

**Light efficiency:**

n/a Lumen/Watt

**Light quality:**

CRI: 93.7

**Color temperature:**

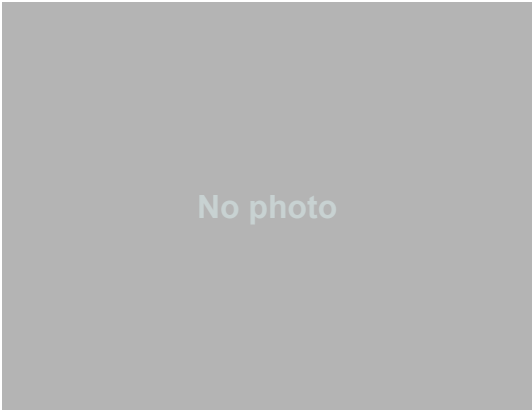
2970 K

**Output: 610 lm/ft**

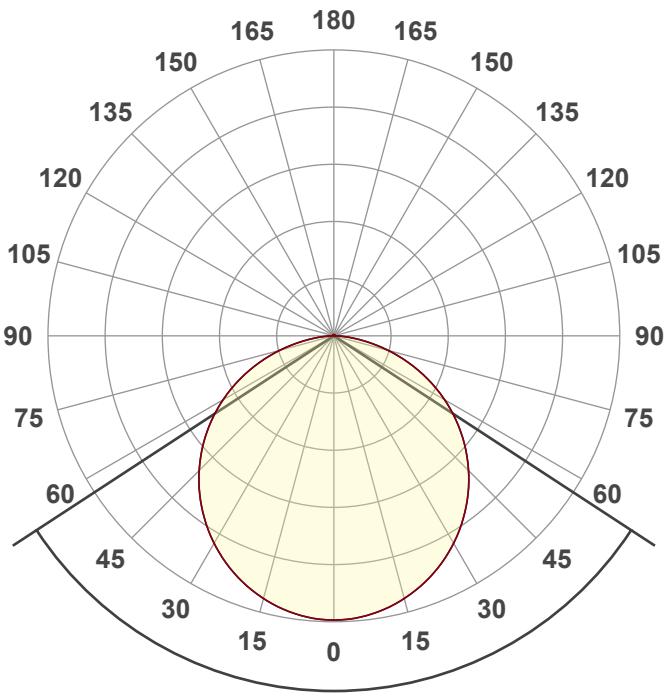
**Peak: 209 cd**

**Power: - W**

**PF: n/a**



**Product name:**  
Suspan X PrimaLine 9 -3000K  
**Item number:**  
AL-01-22-2402-CU-IN  
**Date and time:**  
10/11/2023 8:38:29 AM  
**Description:**

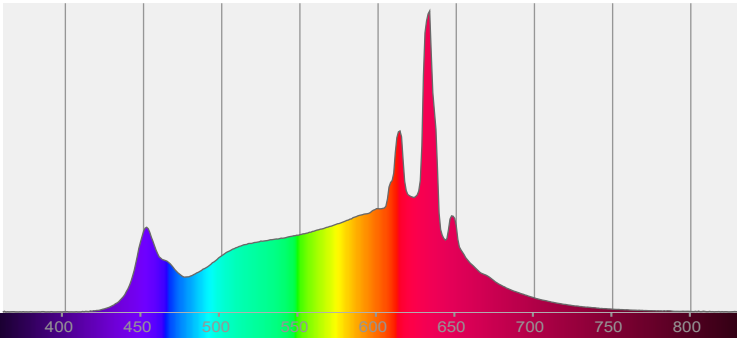


**Beam angle 113.7°**

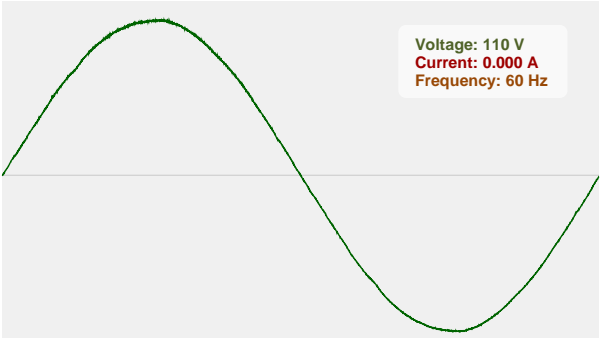


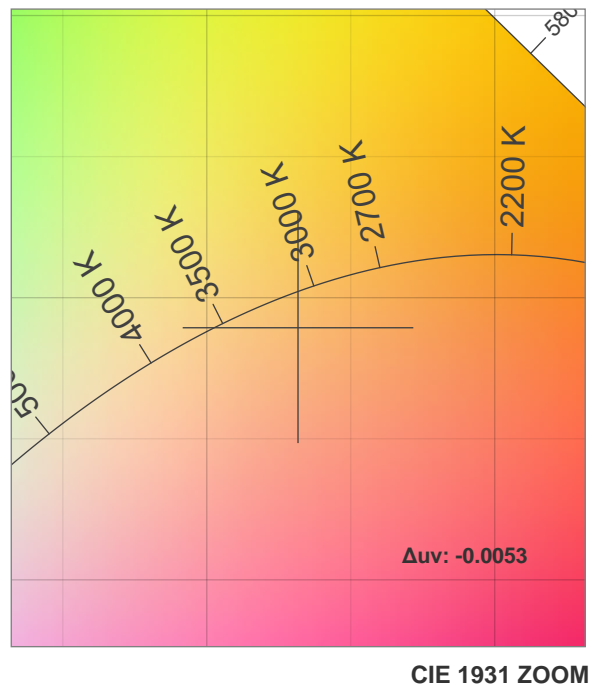
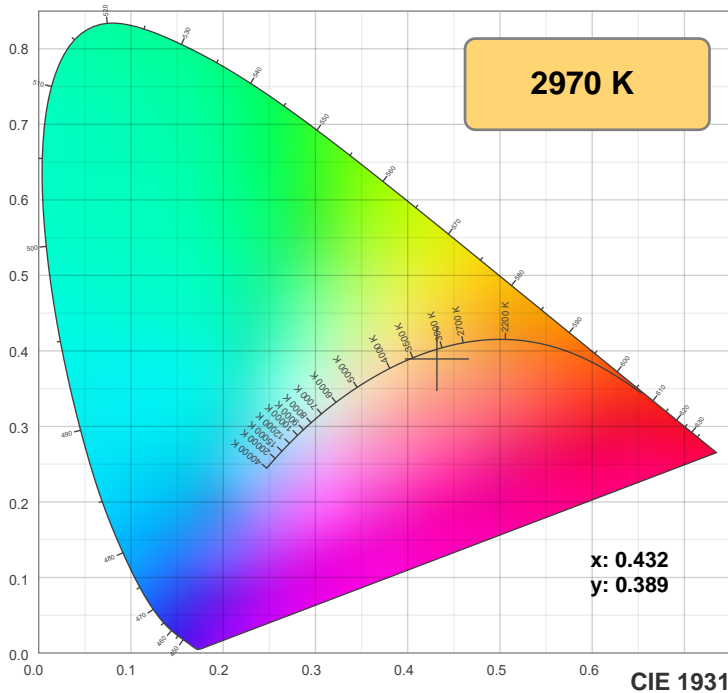
CIE 1931  
x: 0.432  
y: 0.389

