HUNZA
PURE OUTDOOR LIGHTING

Light efficiency:

87 Lumen/Watt

Light quality:

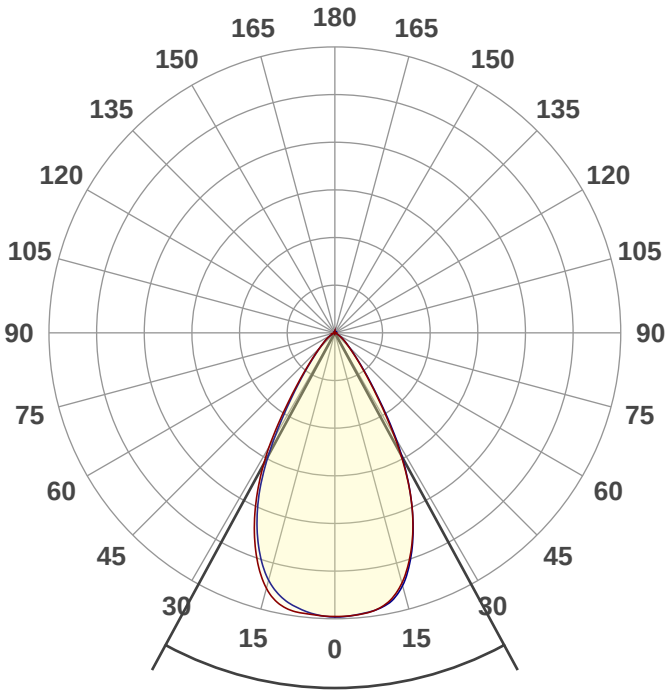
CRI: 95.0

Color temperature:

3738 K

Output: 1564 lm
Peak: 1743 cd

Power: 18.0 W
PF: 1.0



Beam angle **56.9°**

CIE 1931
x: 0.393
y: 0.385

Tracking number: n/a

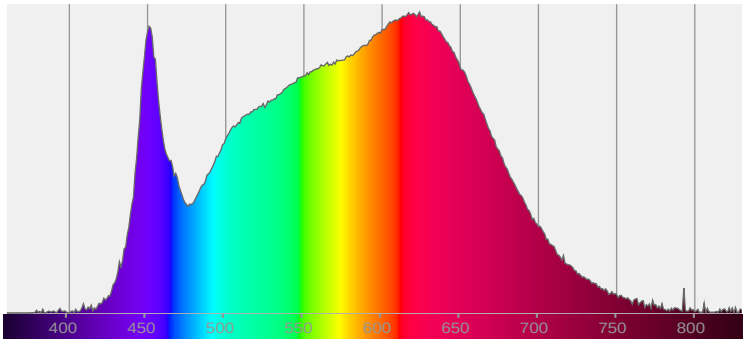
Product name:
Ultra 12 Tuneable White 60 deg Both 500mA

Item number:
U12-TW-57-Both

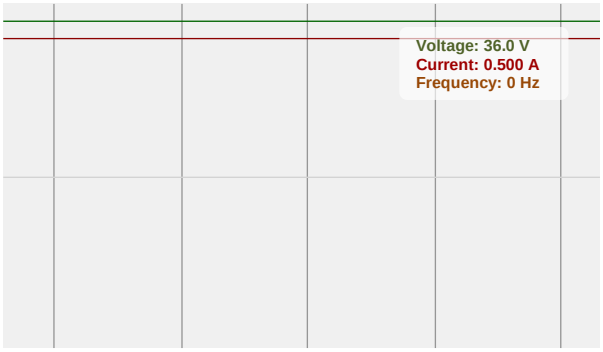
Date and time:
3/09/2020 6:06:21 PM

Description:

