HUNZA
PURE OUTDOOR LIGHTING

Light efficiency:

95 Lumen/Watt

Light quality:

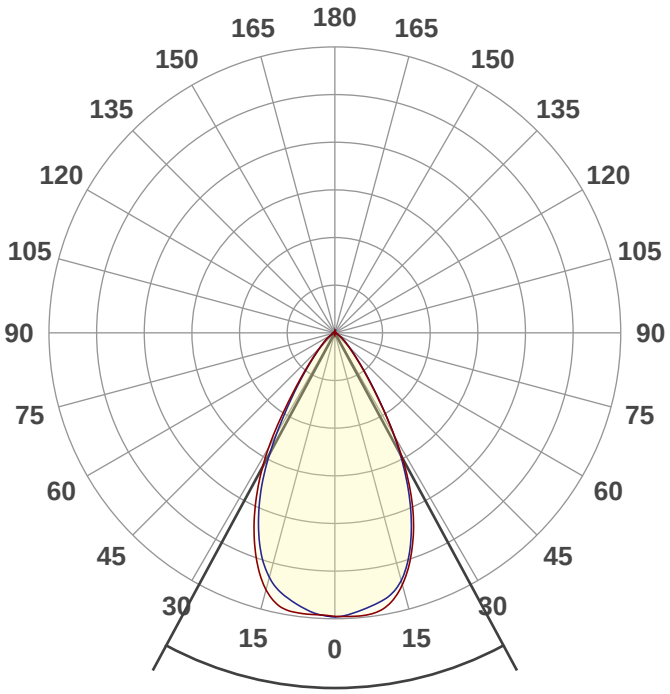
CRI: 91.0

Color temperature:

5054 K

Output: 851 lm
Peak: 955 cd

Power: 9.0 W
PF: 1.0



Beam angle 56.7°

CIE 1931
x: 0.345
y: 0.363

Tracking number: n/a

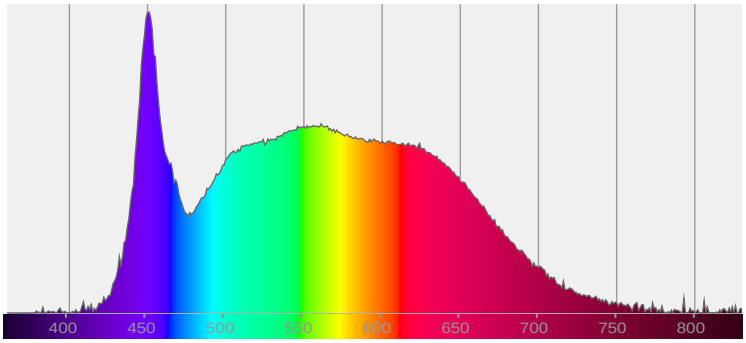
Product name:
Ultra 12 Tuneable White 60 deg 5000K 500mA

Item number:
U12-TW-57-50

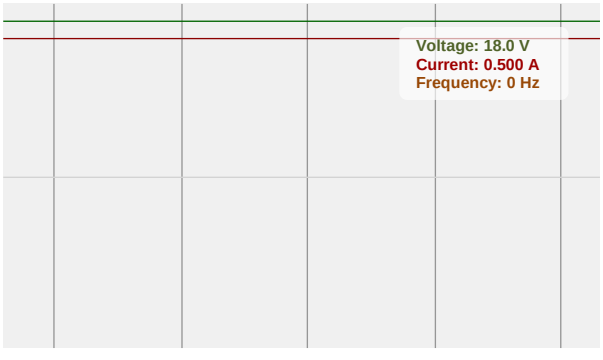
Date and time:
3/09/2020 6:00:07 PM

Description:

Spectra

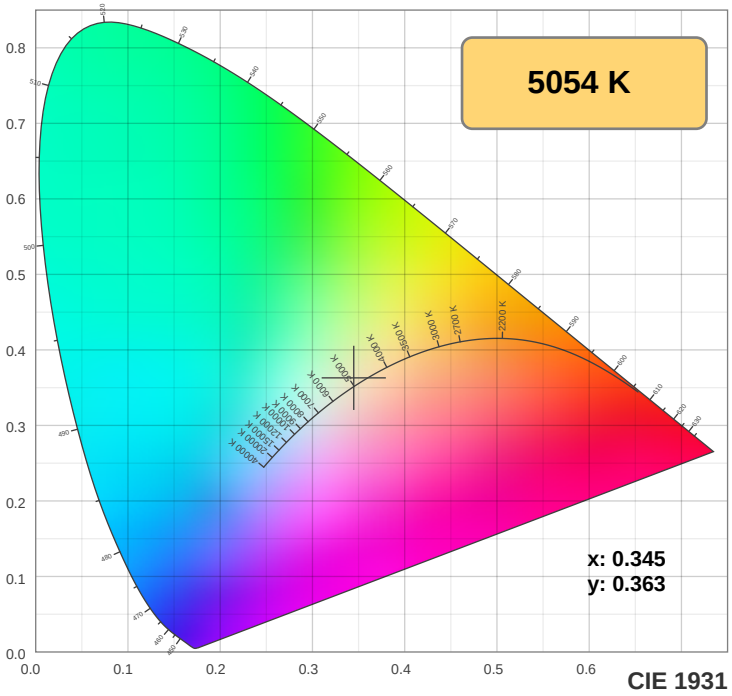


Power

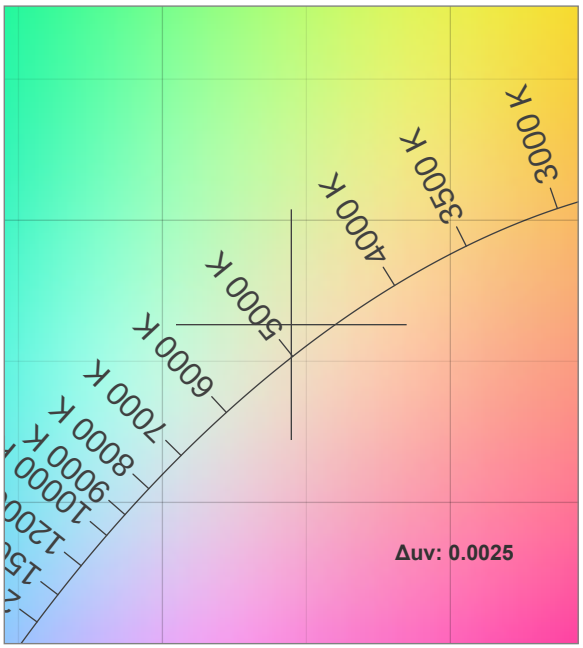


HUNZA
PURE OUTDOOR LIGHTING

Color details

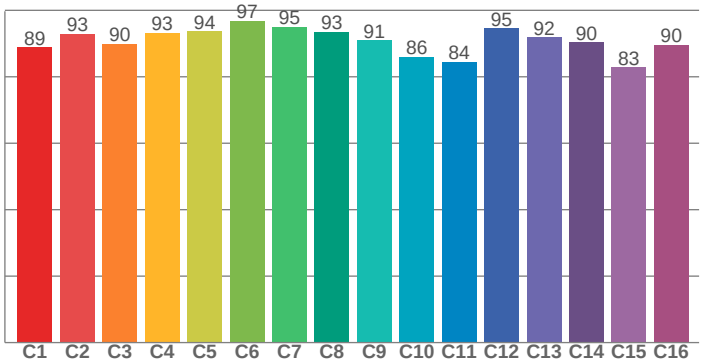


CIE 1931

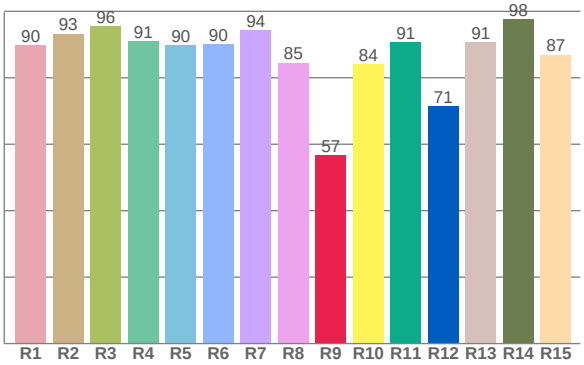


CIE 1931 ZOOM

TM-30: 90.8



CRI: 91.0 (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
89.9	93.2	95.5	91.0	89.7	90.1	94.4	84.6	56.6	84.1	90.8	71.4	90.7	97.7	87.0

