

Light efficiency:

83 Lumen/Watt

Light quality:

CRI: 95.1

Color temperature:

2768 K

Output: 746 lm

Peak: 834 cd

Power: 9.0 W

PF: 1.0



Tracking number: [n/a](#)

Product name:

**Ultra 12 Tuneable White 60 deg 2700K 500mA**

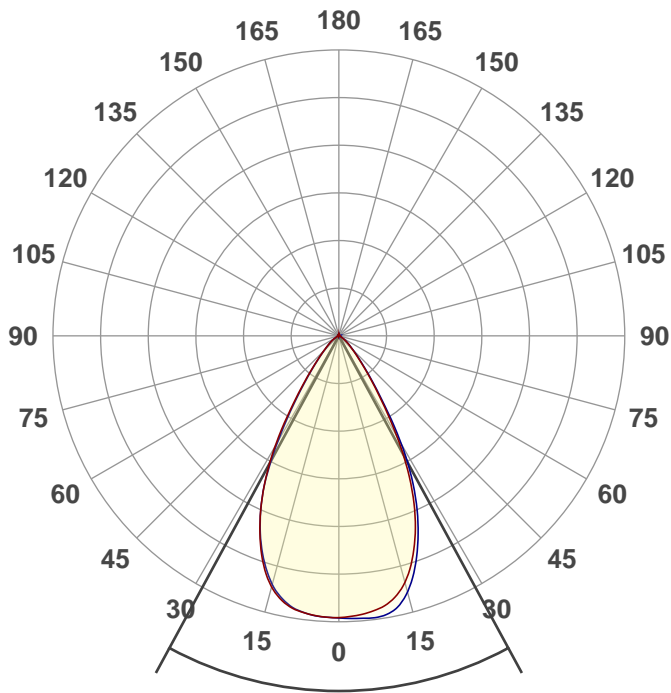
Item number:

**U12-TW-57-27**

Date and time:

**3/09/2020 5:55:47 PM**

Description:



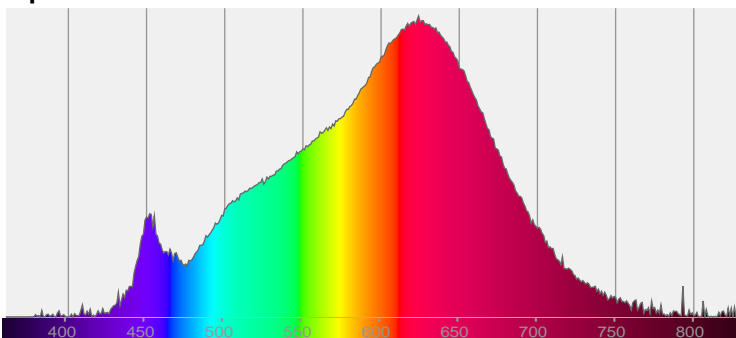
Beam angle

**57°**

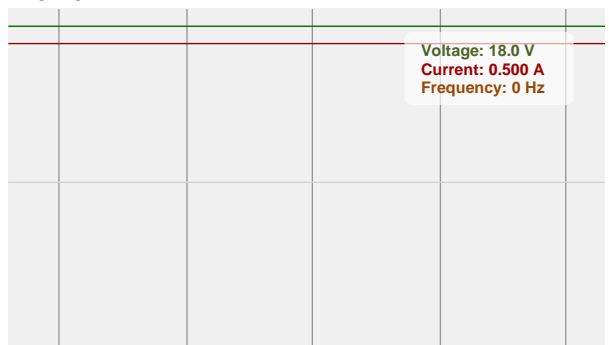


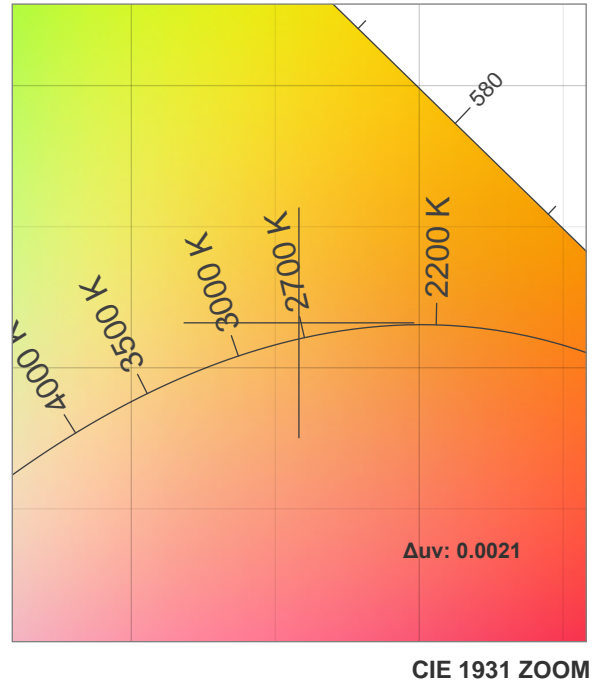
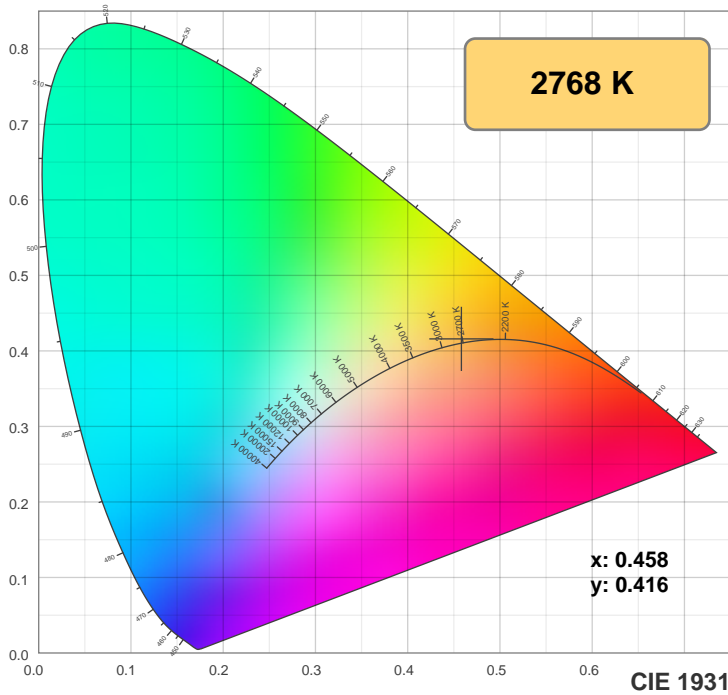
CIE 1931  
x: 0.458  
y: 0.416