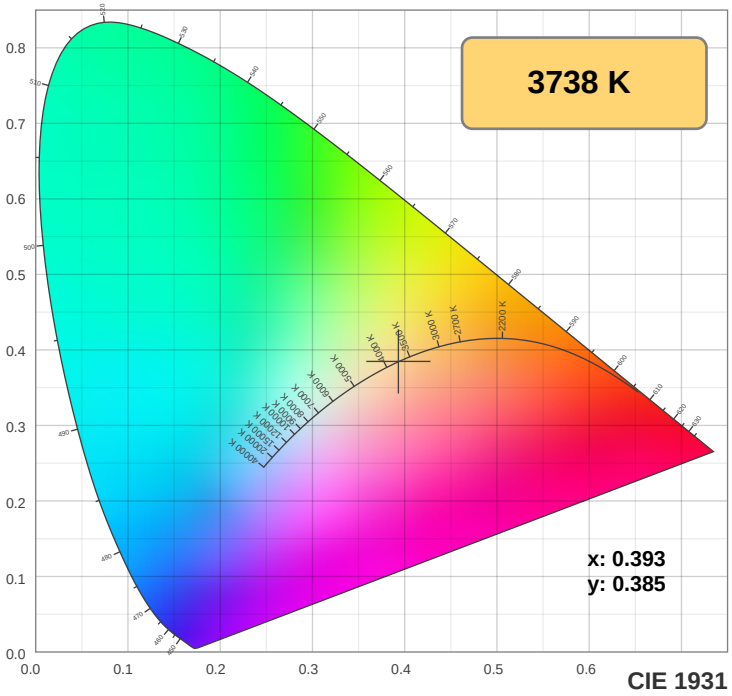
Spectra



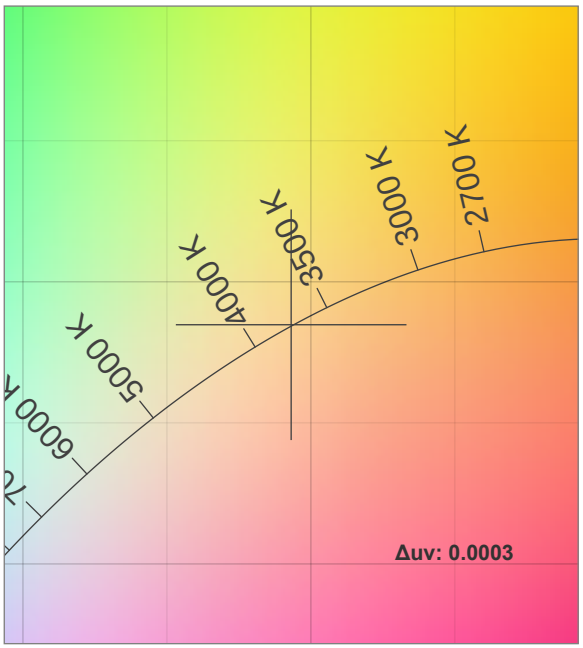
Power



Color details

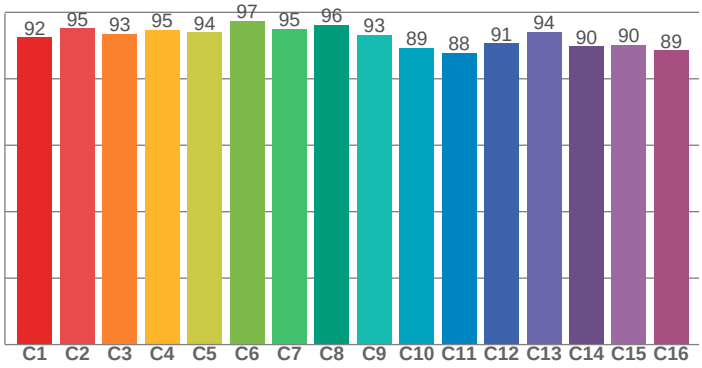


CIE 1931

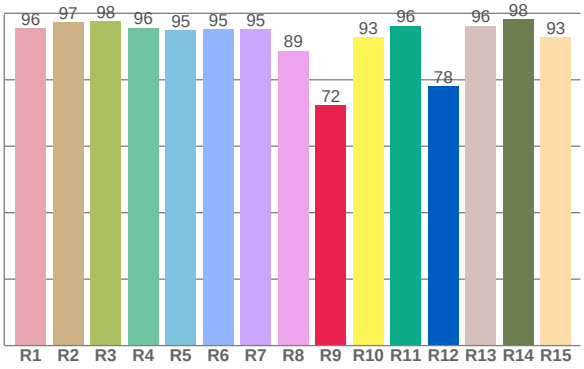


CIE 1931 ZOOM

TM-30: 92.6



CRI: 95.0 (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
95.6	97.4	97.6	95.6	94.9	95.3	95.2	88.7	72.3	92.8	96.3	78.0	96.3	98.2	92.9

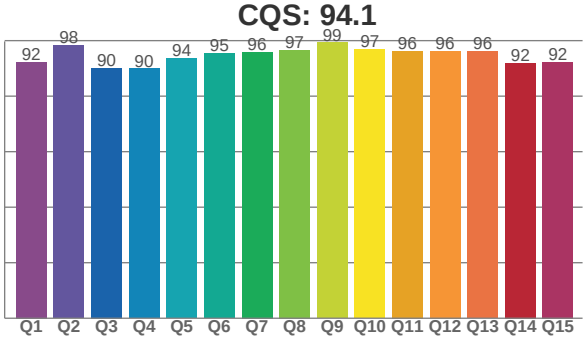
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
92.5	95.2	93.5	94.7	94.0	97.3	95.1	96.3	93.2	89.3	87.9	90.7	94.1	89.8	90.2	88.6

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
92.4	98.3	90.1	89.9	93.7	95.4	95.9	96.6	99.3	96.9	96.3	96.3	96.2	92.0	92.2

CQS: 94.1



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 diviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
3738 K	95.0	72.3	92.6	99.1	94.1	0.393	0.385	0.230	0.338	0.0003