**Spectra**



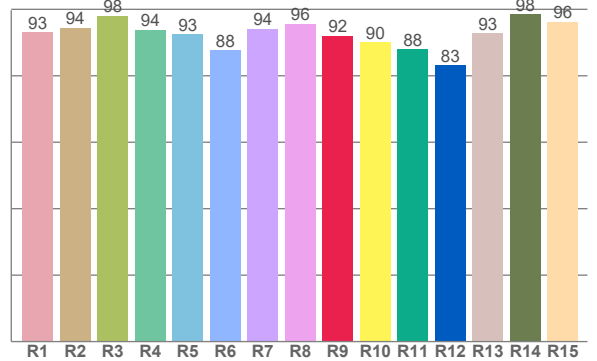
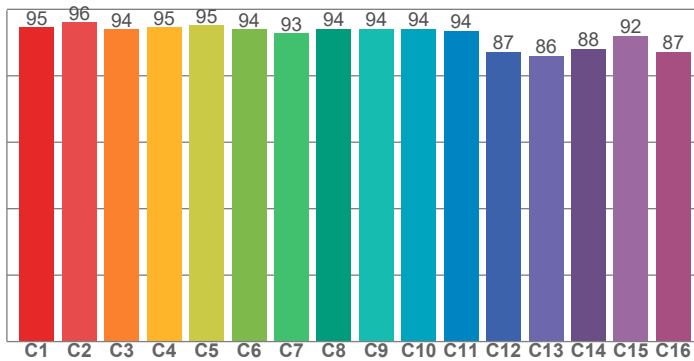
**Power**





**TM-30: 92.9**

**CRI: 93.7 (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
93.0	94.4	98.1	93.8	92.6	87.7	94.1	95.7	92.1	90.2	88.0	83.2	92.7	98.5	96.3

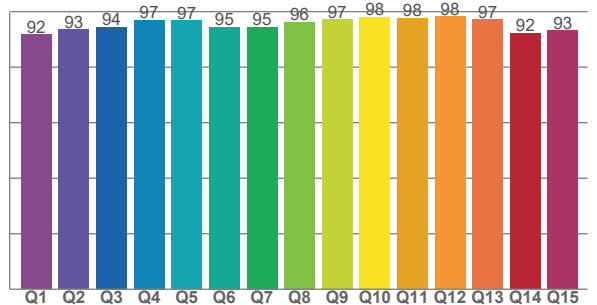
**TM30 C values, 16 binned values out of total of 99 C values**

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
94.6	96.1	94.0	94.5	95.1	94.0	92.7	94.2	94.1	94.2	93.6	87.2	86.0	88.1	92.0	87.3

**CQS Q values**

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
91.8	93.5	94.5	97.0	96.8	94.5	94.5	96.3	97.1	98.0	97.7	98.3	97.2	92.2	93.2