Spectra

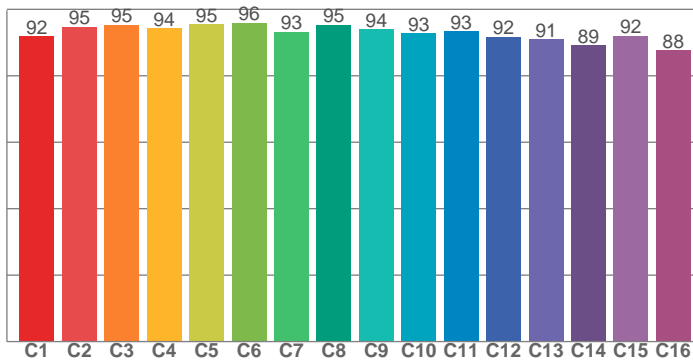


Power

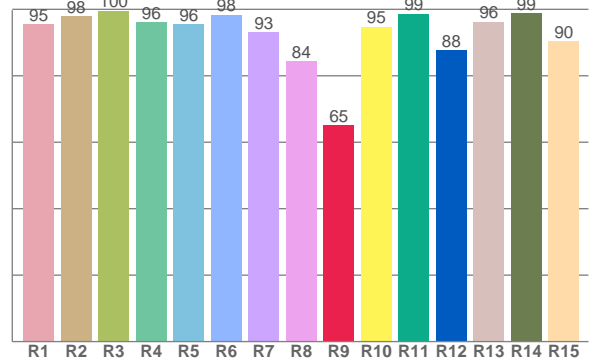




TM-30: 93.1



CRI: 95.1 (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
95.5	98.0	99.6	96.2	95.5	98.4	93.2	84.4	65.2	94.8	98.7	87.6	96.3	98.9	90.3

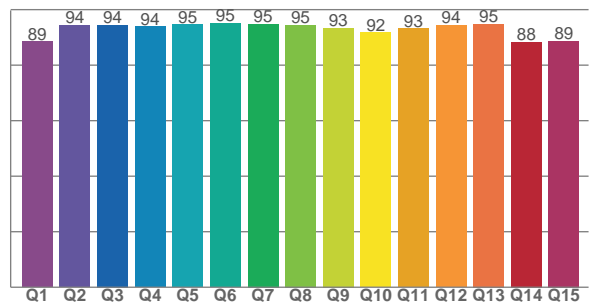
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
91.9	94.7	95.4	94.3	95.4	95.9	93.3	95.4	94.0	92.8	93.4	91.6	90.9	89.2	92.0	87.6

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
88.5	94.3	94.5	93.9	94.7	95.1	94.9	94.5	93.3	91.7	93.2	94.3	94.7	88.4	88.8