HUNZA
PURE OUTDOOR LIGHTING

TM-30 details

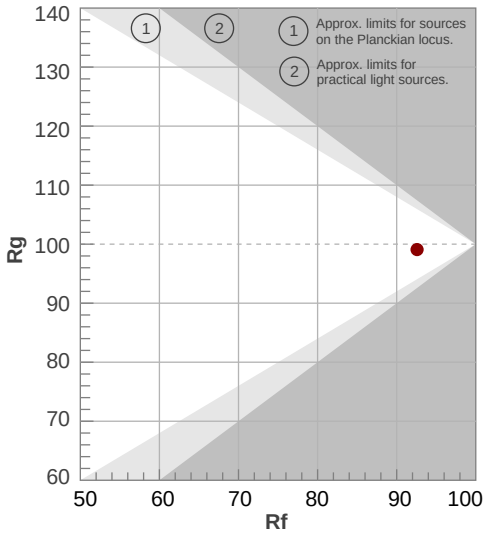
Rf 92.6

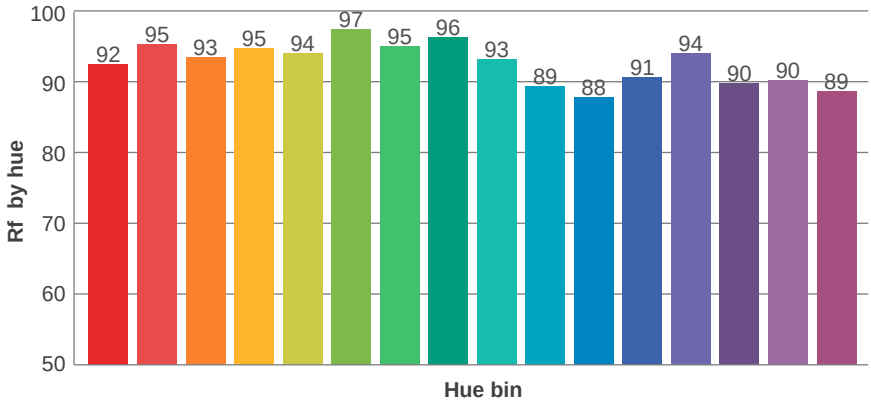
Fidelity index Rf

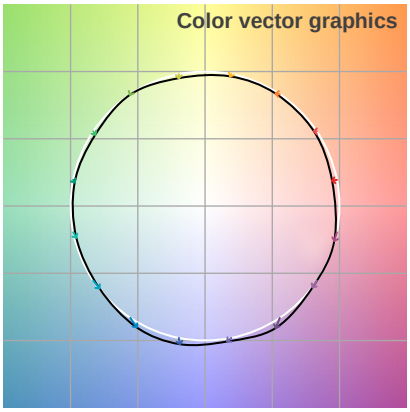
Rg 99.1

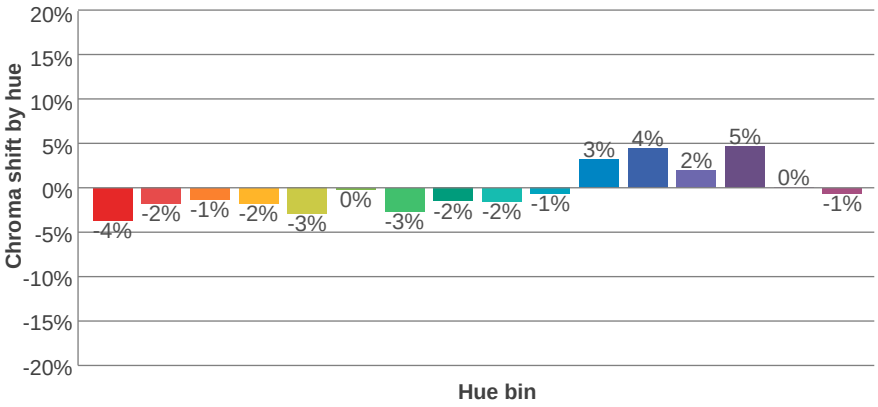
Gamut index Rg

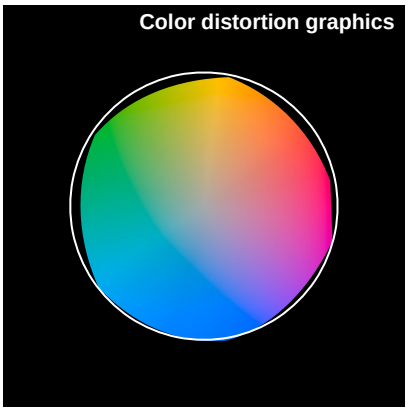
		Shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	92	-4%	0%
2	95	-2%	1%
3	93	-1%	3%
4	95	-2%	1%
5	94	-3%	1%
6	97	0%	0%
7	95	-3%	1%
8	96	-2%	2%
9	93	-2%	4%
10	89	-1%	7%
11	88	3%	8%
12	91	4%	2%
13	94	2%	-3%
14	90	5%	-7%
15	90	0%	-6%
16	89	-1%	-7%