**CQS: 94.8**



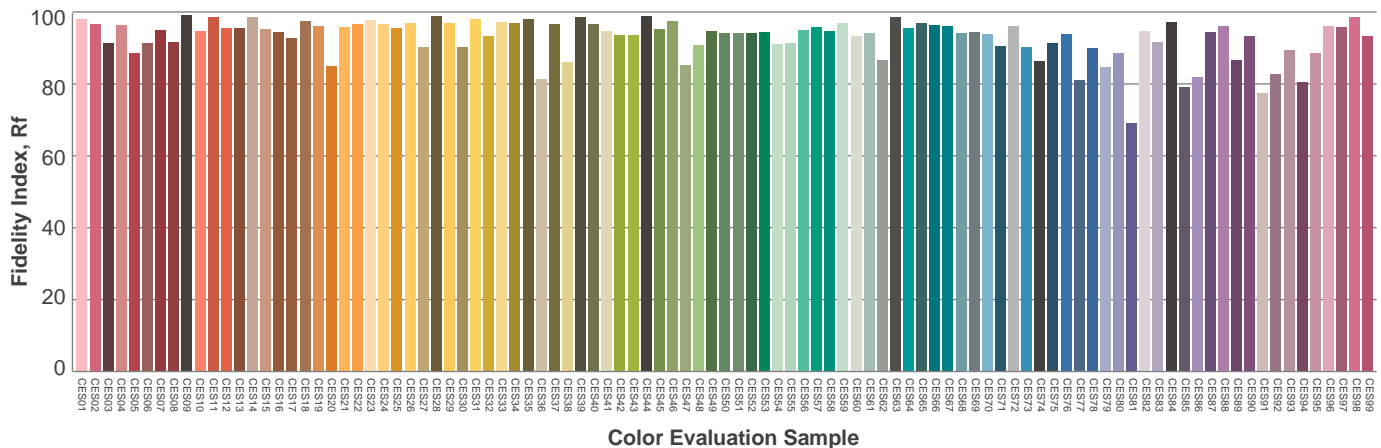
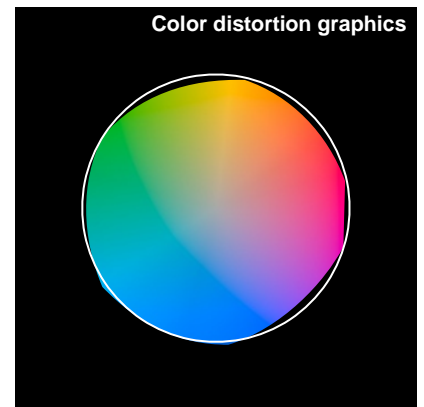
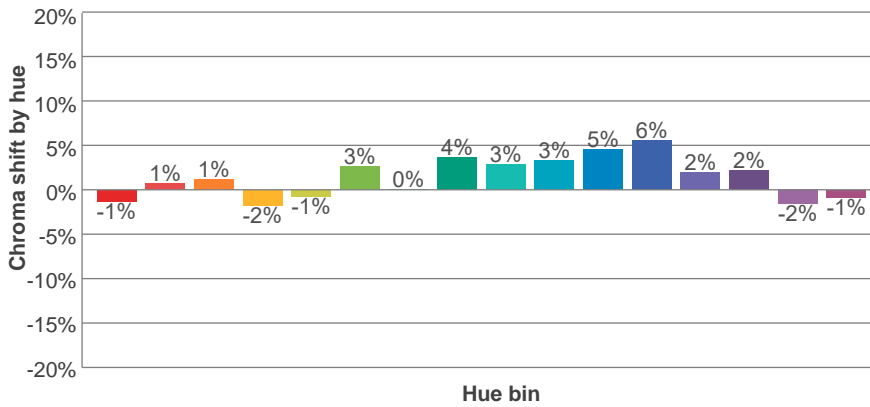
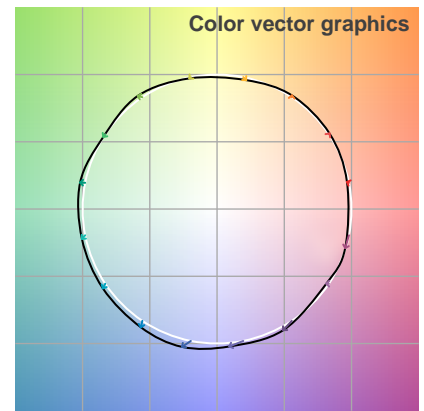
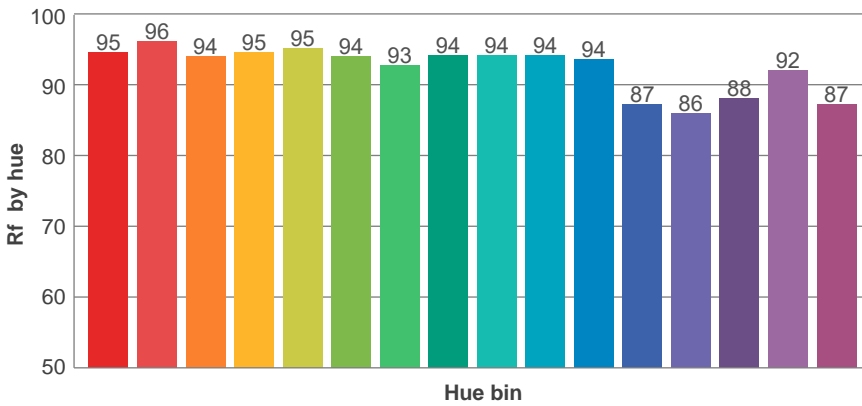
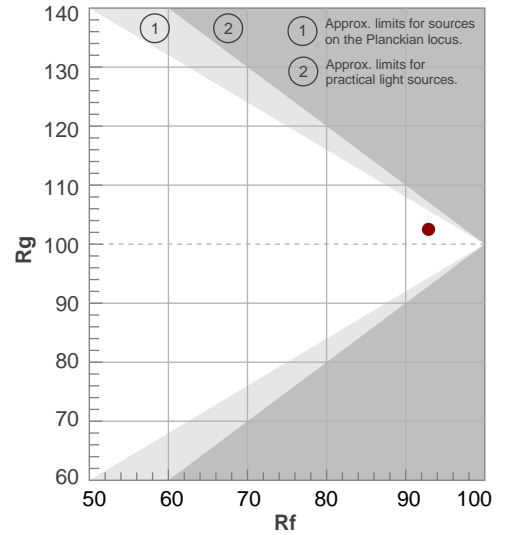
**Color parameters**