CQS: 92.5



### 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
2768 K	95.1	65.2	93.1	97.2	92.5	0.458	0.416	0.259	0.353	0.0021

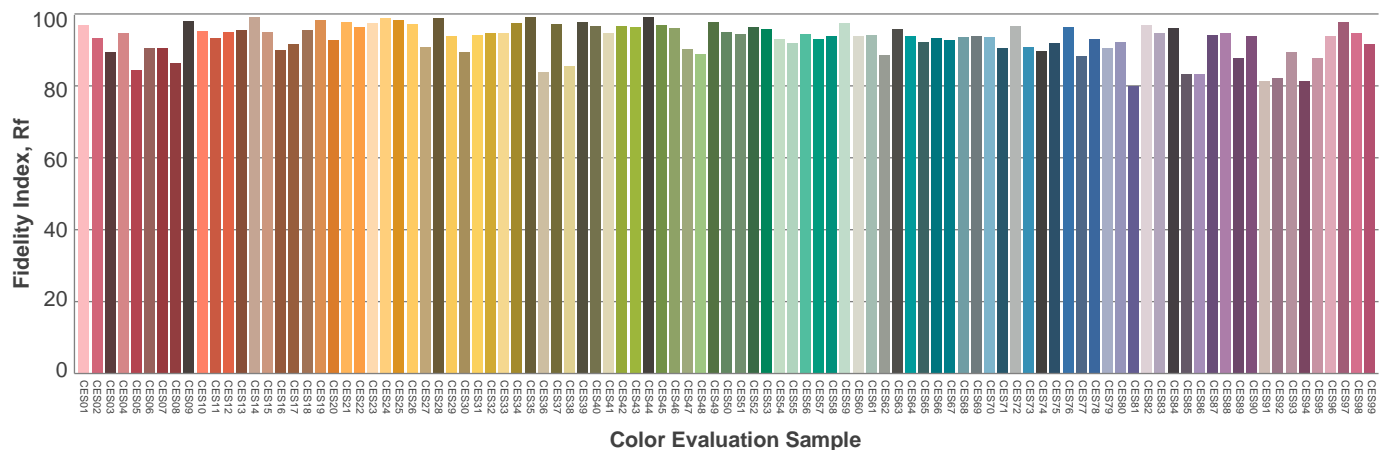
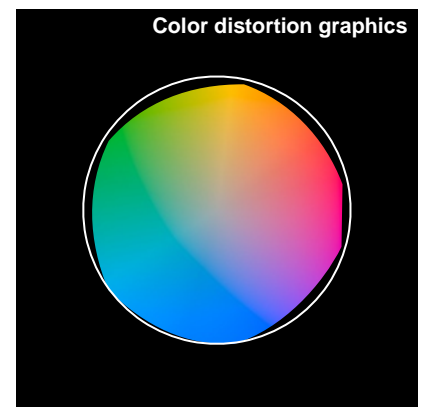
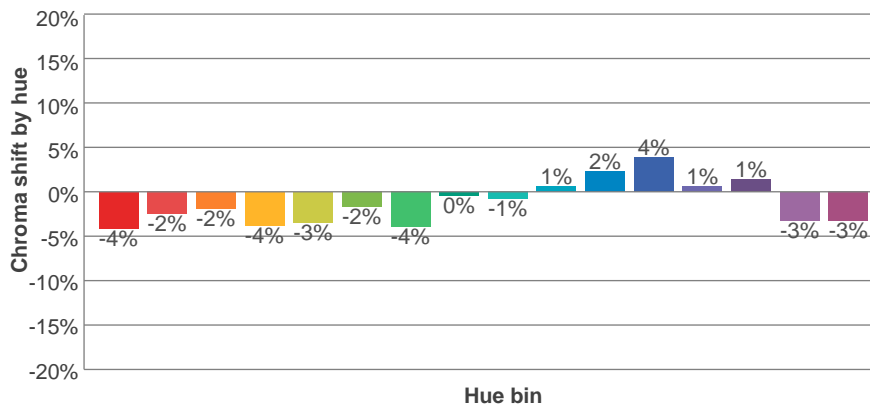
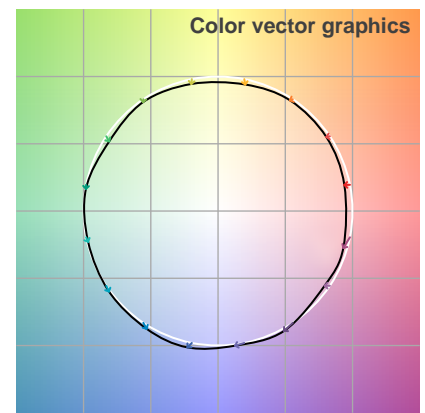
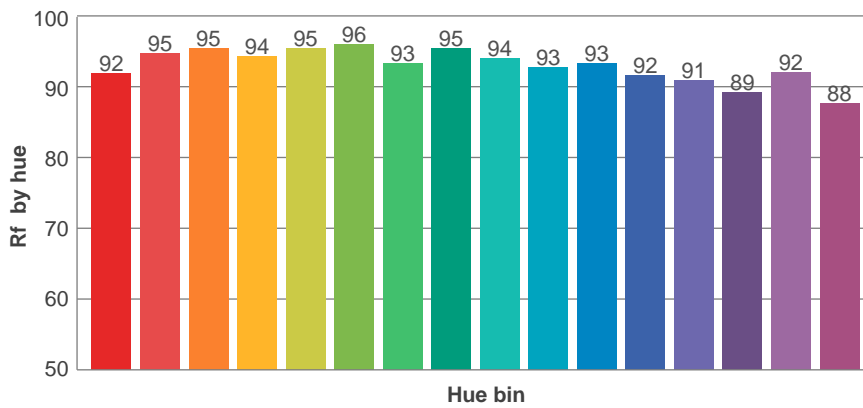
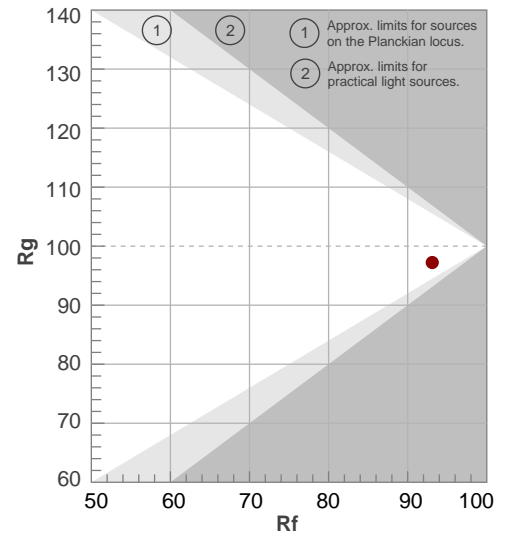
**Rf 93.1**