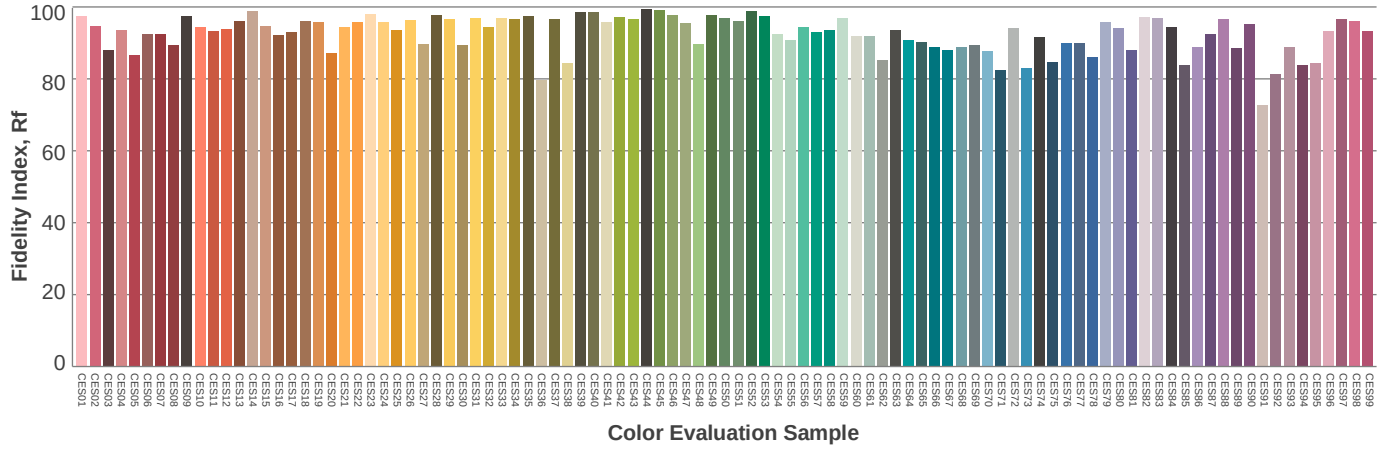












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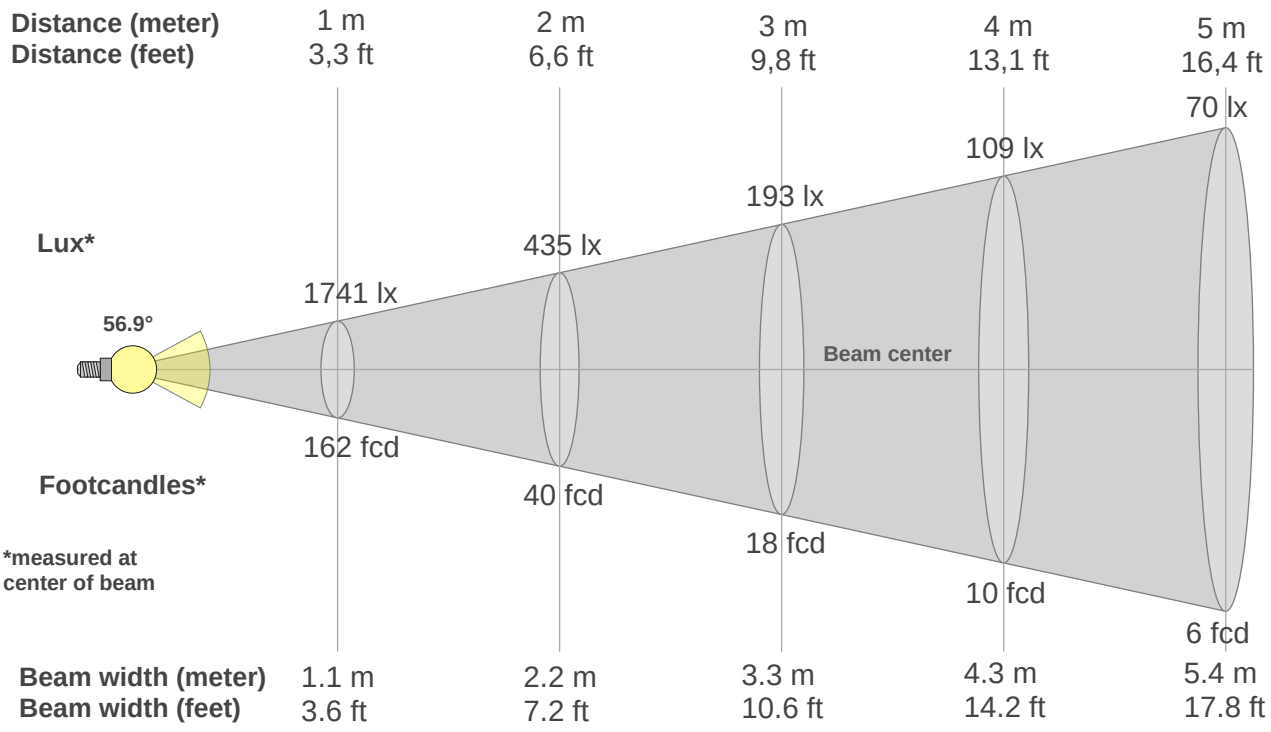
Beam details



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
1741lx	435lx	193lx	109lx	70lx	48lx	36lx	27lx	21lx	17lx	14lx	12lx	10lx	9lx	8lx	7lx	6lx	5lx	5lx	4lx
161.7fc	40.4fcd	18fcd	10.1fcd	6.5fcd	4.5fcd	3.3fcd	2.5fcd	2fcd	1.6fcd	1.3fcd	1.1fcd	1fcd	0.8fcd	0.7fcd	0.6fcd	0.6fcd	0.5fcd	0.4fcd	0.4fcd

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°
1741	1739	1736	1730	1720	1700	1668	1618	1553	1472	1380	1277	1161	1029	883	728	575	448	349	272
100%	100%	100%	99%	99%	98%	96%	93%	89%	85%	79%	73%	67%	59%	51%	42%	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°
1741	1741	1735	1728	1720	1705	1680	1634	1570	1485	1389	1281	1161	1033	896	751	600	465	363	282
100%	100%	100%	99%	99%	98%	97%	94%	90%	85%	80%	74%	67%	59%	51%	43%	34%	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°
1741	1738	1734	1731	1728	1715	1691	1650	1589	1512	1420	1318	1205	1081	949	805	648	506	393	306
100%	100%	100%	99%	99%	99%	97%	95%	91%	87%	82%	76%	69%	62%	55%	46%	37%	29%	23%	18%