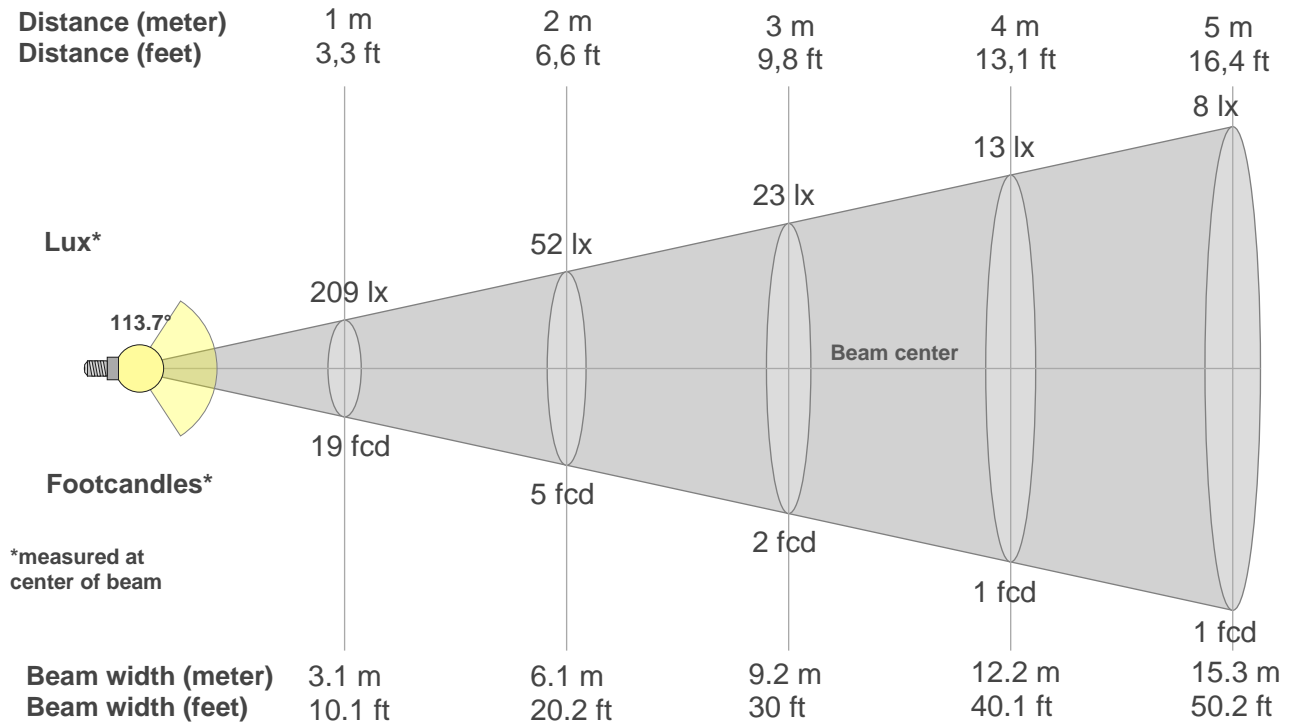
Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Color coordinate cie 1931	Color coordinate cie 1931	Color coordinate	Color coordinate	Color deviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
2970 K	93.7	92.1	92.9	102.5	94.8	0.432	0.389	0.254	0.343	-0.0053

**Rf 92.9**  
Fidelity index Rf

**Rg 102.5**  
Gamut index Rg

Hue Bin	R <sub>f</sub>	Shifts (%)	
		Chroma	Hue
1	95	-1%	1%
2	96	1%	0%
3	94	1%	1%
4	95	-2%	-3%
5	95	-1%	1%
6	94	3%	2%
7	93	0%	2%
8	94	4%	1%
9	94	3%	2%
10	94	3%	2%
11	94	5%	2%
12	87	6%	-6%
13	86	2%	-11%
14	88	2%	-9%
15	92	-2%	-1%
16	87	-1%	-10%





### 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
209lx	52lx	23lx	13lx	8lx	6lx	4lx	3lx	3lx	2lx	2lx	1lx	1lx	1lx	1lx	1lx	1lx	1lx	1lx	1lx
19.4fcd	4.9fcd	2.2fcd	1.2fcd	0.8fcd	0.5fcd	0.4fcd	0.3fcd	0.2fcd	0.2fcd	0.2fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0fcd

### Intensities in 0° c-plane

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
209	208	205	200	194	186	176	166	154	140	126	111	94	77	59	41	24	10	2	1
100%	99%	98%	96%	93%	89%	84%	79%	73%	67%	60%	53%	45%	37%	28%	20%	11%	5%	1%	0%

### Intensities in 90° c-plane

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
209	208	205	200	194	186	176	166	154	140	126	111	94	77	59	41	24	10	2	1
100%	99%	98%	96%	93%	89%	84%	79%	73%	67%	60%	53%	45%	37%	28%	20%	11%	5%	1%	0%

### Intensities in 180° c-plane

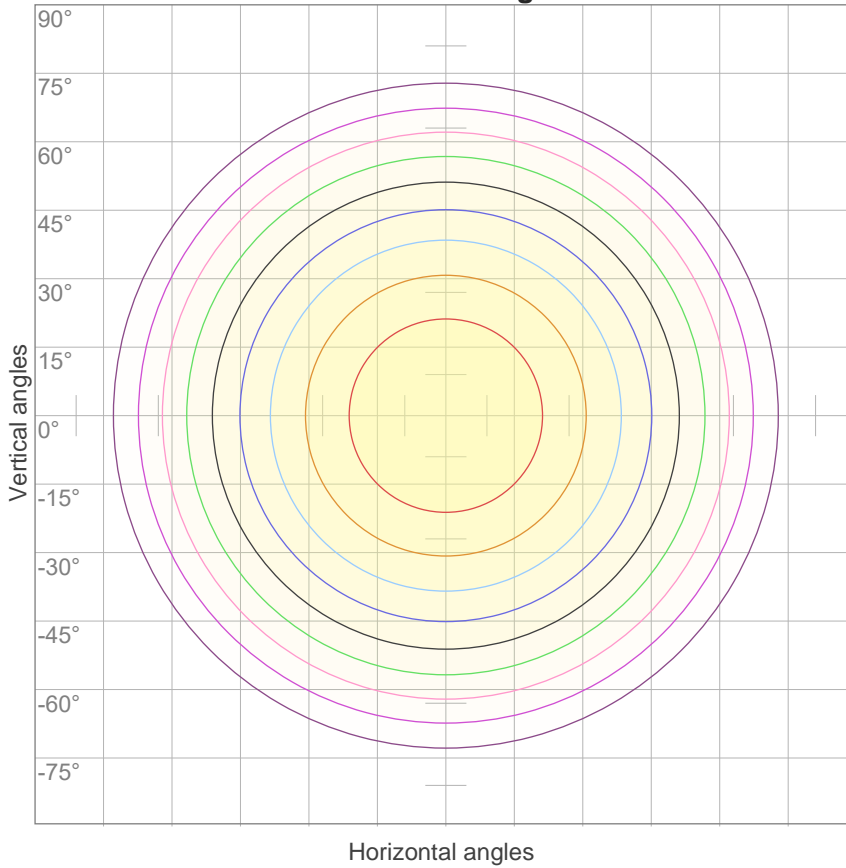
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
209	208	205	200	194	186	176	166	154	140	126	111	94	77	59	41	24	10	2	1
100%	99%	98%	96%	93%	89%	84%	79%	73%	67%	60%	53%	45%	37%	28%	20%	11%	5%	1%	0%