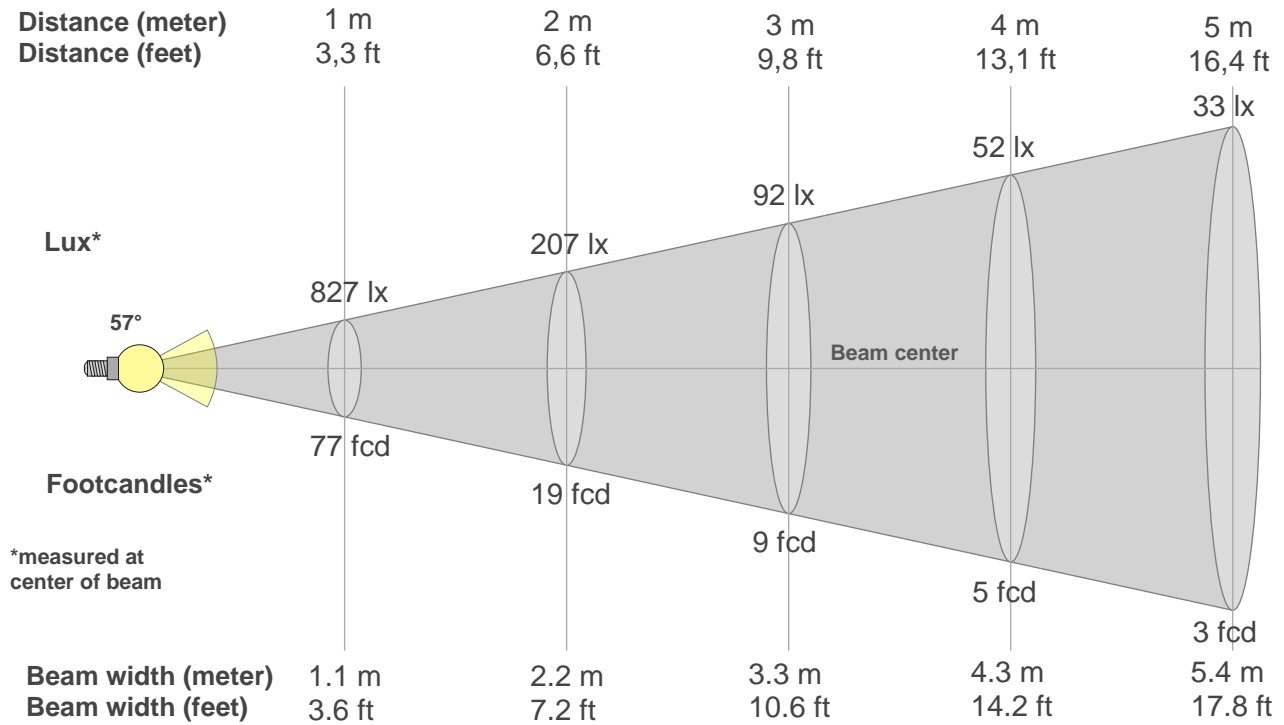
Fidelity index Rf

**Rg 97.2**

Gamut index Rg

Hue Bin	R <sub>f</sub>	Shifts (%)	
		Chroma	Hue
1	92	-4%	1%
2	95	-2%	1%
3	95	-2%	1%
4	94	-4%	-1%
5	95	-3%	1%
6	96	-2%	1%
7	93	-4%	2%
8	95	0%	3%
9	94	-1%	4%
10	93	1%	5%
11	93	2%	4%
12	92	4%	-2%
13	91	1%	-7%
14	89	1%	-9%
15	92	-3%	-2%
16	88	-3%	-9%





**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
827lx	207lx	92lx	52lx	33lx	23lx	17lx	13lx	10lx	8lx	7lx	6lx	5lx	4lx	4lx	3lx	3lx	3lx	2lx	2lx
76.9fcd	19.2fcd	8.5fcd	4.8fcd	3.1fcd	2.1fcd	1.6fcd	1.2fcd	0.9fcd	0.8fcd	0.6fcd	0.5fcd	0.5fcd	0.4fcd	0.3fcd	0.3fcd	0.3fcd	0.2fcd	0.2fcd	0.2fcd

**Intensities in 0° c-plane**

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
827	825	821	817	810	801	785	762	731	693	648	599	543	480	412	341	272	211	166	129
100%	100%	99%	99%	98%	97%	95%	92%	88%	84%	78%	72%	66%	58%	50%	41%	33%	26%	20%	16%

**Intensities in 90° c-plane**

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
827	830	831	833	833	828	816	792	759	719	672	621	566	505	439	367	293	224	175	136
100%	100%	100%	101%	101%	100%	99%	96%	92%	87%	81%	75%	68%	61%	53%	44%	35%	27%	21%	16%

**Intensities in 180° c-plane**

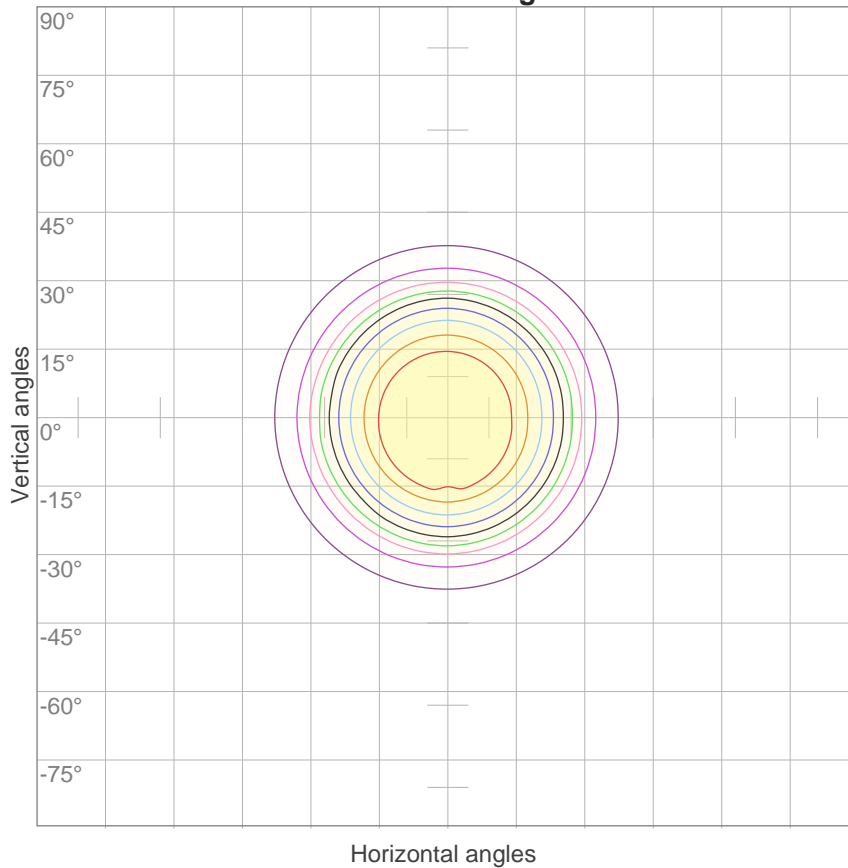
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
827	827	825	821	816	809	796	775	746	710	667	619	565	505	442	374	304	237	185	145
100%	100%	100%	99%	99%	98%	96%	94%	90%	86%	81%	75%	68%	61%	53%	45%	37%	29%	22%	18%

