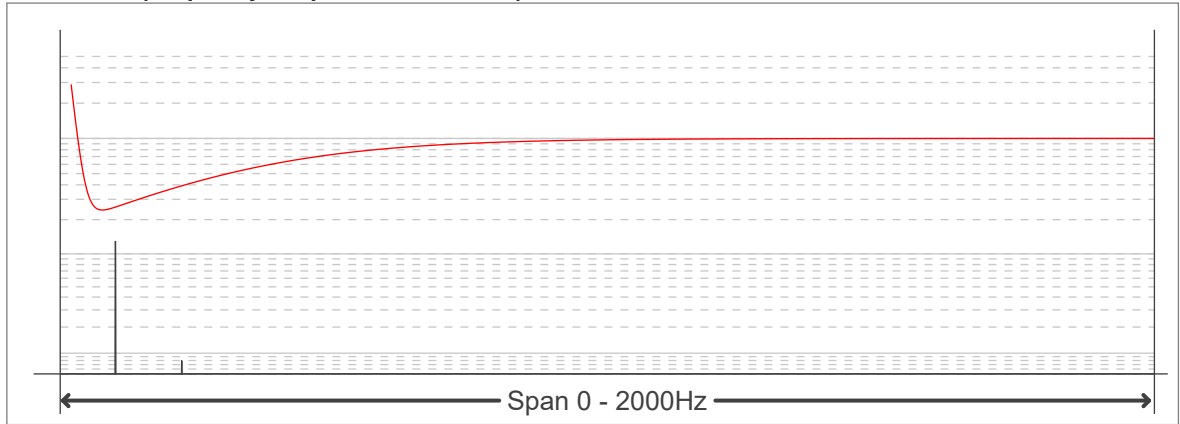
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



**Flicker results:**

<b>Flicker frequency:</b>	<b>119.76 Hz</b>
<b>Flicker index:</b>	<b>0.08</b>
<b>Flicker percentage:</b>	<b>26.5 %</b>
<b>SVM: (Visual flicker)</b>	<b>0.94</b>

**Flicker conditions:**

<b>Sample rate:</b>	<b>20000 samples/second</b>
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