### Intensities in 270° c-plane

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
209	208	205	200	194	186	176	166	154	140	126	111	94	77	59	41	24	10	2	1
100%	99%	98%	96%	93%	89%	84%	79%	73%	67%	60%	53%	45%	37%	28%	20%	11%	5%	1%	0%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
113.7°	162°	174.4°	77.5%	52.5%

**iso-candela diagram**



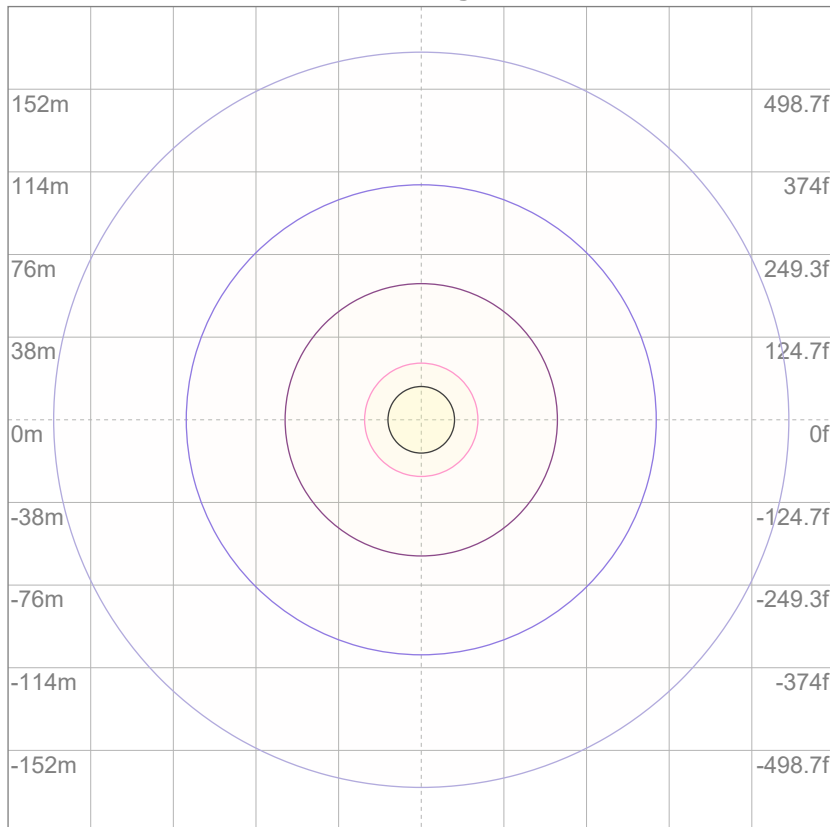
10%	21 cd
20%	42 cd
30%	63 cd
40%	84 cd
50%	105 cd
60%	126 cd
70%	147 cd
80%	167 cd
90%	188 cd

Conditions:

Number of c-planes: 12

Candela at center: 209 cd

**iso-lux diagram**



3%	62.8m lx
5%	0.105 lx
10%	0.209 lx
30%	0.628 lx
50%	1.05 lx

Conditions:

Number of c-planes: 12

Lux at center: 2.09 lx

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

Mounting height: 10 meters (33 feet)