**Intensities in 270° c-plane**

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
827	827	825	821	815	806	790	768	738	702	662	616	564	505	435	360	287	224	175	138
100%	100%	100%	99%	99%	97%	96%	93%	89%	85%	80%	74%	68%	61%	53%	43%	35%	27%	21%	17%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
57°	84.3°	111.2°	97.3%	92.0%

**iso-candela diagram**



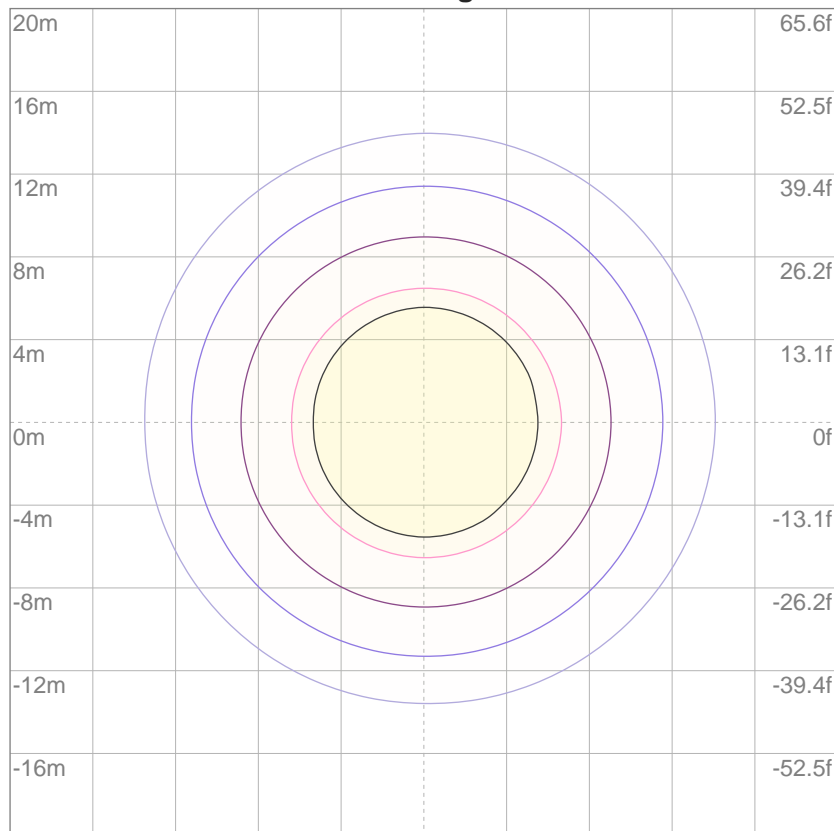
10%	83 cd
20%	165 cd
30%	248 cd
40%	331 cd
50%	414 cd
60%	496 cd
70%	579 cd
80%	662 cd
90%	745 cd

Conditions:

Number of c-planes: 4

Candela at center: 827 cd

**iso-lux diagram**



3%	0.248 lx
5%	0.414 lx
10%	0.827 lx
30%	2.48 lx
50%	4.14 lx

Conditions:

Number of c-planes: 4

Lux at center: 8.27 lx

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

## 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				
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Variation of the observer position for the luminaire distance S										
n/a	n/a					n/a				
n/a	n/a					n/a				
n/a	n/a					n/a				
Standard table	n/a					n/a				
Correction summand	n/a					n/a				
Corrected glare indices referring to 746 lm total luminous flux										