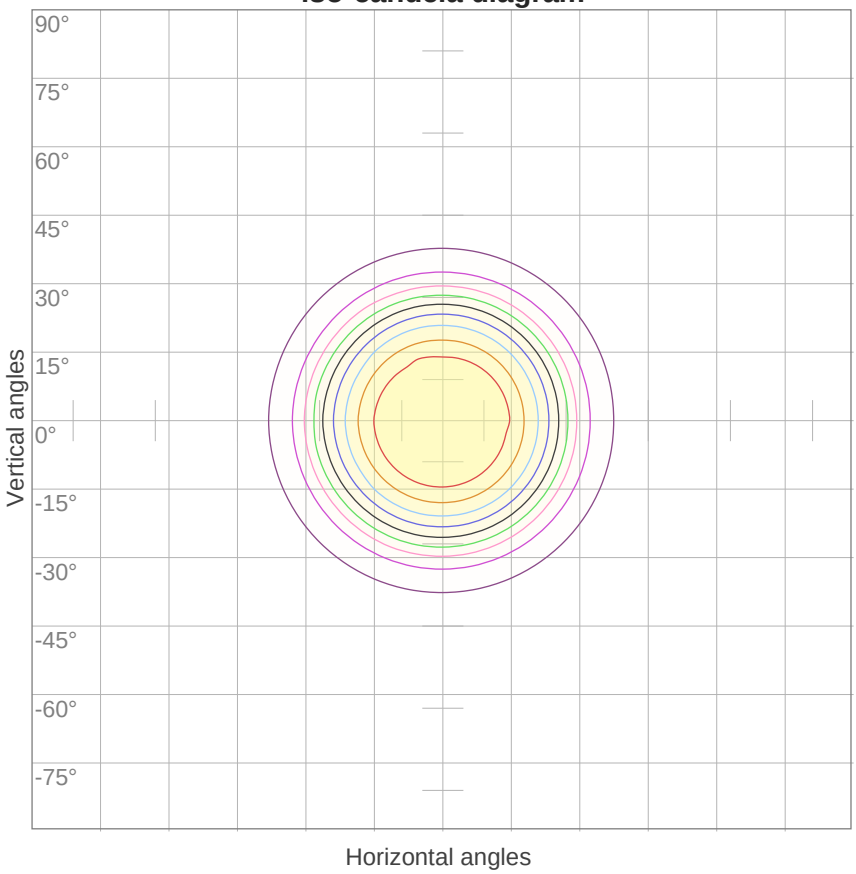
Intensities in 270° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
1741	1739	1730	1717	1698	1676	1642	1597	1538	1462	1374	1274	1162	1036	891	736	588	464	364	286
100%	100%	99%	99%	98%	96%	94%	92%	88%	84%	79%	73%	67%	59%	51%	42%	34%	27%	21%	16%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
56.9°	84.3°	111.2°	97.3%	92.0%

Iso Diagrams

iso-candela diagram



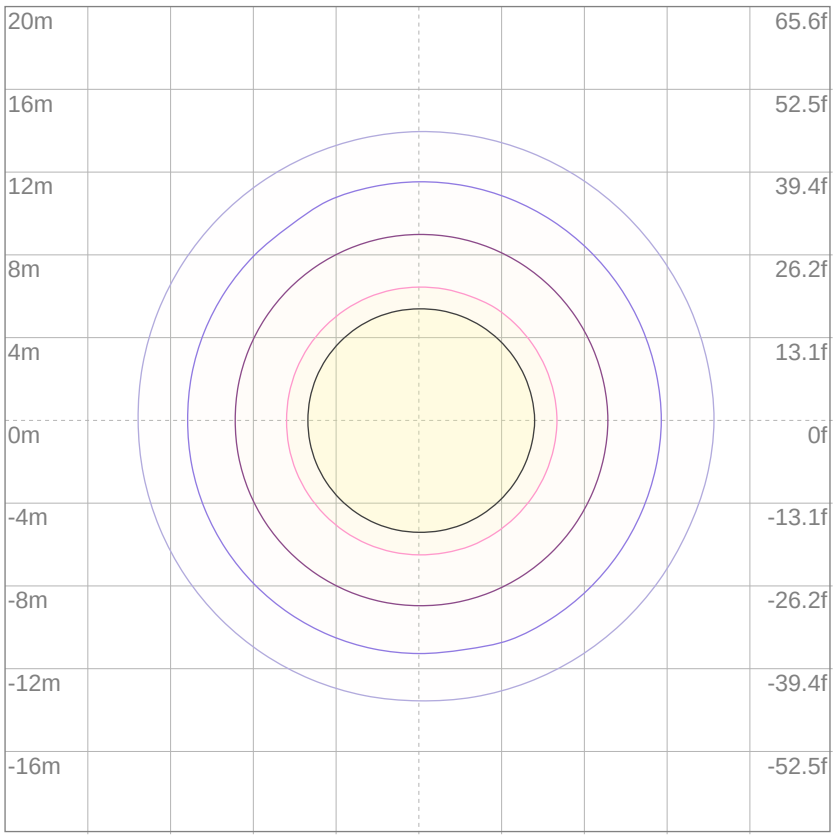
10%	174 cd
20%	348 cd
30%	522 cd
40%	696 cd
50%	870 cd
60%	1045 cd
70%	1219 cd
80%	1393 cd
90%	1567 cd

Conditions:

Number of c-planes: 4

Candela at center: 1741 cd

iso-lux diagram



3%	0.522 lx
5%	0.870 lx
10%	1.74 lx
30%	5.22 lx
50%	8.70 lx

Conditions:

Number of c-planes: 4

Lux at center: 17.4 lx

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

Glare Evaluation According to UGR

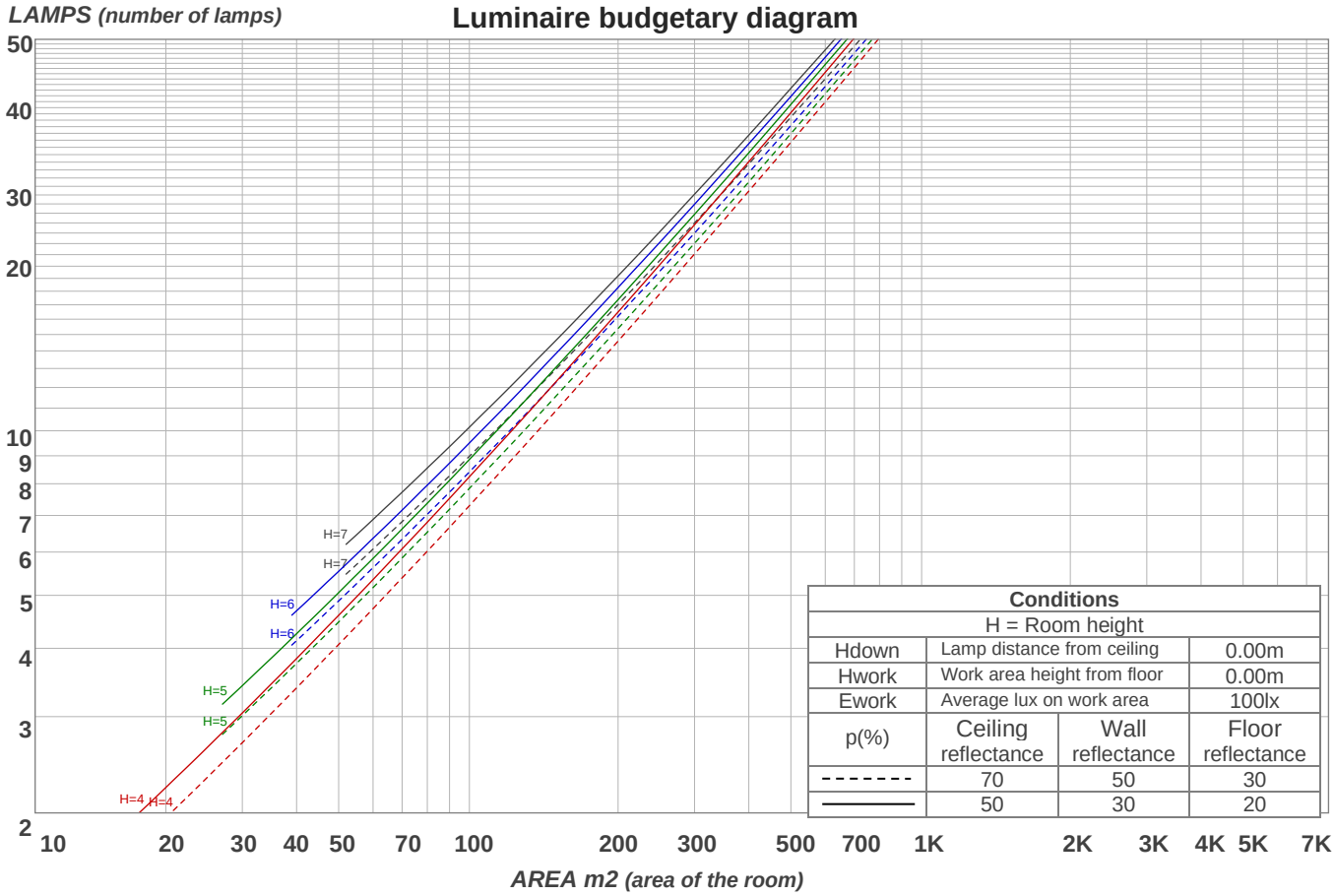
p Ceiling	70	70	50	50	30	70	70	50	50	30
p Walls	50	30	50	30	30	50	30	50	30	30
p Floor	20	20	20	20	20	20	20	20	20	20
Room size X Y	Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	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 1564 lm total luminous flux										

UGR data could not be caluculated 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	58	54	51	50