**Glare evaluation according to UGR**

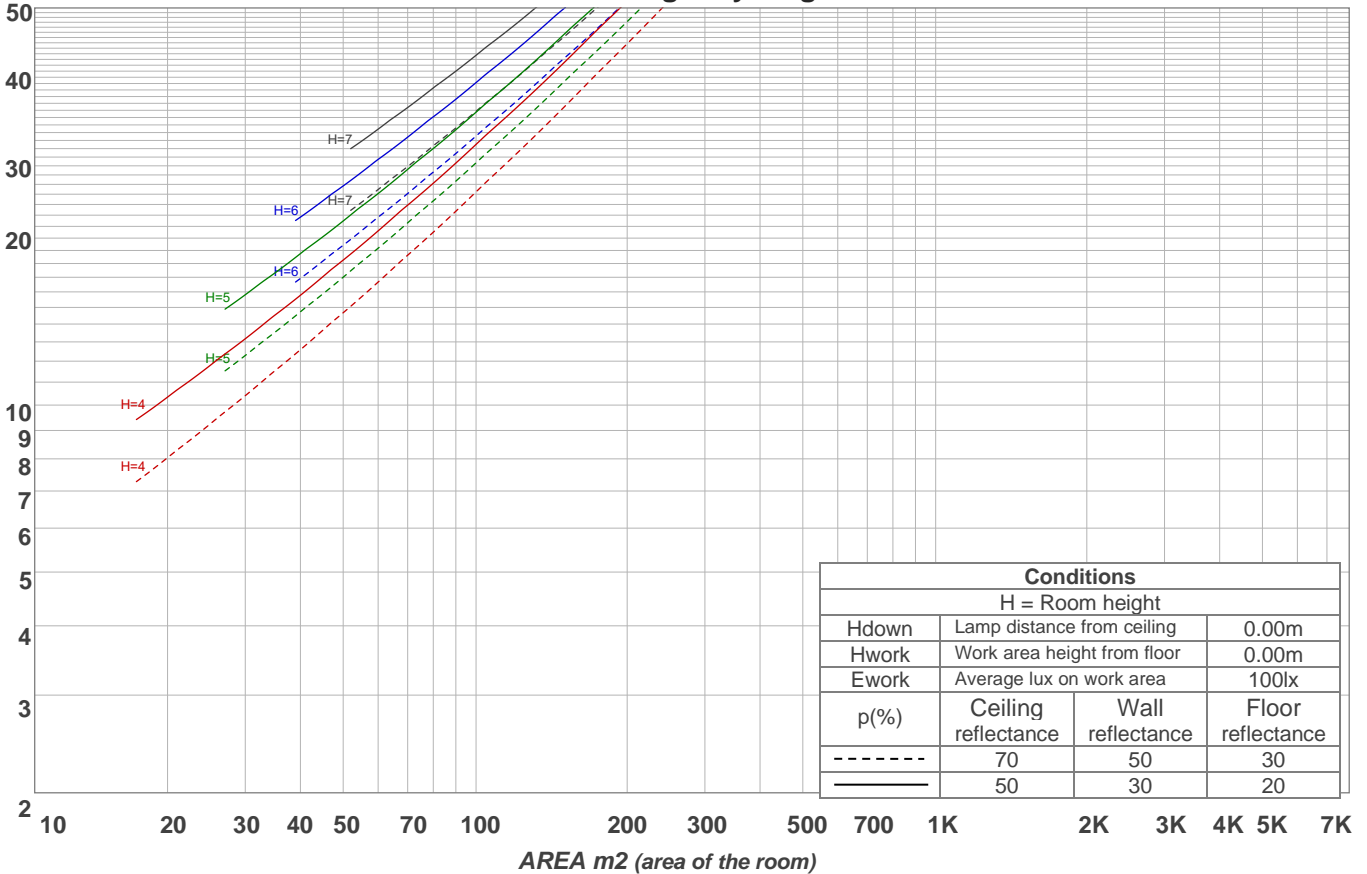
p Ceiling	70	70	50	50	30	70	70	50	50	30	
p Walls	50	30	50	30	30	50	30	50	30	30	
p Floor	20	20	20	20	20	20	20	20	20	20	
Room size X Y	Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis					
2H	2H	19.5	20.8	19.8	21.1	21.3	21.0	22.3	21.3	22.6	22.8
	3H	20.6	21.8	21.0	22.1	22.3	22.4	23.7	22.9	24.0	24.2
	4H	20.9	22.1	21.4	22.4	22.7	23.0	24.2	23.4	24.5	24.8
	6H	21.2	22.3	21.5	22.5	22.9	23.4	24.5	23.7	24.8	25.2
	8H	21.2	22.2	21.6	22.6	23.0	23.5	24.5	23.9	24.8	25.3
	12H	21.2	22.2	21.6	22.5	23.0	23.5	24.5	23.9	24.9	25.3
4H	2H	20.1	21.3	20.5	21.6	21.9	21.3	22.5	21.7	22.8	23.1
	3H	21.4	22.4	21.8	22.8	23.2	23.0	24.0	23.4	24.3	24.8
	4H	21.8	22.7	22.3	23.1	23.7	23.5	24.5	24.0	24.9	25.4
	6H	22.1	22.9	22.6	23.3	23.7	24.0	24.9	24.5	25.2	25.6
	8H	22.1	22.9	22.6	23.3	23.7	24.1	24.9	24.6	25.3	25.7
	12H	22.1	22.8	22.6	23.2	23.7	24.2	24.8	24.7	25.3	25.8
8H	4H	22.0	22.8	22.5	23.2	23.6	23.6	24.4	24.1	24.8	25.2
	6H	22.4	23.0	22.9	23.5	24.0	24.1	24.8	24.7	25.2	25.8
	8H	22.5	23.0	23.0	23.5	24.2	24.3	24.9	24.8	25.4	26.0
	12H	22.5	23.0	23.1	23.5	24.1	24.4	24.9	25.0	25.4	26.0
12H	4H	22.0	22.7	22.5	23.1	23.6	23.6	24.3	24.1	24.7	25.2
	6H	22.4	22.9	22.9	23.5	24.1	24.2	24.7	24.7	25.2	25.9
	8H	22.5	23.0	23.1	23.5	24.1	24.3	24.8	24.9	25.3	25.9
Variation of the observer position for the luminaire distance S											
S = 1.0H	0.1 / -0.2					0.1 / -0.1					
S = 1.5H	0.3 / -0.5					0.4 / -0.5					
S = 2.0H	0.7 / -1.0					1.0 / -1.1					
CIE 117-1995. Corrected glare indices referring to 610 lm total luminous flux											

**Coefficients of Utilization**

Ceiling reflectance	80				70				50			30			10			0	
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0	
Wall reflectance																			
Floor reflectance	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	101	101	101	99	
1	108	104	99	95	106	101	97	94	97	93	90	93	90	88	89	87	85	83	
2	98	90	83	77	96	88	82	76	84	79	74	81	76	73	78	74	71	69	
3	90	79	71	64	87	77	70	63	74	68	62	71	66	61	69	64	60	58	
4	82	70	61	54	80	68	60	54	66	59	53	63	57	52	61	56	51	49	
5	75	62	53	46	73	61	53	46	59	51	46	57	50	45	55	49	44	42	
6	69	56	47	41	67	55	46	40	53	46	40	51	45	39	50	44	39	37	
7	64	51	42	36	63	50	41	36	48	41	35	47	40	35	45	39	35	33	
8	60	46	38	32	58	46	37	32	44	37	31	43	36	31	42	35	31	29	
9	56	42	34	29	54	42	34	28	41	33	28	39	33	28	38	32	28	26	
10	52	39	31	26	51	39	31	26	38	30	26	37	30	25	36	30	25	24	

LAMPS (number of lamps)