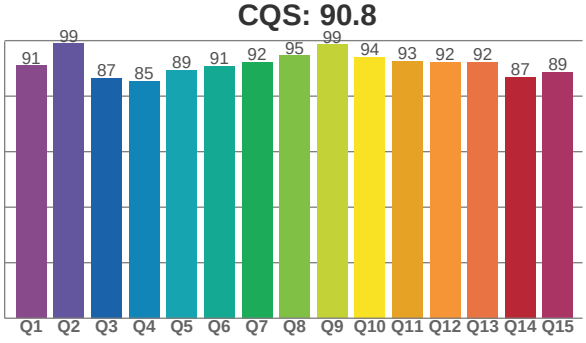
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
88.9	92.9	89.8	93.2	93.6	96.8	95.0	93.5	90.9	85.9	84.5	94.6	91.9	90.4	82.9	89.5

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
91.0	99.0	86.5	85.4	89.4	90.8	92.3	94.7	98.5	94.0	92.6	92.3	92.2	86.9	88.6

CQS: 90.8



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 diviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
5054 K	91.0	56.6	90.8	98.0	90.8	0.345	0.363	0.207	0.327	0.0025

HUNZA
PURE OUTDOOR LIGHTING

TM-30 details

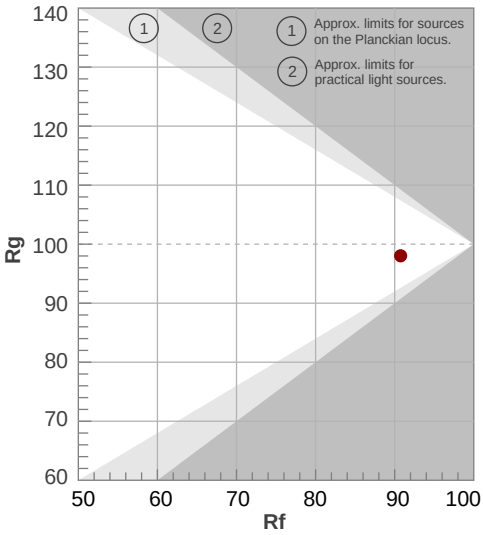
Rf 90.8

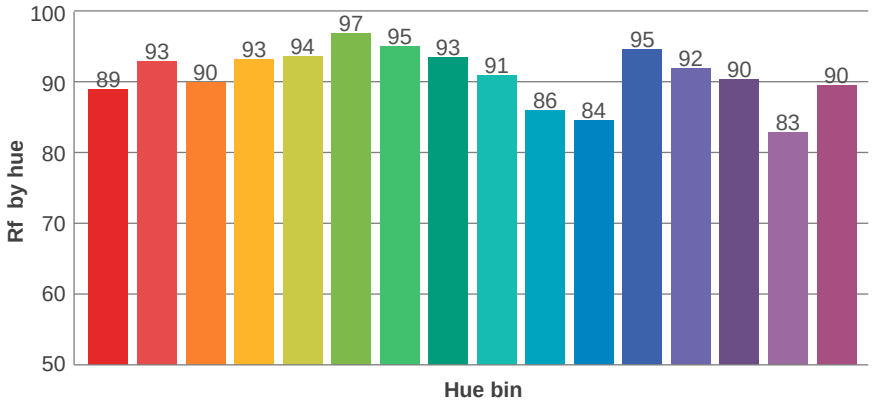
Fidelity index Rf

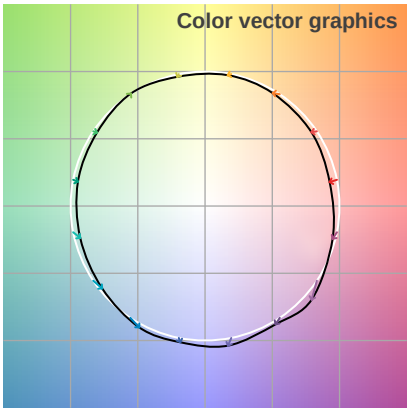
Rg 98.0

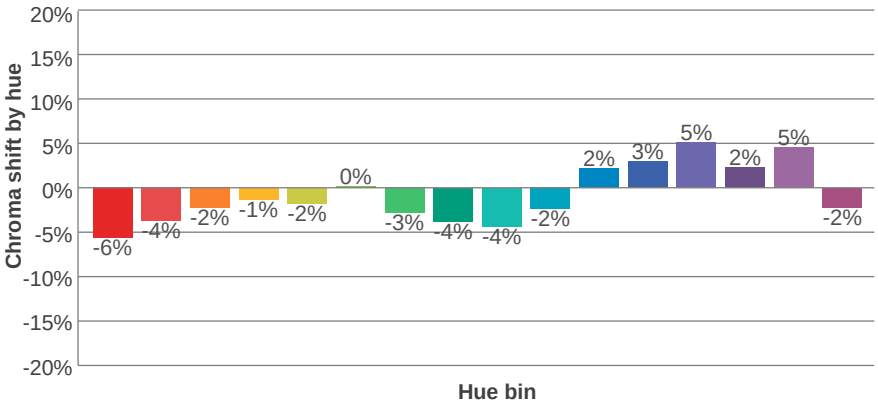
Gamut index Rg

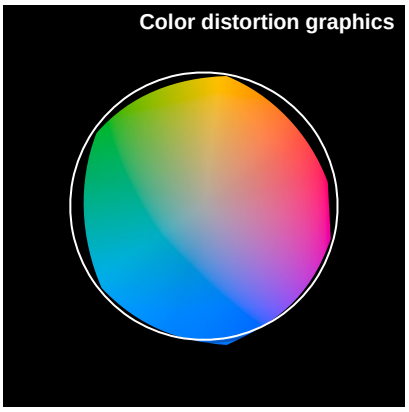
		Shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	89	-6%	-1%
2	93	-4%	2%
3	90	-2%	5%
4	93	-1%	2%
5	94	-2%	1%
6	97	0%	-1%
7	95	-3%	-1%
8	93	-4%	1%
9	91	-4%	5%
10	86	-2%	8%
11	84	2%	9%
12	95	3%	2%
13	92	5%	-4%
14	90	2%	-5%
15	83	5%	-14%
16	90	-2%	-5%