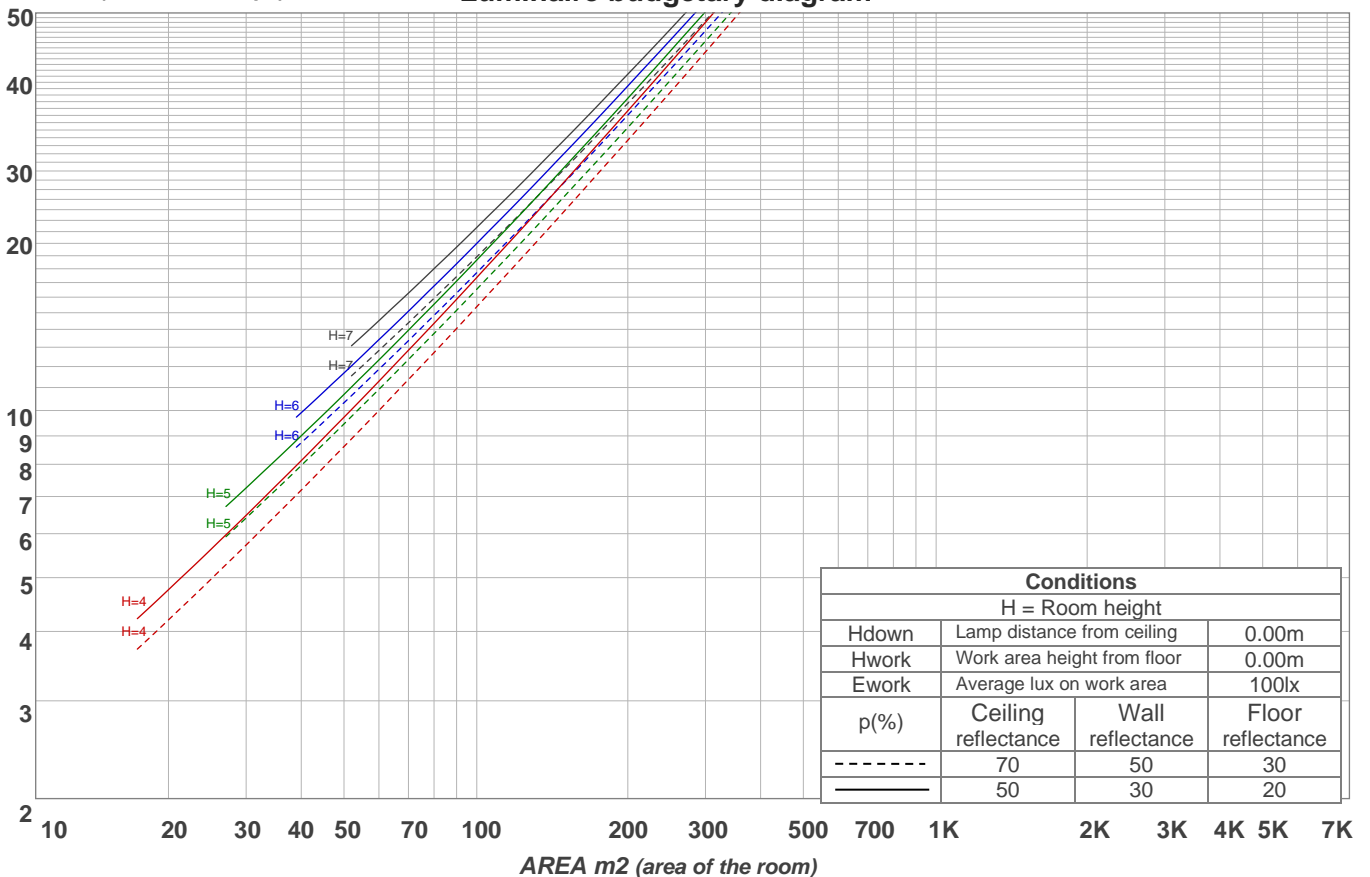
UGR data could not be calculated due to missing/wrong symmetry. Goto Edit->Photometric->Corrections and select Correct asymmetry.

## 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	110	110	110	105	105	105	101	101	101	99
1	113	110	108	105	110	108	106	103	104	102	100	100	98	97	96	95	94	92
2	107	102	98	95	105	100	97	93	97	94	91	94	91	89	91	89	87	85
3	102	95	90	86	100	94	89	85	91	87	84	88	85	82	86	83	81	79
4	96	89	83	79	94	87	82	78	85	81	77	83	79	76	81	78	75	73
5	91	83	77	73	90	82	76	72	80	75	71	78	74	71	76	73	70	68
6	87	78	72	67	85	77	71	67	75	70	67	74	69	66	72	68	65	64
7	83	73	67	63	81	72	67	63	71	66	62	70	65	62	68	64	61	60
8	79	69	63	59	77	68	63	59	67	62	58	66	61	58	65	61	58	56
9	75	65	59	55	74	65	59	55	63	58	55	62	58	54	62	57	54	53
10	71	62	56	52	70	61	56	52	60	55	52	59	55	51	59	54	51	50

LAMPS (number of lamps)