**Luminaire budgetary diagram**



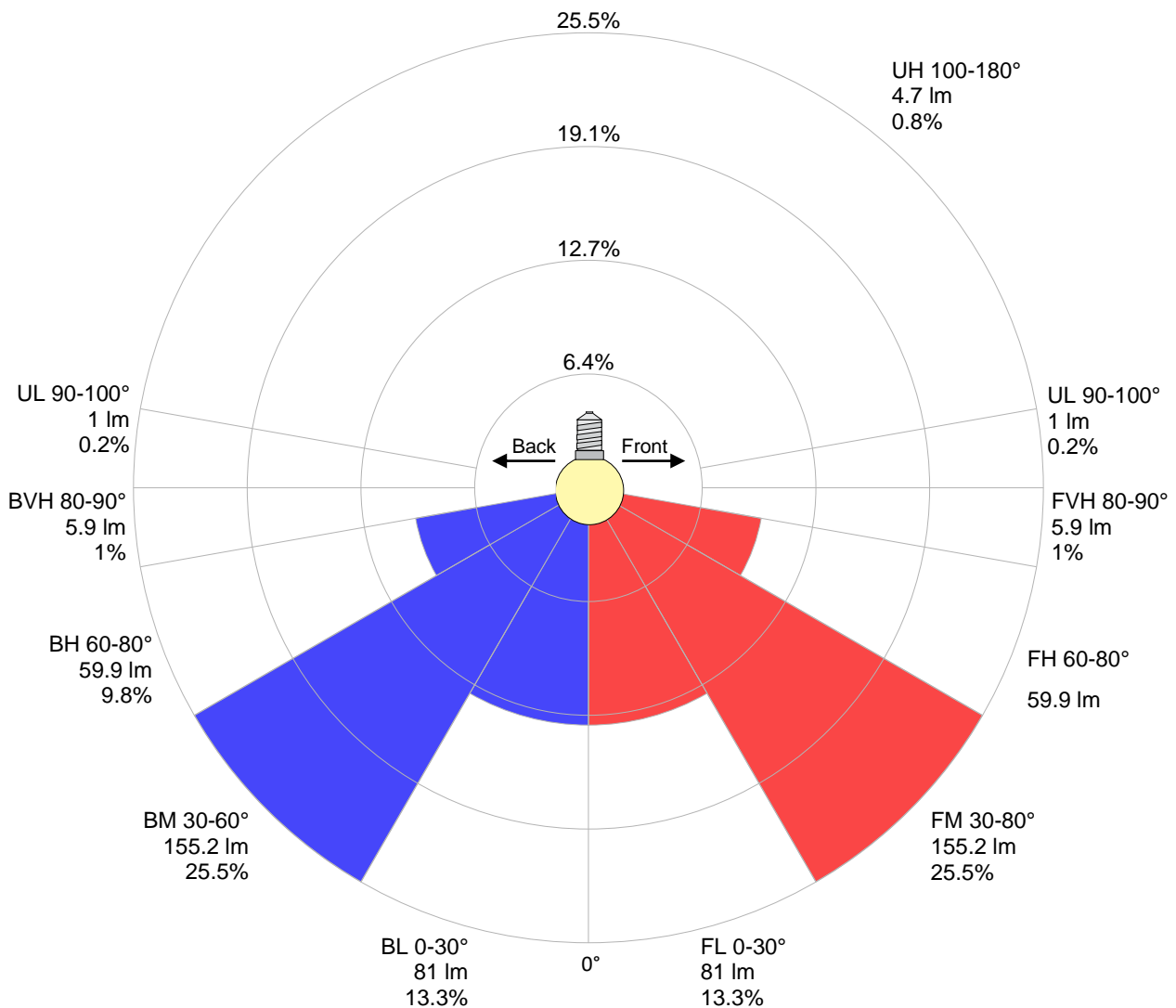
**Zonal Lumen Summary**

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	56.5 lm	85.6 lm	104 lm	108 lm	98.7 lm	76.1 lm	43.6 lm	11.8 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0.949 lm	0.816 lm	0.830 lm	0.808 lm	0.746 lm	0.619 lm	0.492 lm	0.316 lm	0.111 lm

**LCS table**

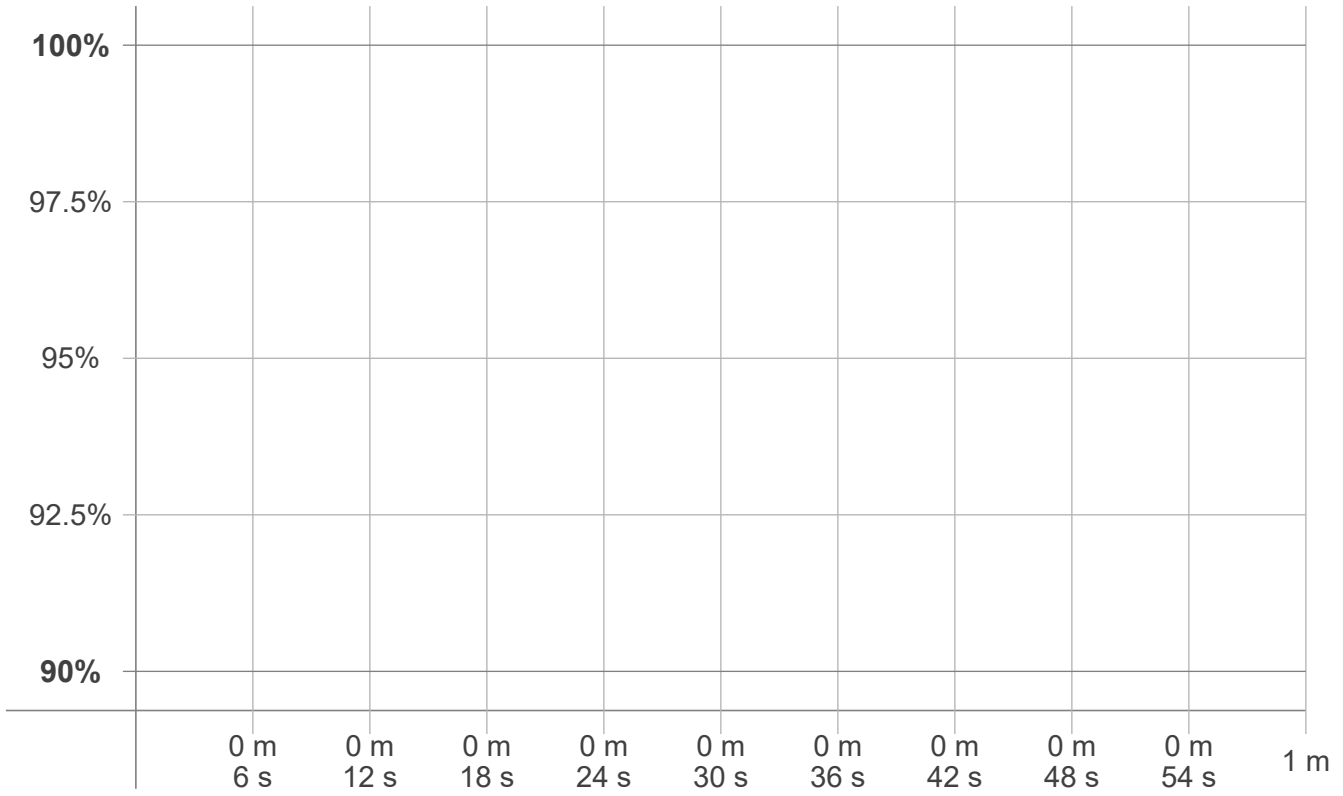
<b>BUG rating:</b>	<b>B0 U1 G0</b>	
<b>Forward light</b>	Lumens	Lumens %
Low(0-30):	81	13.3%
Medium(30-60):	155.2	25.5%
High(60-80):	59.9	9.8%
Very high(80-90):	5.9	1%
<b>Back light</b>		
Low(0-30):	81	13.3%
Medium(30-60):	155.2	25.5%
High(60-80):	59.9	9.8%
Very high(80-90):	5.9	1%
<b>Uplight</b>		
Low(90-100):	1	0.2%
High(100-180):	4.7	0.8%