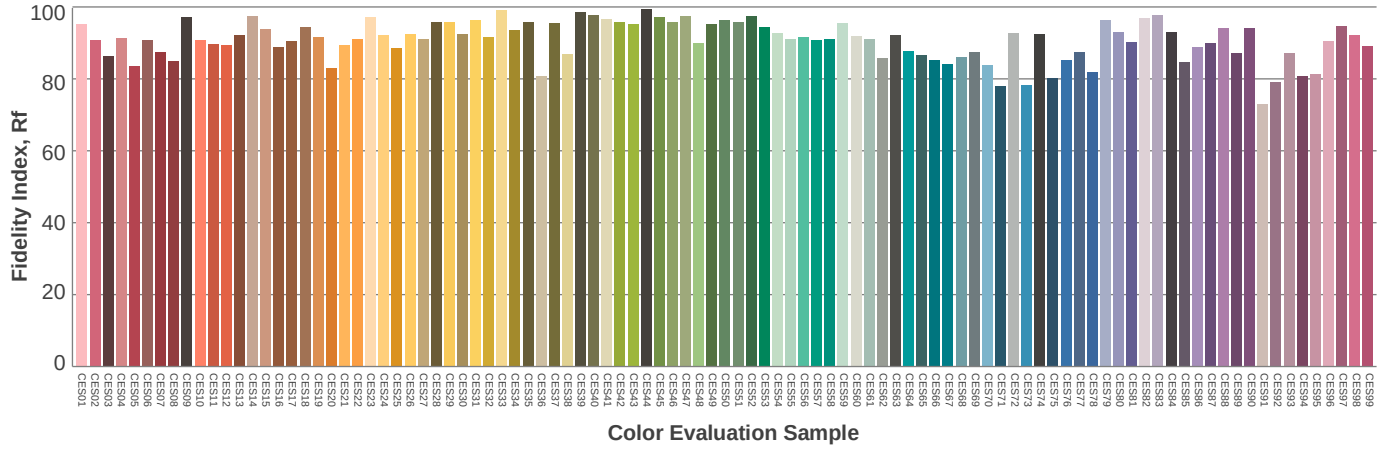












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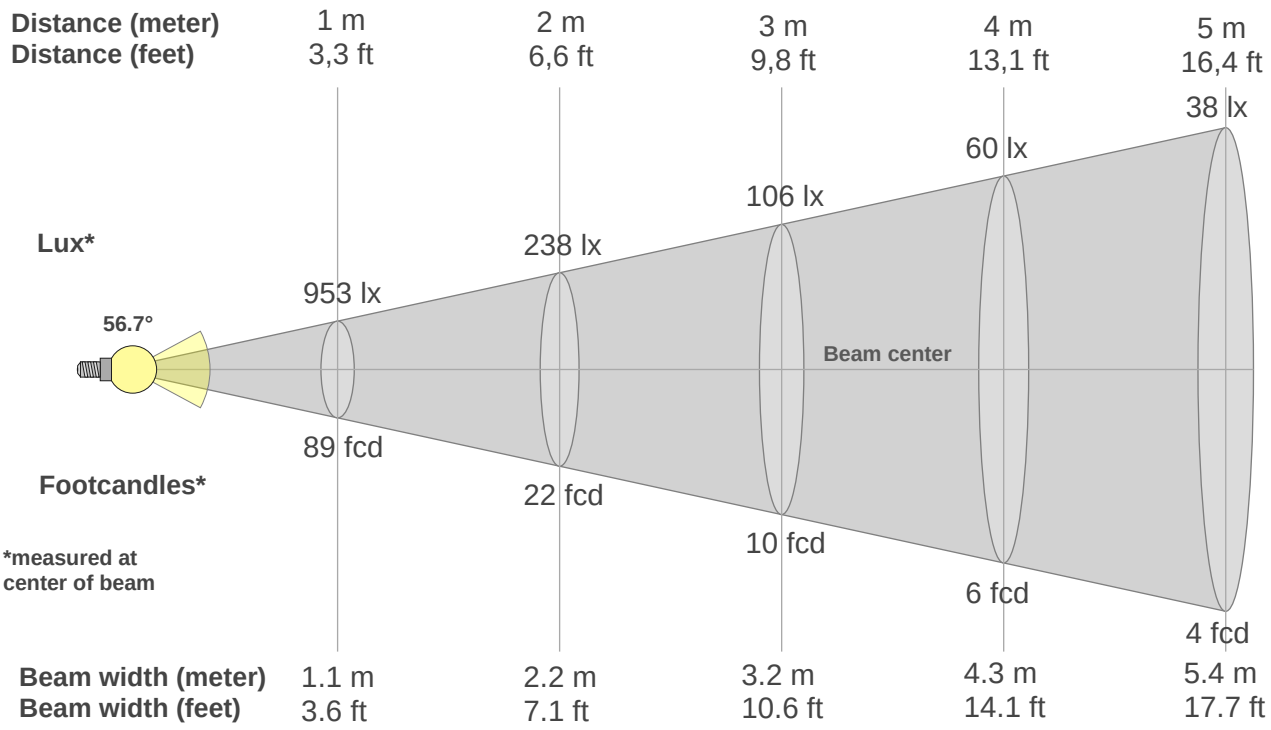
PURE OUTDOOR LIGHTING

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
953lx	238lx	106lx	60lx	38lx	26lx	19lx	15lx	12lx	10lx	8lx	7lx	6lx	5lx	4lx	4lx	3lx	3lx	3lx	2lx
88.6fcd	22.1fcd	9.8fcd	5.5fcd	3.5fcd	2.5fcd	1.8fcd	1.4fcd	1.1fcd	0.9fcd	0.7fcd	0.6fcd	0.5fcd	0.5fcd	0.4fcd	0.3fcd	0.3fcd	0.3fcd	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°
953	954	955	954	951	941	922	893	856	813	761	705	642	570	490	403	318	246	191	149
100%	100%	100%	100%	100%	99%	97%	94%	90%	85%	80%	74%	67%	60%	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°
953	951	943	934	924	914	899	876	842	798	745	685	620	549	475	397	320	252	197	154
100%	100%	99%	98%	97%	96%	94%	92%	88%	84%	78%	72%	65%	58%	50%	42%	34%	26%	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°
953	950	949	950	948	944	932	908	875	832	781	724	662	595	523	444	359	280	217	169
100%	100%	100%	100%	99%	99%	98%	95%	92%	87%	82%	76%	69%	62%	55%	47%	38%	29%	23%	18%