Luminaire budgetary diagram



Zonal Lumen Summary

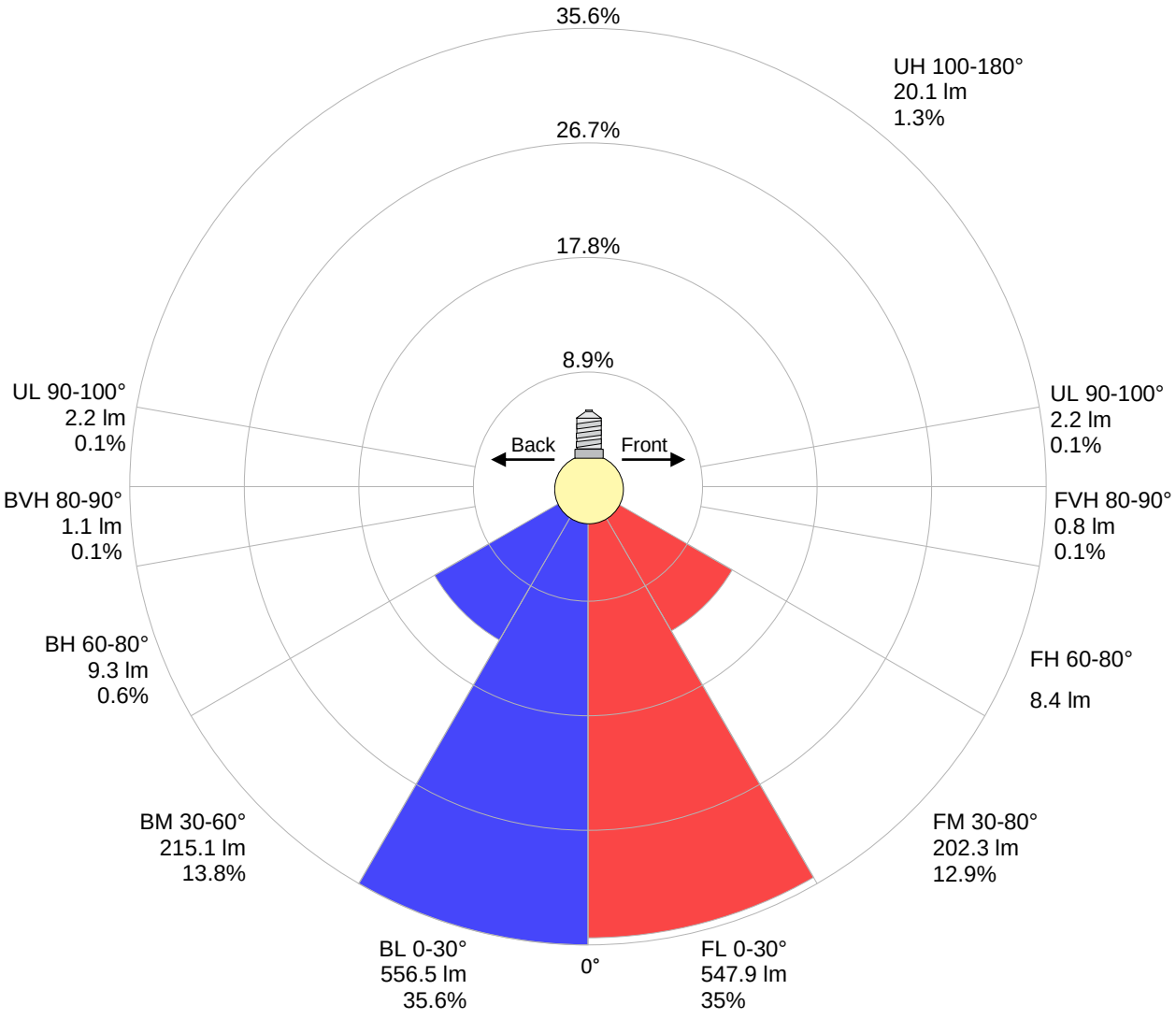
0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	442 lm	499 lm	270 lm	103 lm	42.9 lm	13.7 lm	3.91 lm	1.89 lm

90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
2.18 lm	3.09 lm	3.61 lm	3.71 lm	3.44 lm	2.94 lm	1.90 lm	1.07 lm	0.364 lm

LCS table

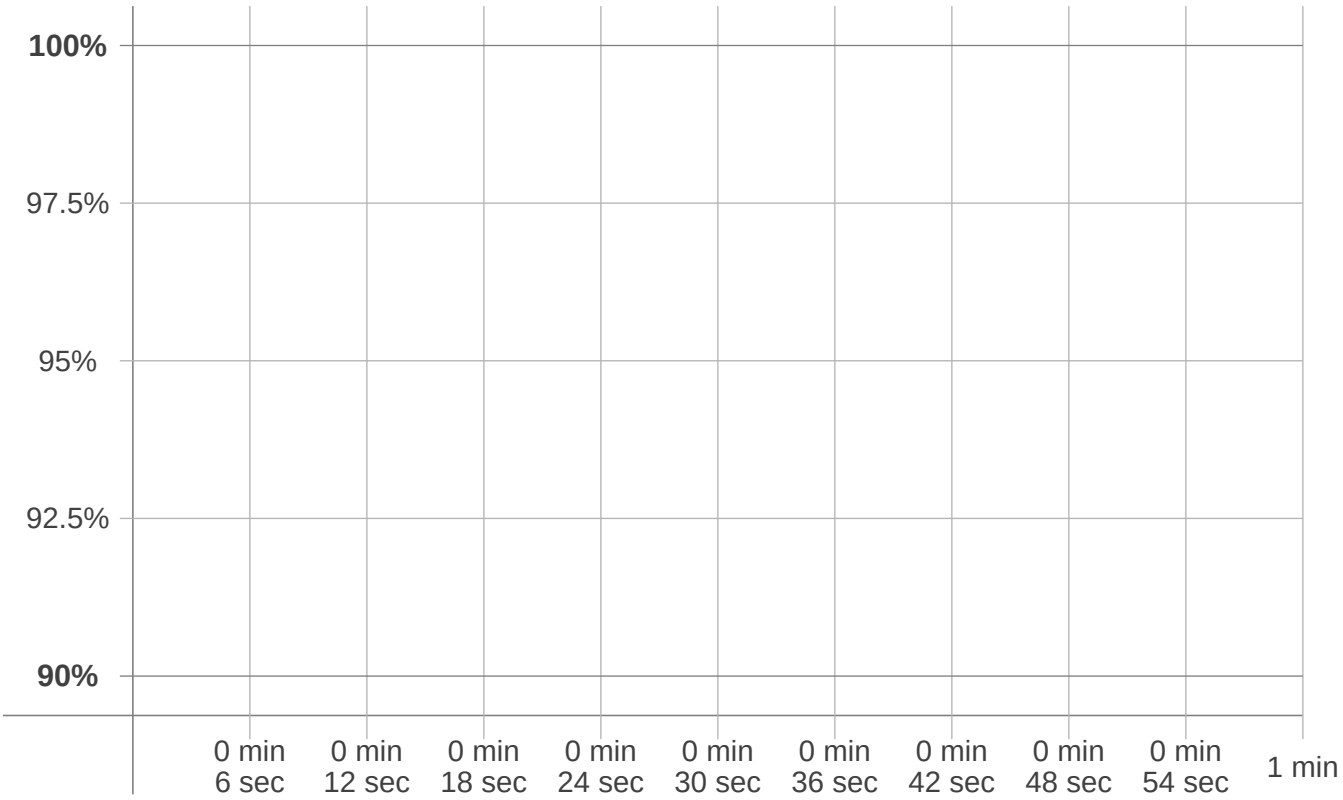
BUG rating:	B2 U2 G0	
Forward light	Lumens	Lumens %
Low(0-30):	547.9	35%
Medium(30-60):	202.3	12.9%
High(60-80):	8.4	0.5%
Very high(80-90):	0.8	0.1%
Back light		
Low(0-30):	556.5	35.6%
Medium(30-60):	215.1	13.8%
High(60-80):	9.3	0.6%
Very high(80-90):	1.1	0.1%
Uplight		
Low(90-100):	2.2	0.1%
High(100-180):	20.1	1.3%