## Luminaire budgetary diagram



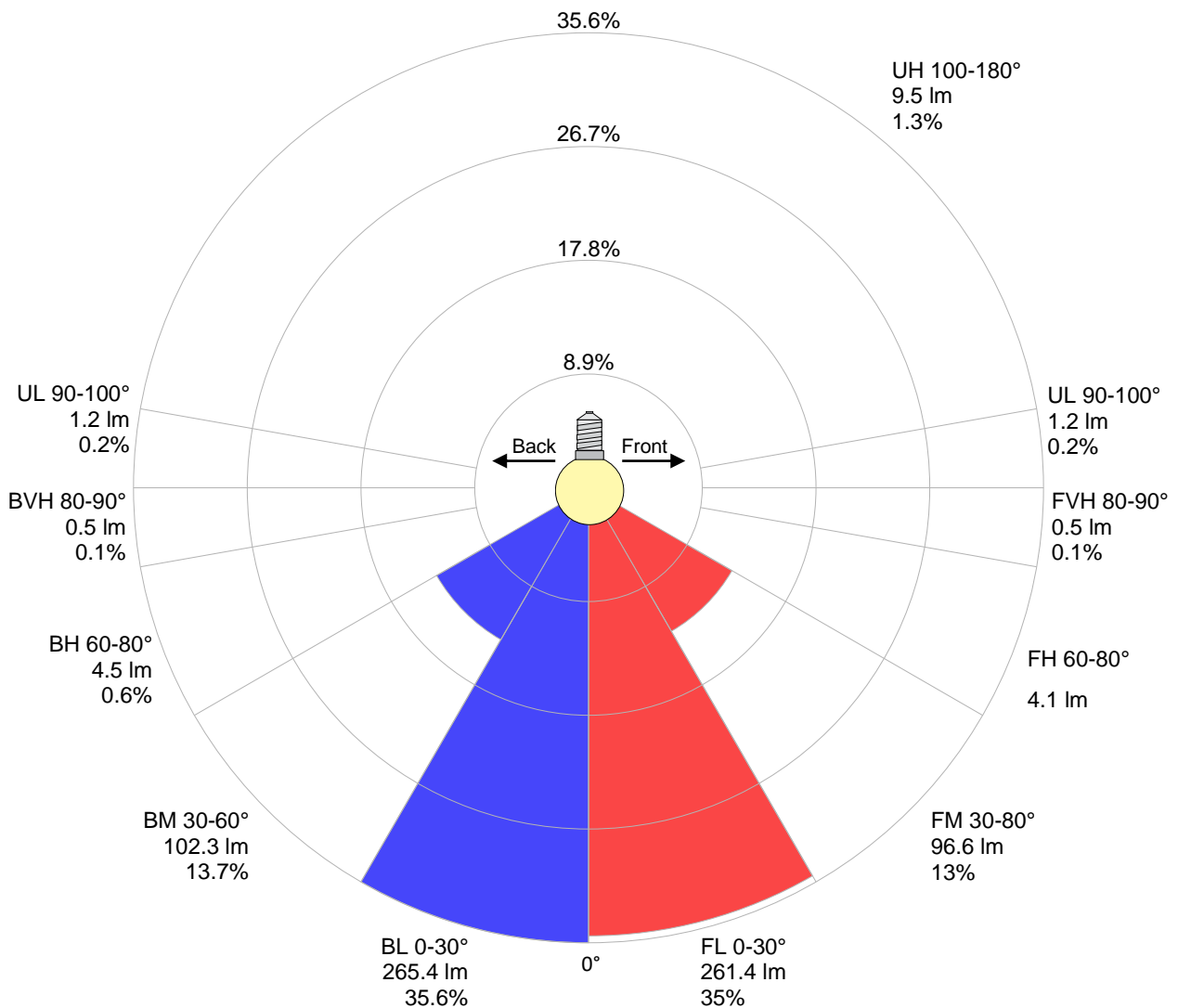
## Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	211 lm	239 lm	129 lm	48.6 lm	20.3 lm	6.63 lm	1.89 lm	1.00 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
1.23 lm	1.48 lm	1.72 lm	1.69 lm	1.66 lm	1.34 lm	0.908 lm	0.498 lm	0.167 lm

LCS table

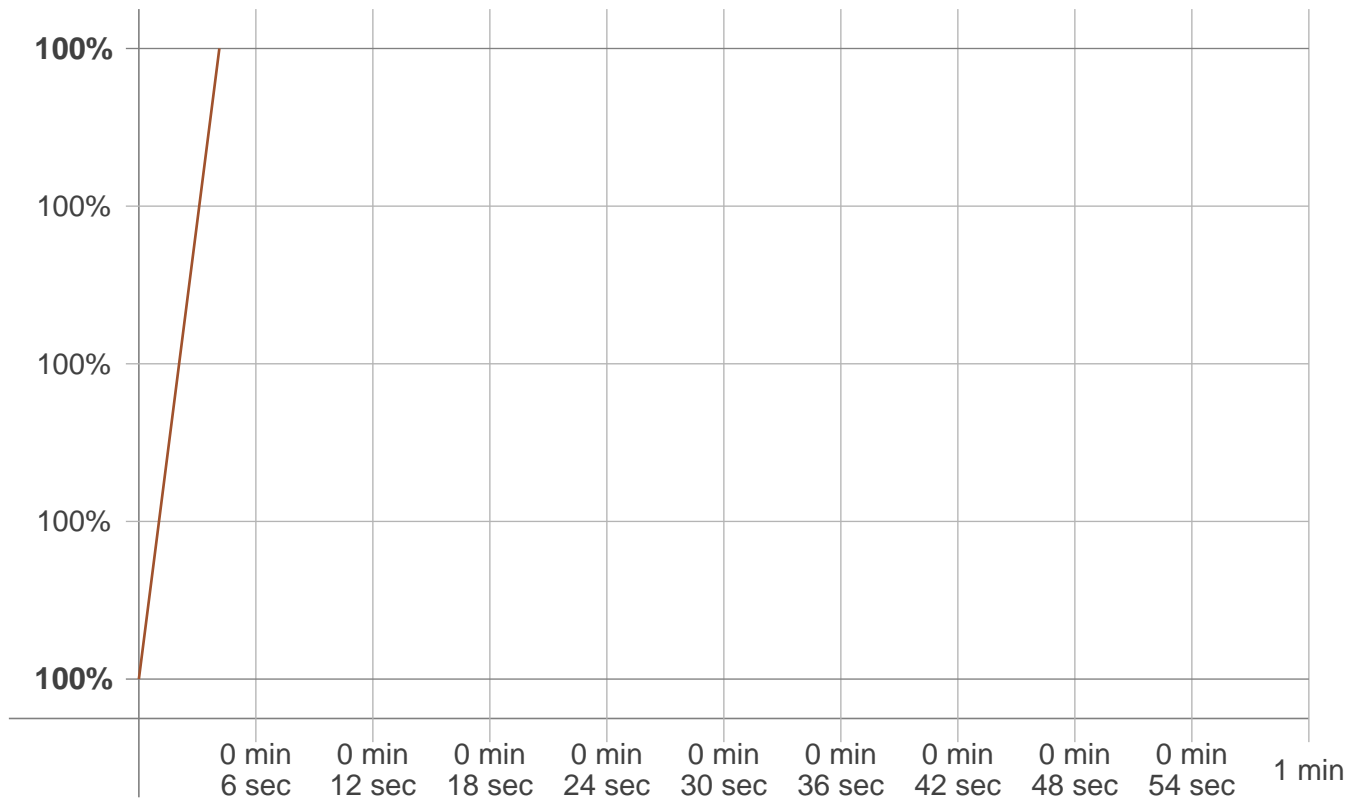
BUG rating:	B1 U1 G0	
Forward light	Lumens	Lumens %
Low(0-30):	261.4	35%
Medium(30-60):	96.6	13%
High(60-80):	4.1	0.5%
Very high(80-90):	0.5	0.1%
Back light		
Low(0-30):	265.4	35.6%
Medium(30-60):	102.3	13.7%
High(60-80):	4.5	0.6%
Very high(80-90):	0.5	0.1%
Uplight		
Low(90-100):	1.2	0.2%
High(100-180):	9.5	1.3%