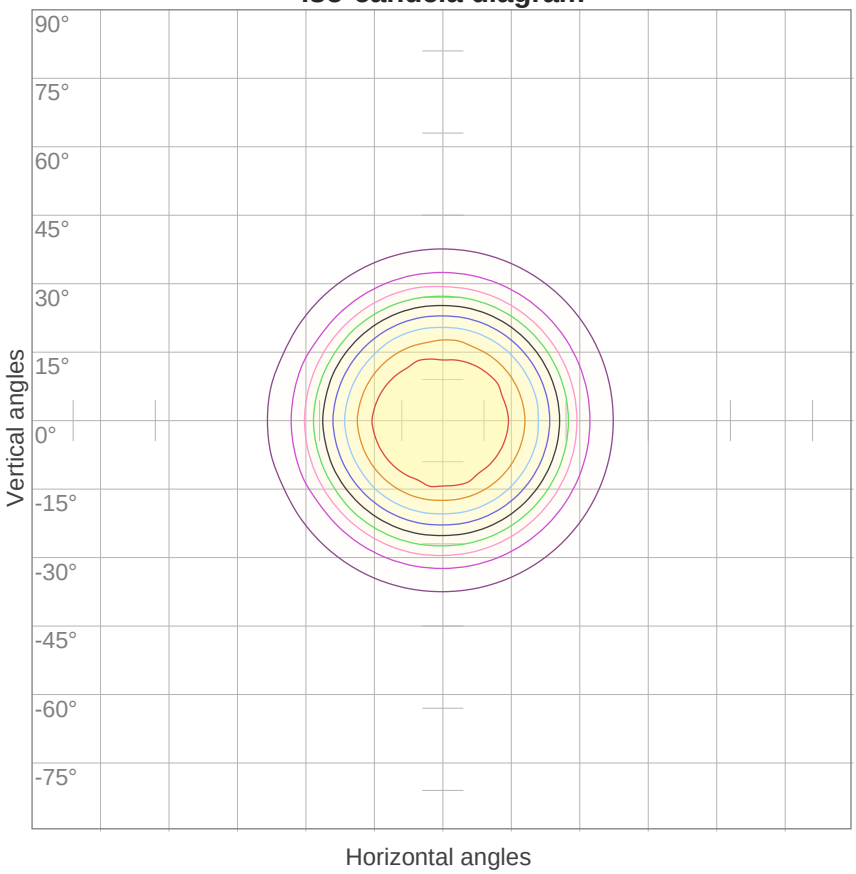
Intensities in 270° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
953	951	945	934	921	906	889	865	833	792	742	685	622	553	475	392	315	250	198	155
100%	100%	99%	98%	97%	95%	93%	91%	87%	83%	78%	72%	65%	58%	50%	41%	33%	26%	21%	16%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
56.7°	84.2°	110.9°	97.3%	92.0%

Iso Diagrams

iso-candela diagram



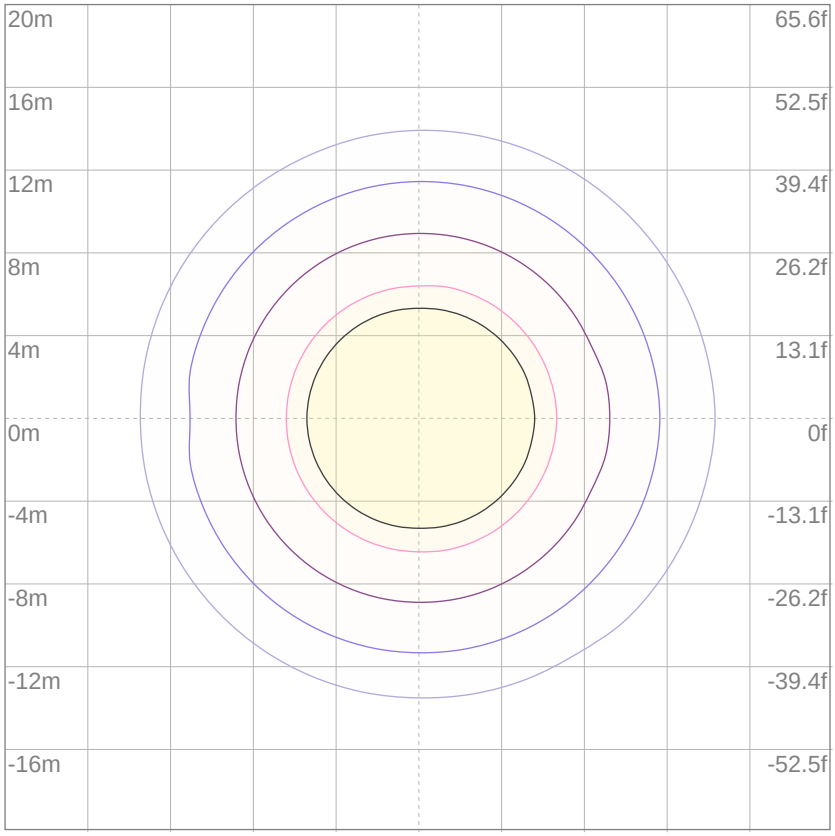
10%	95 cd
20%	191 cd
30%	286 cd
40%	381 cd
50%	477 cd
60%	572 cd
70%	667 cd
80%	763 cd
90%	858 cd