**LCS graph**





**Warmup curve**



**Warmup result**

<b>Warmup time:</b>	<b>n/a</b>
<b>Warmup variation</b>	<b>n/a%</b>

**Warmup conditions**

<b>Stable period:</b>	<b>n/a</b>
<b>Stable change max:</b>	<b>n/a%</b>
<b>Minimum time:</b>	<b>n/a</b>

**Color temperature change**

<b>CCT start</b>	<b>CCT change</b>	<b>CCT end</b>
<b>n/a K</b>	<b>n/a K</b>	<b>2970 K</b>

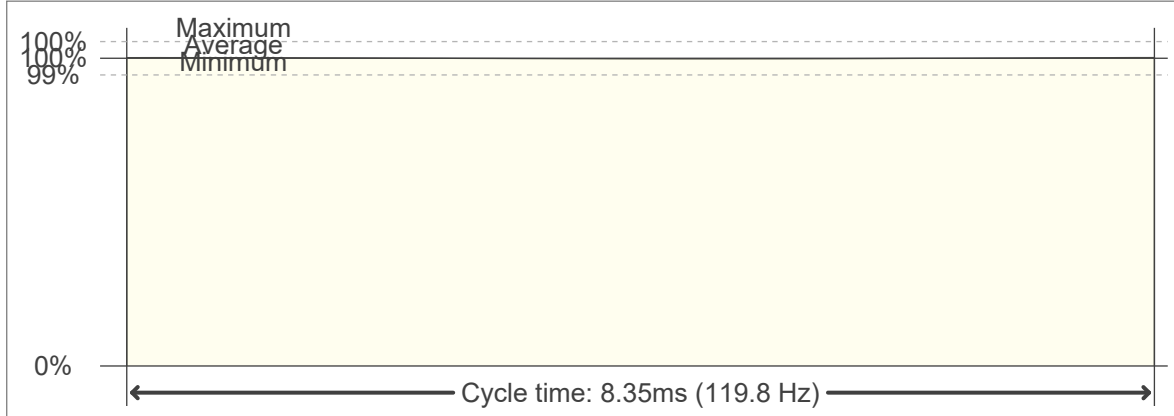
**Output change**

<b>Output start</b>	<b>Output change</b>	<b>Output end</b>
<b>n/a lm</b>	<b>n/a lm</b>	<b>610 lm</b>

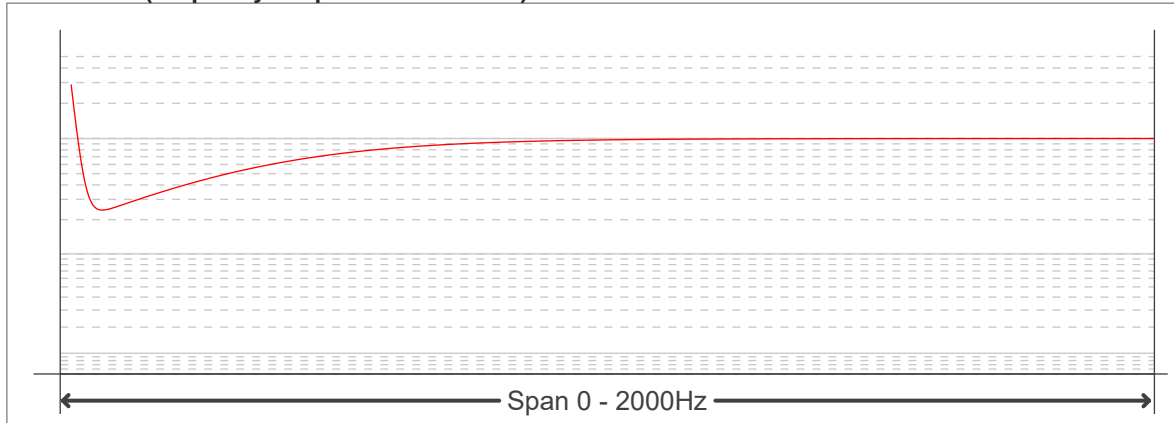
**Flicker curve (complete sampled flicker signal)**



**Flicker frame (frame of one flicker period)**



**Flicker FFT (frequency scope of flicker curve)**



**Flicker results:**

Flicker frequency:		119.76 Hz	
Flicker index:	0	JA8/10 40Hz	1.19 %
Flicker percentage:	1.41 %	JA8/10 90Hz	1.19 %
SVM: (Visual flicker)	0.01	JA8/10 200Hz	1.41 %
PstLM	0	JA8/10 400Hz	1.4 %
Mp	0.03	JA8/10 1000Hz	1.4 %

**Flicker conditions:**

Sample rate:	20000 samples/second
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