LCS graph





**Warmup curve**



**Warmup result**

<b>Warmup time:</b>	<b>Not completed</b>
<b>Warmup variation</b>	<b>+0.0%</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**

<b>CCT start</b>	<b>CCT change</b>	<b>CCT end</b>
<b>2768 K</b>	<b>0 K</b>	<b>2768 K</b>

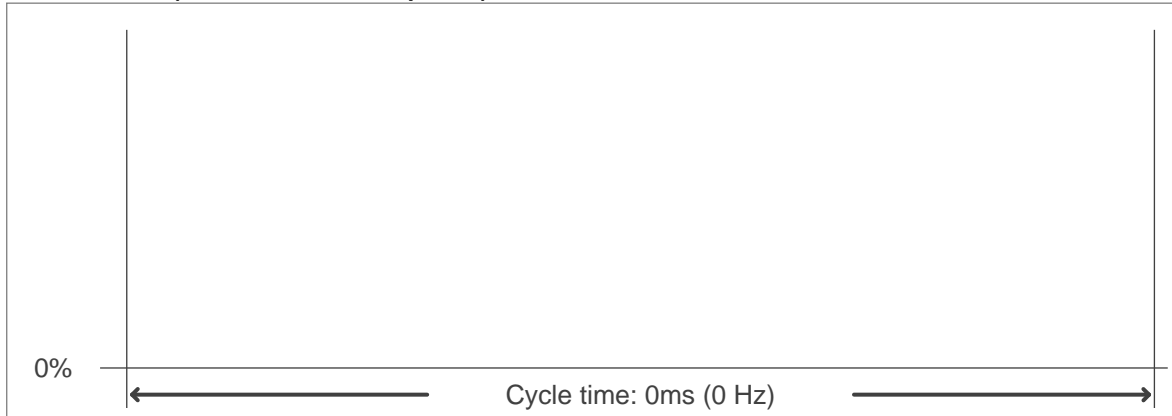
**Output change**

<b>Output start</b>	<b>Output change</b>	<b>Output end</b>
<b>746 lm</b>	<b>+ lm</b>	<b>746 lm</b>

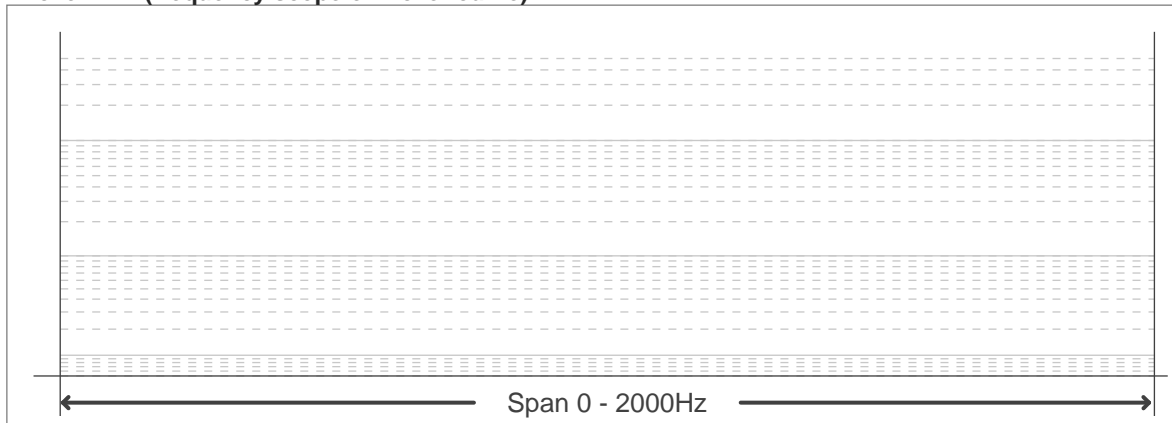
**Flicker curve (complete sampled flicker signal)**



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



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



**Flicker results:**

<b>Flicker frequency:</b>	<b>n/a Hz</b>	<b>JA8/10 40Hz</b>	<b>n/a %</b>
<b>Flicker index:</b>	<b>n/a</b>	<b>JA8/10 90Hz</b>	<b>n/a %</b>
<b>Flicker percentage:</b>	<b>n/a %</b>	<b>JA8/10 200Hz</b>	<b>n/a %</b>
<b>SVM: (Visual flicker)</b>	<b>n/a</b>	<b>JA8/10 400Hz</b>	<b>n/a %</b>
<b>PstLM</b>	<b>n/a</b>	<b>JA8/10 1000Hz</b>	<b>n/a %</b>

**Flicker conditions:**

<b>Sample rate:</b>	<b>0 samples/second</b>
---------------------	-------------------------