Conditions:

Number of c-planes: 4

Candela at center: 953 cd

iso-lux diagram



3%	0.286 lx
5%	0.477 lx
10%	0.953 lx
30%	2.86 lx
50%	4.77 lx

Conditions:

Number of c-planes: 4

Lux at center: 9.53 lx

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

Glare Evaluation According to UGR

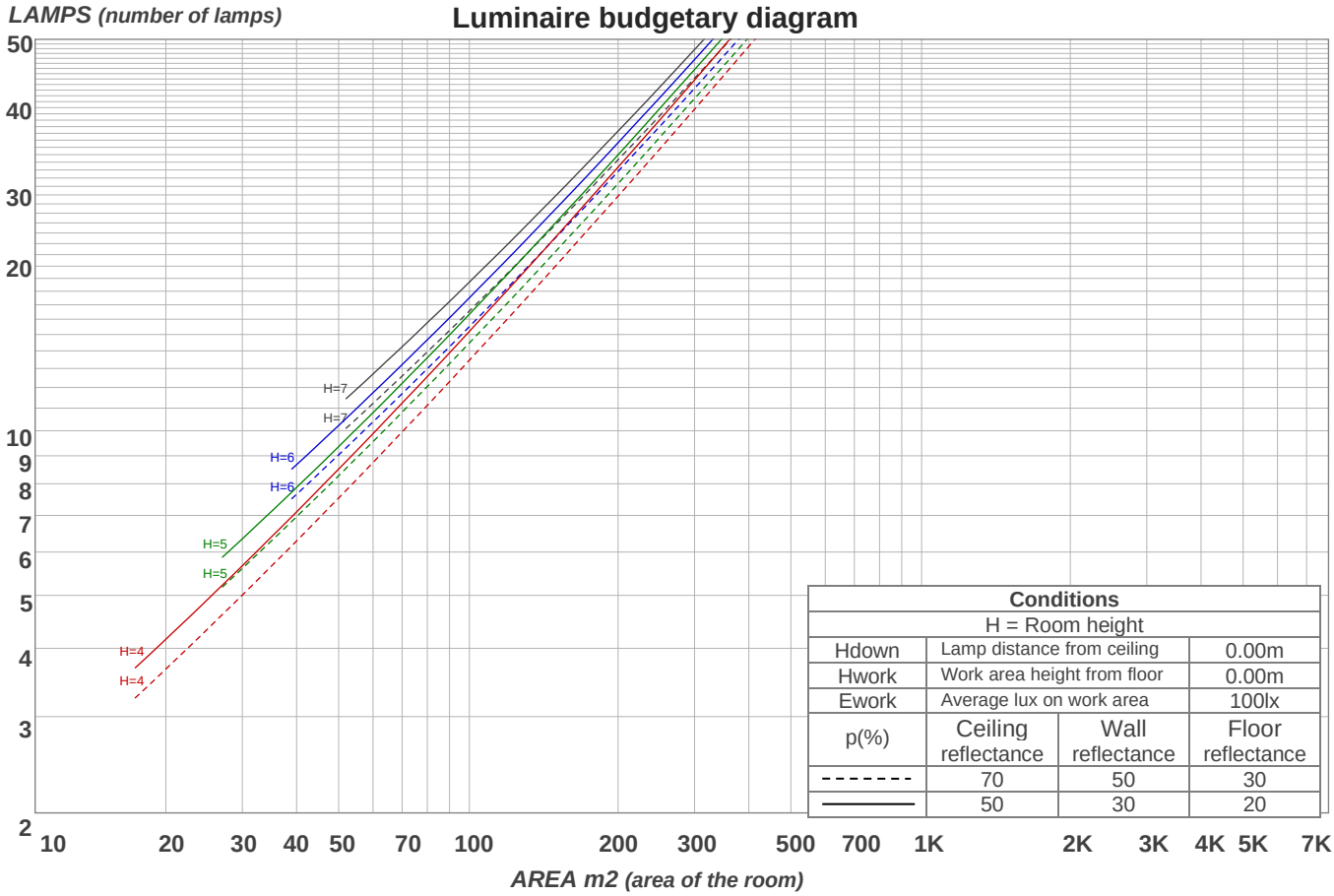
p Ceiling	70	70	50	50	30	70	70	50	50	30
p Walls	50	30	50	30	30	50	30	50	30	30
p Floor	20	20	20	20	20	20	20	20	20	20
Room size X Y	Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	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 851 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	103	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