LCS graph



Stabilization

Warmup curve



Warmup result

Warmup time:	**n/a**
Warmup variation	**n/a%**

Warmup conditions

Stable period:	**n/a**
Stable change max:	**n/a%**
Minimum time:	**n/a**

Color temperature change

CCT start	CCT change	CCT end
n/a K	**n/a K**	**3738 K**

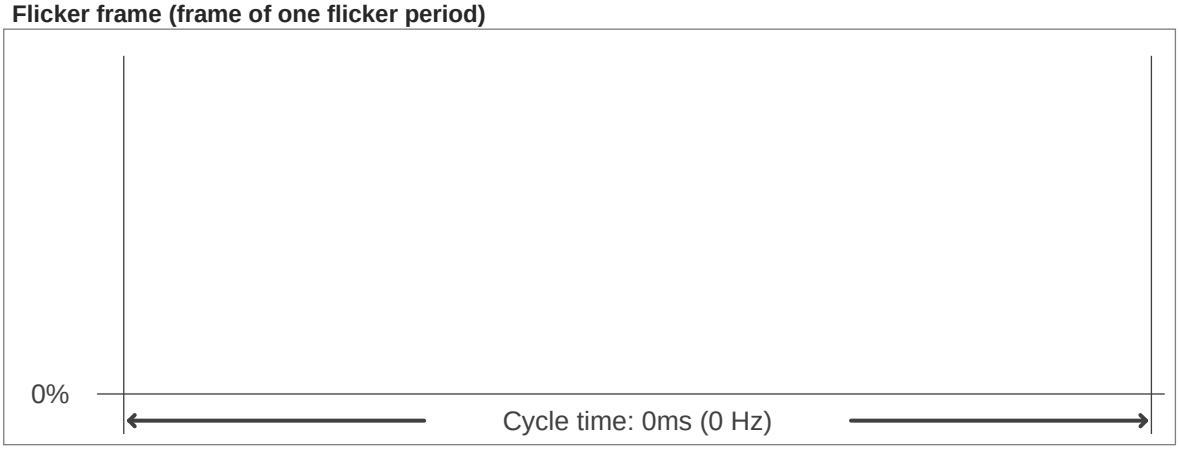
Output change

Output start	Output change	Output end
n/a lm	**n/a lm**	**1564 lm**

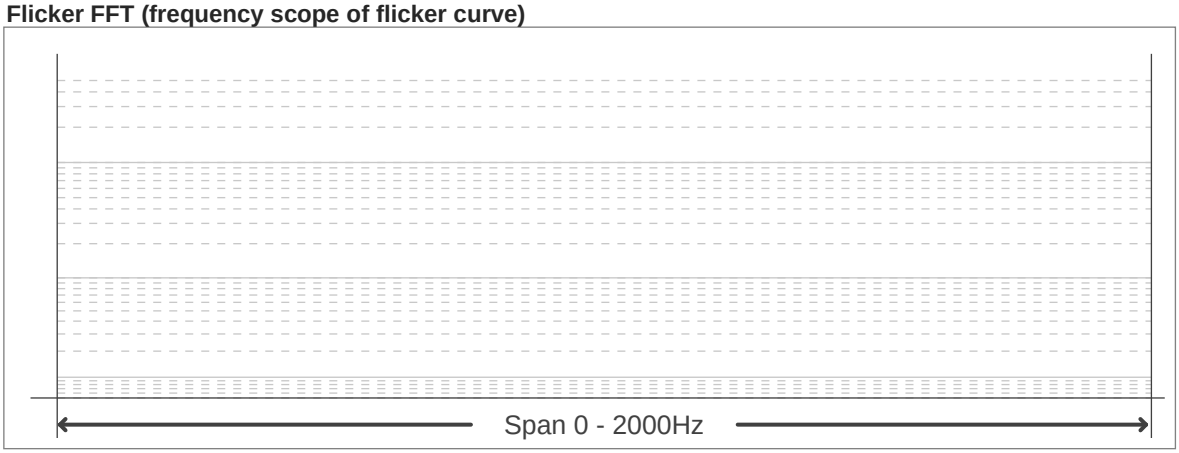
Flicker

Flicker curve (complete sampled flicker signal)

Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



Flicker results:

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

Flicker conditions:

Sample rate:	**0 samples/second**