Luminaire budgetary diagram



Zonal Lumen Summary

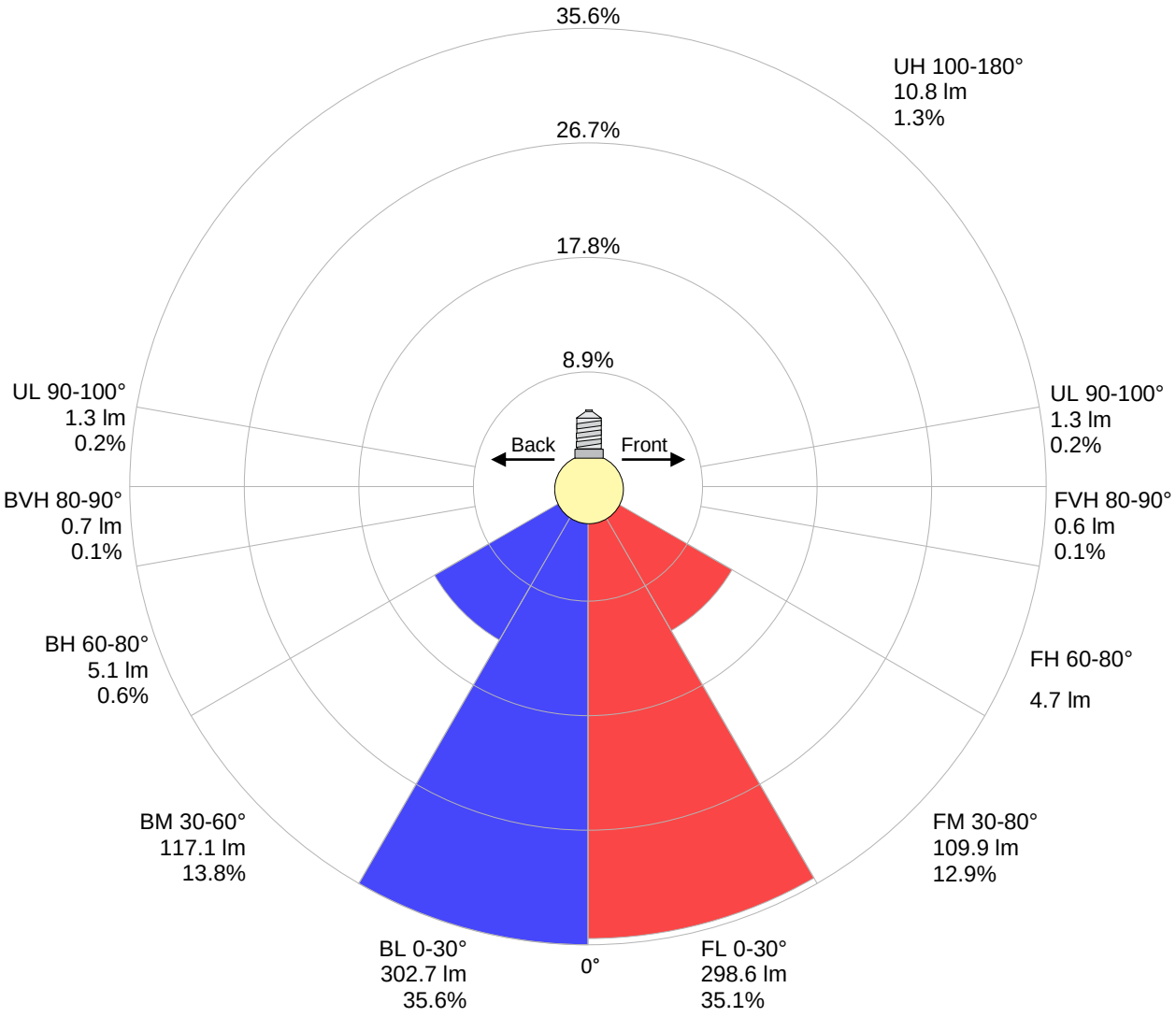
0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	241 lm	271 lm	147 lm	56.1 lm	23.2 lm	7.47 lm	2.27 lm	1.26 lm

90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
1.33 lm	1.74 lm	2.00 lm	2.04 lm	1.72 lm	1.50 lm	1.02 lm	0.562 lm	0.188 lm

LCS table

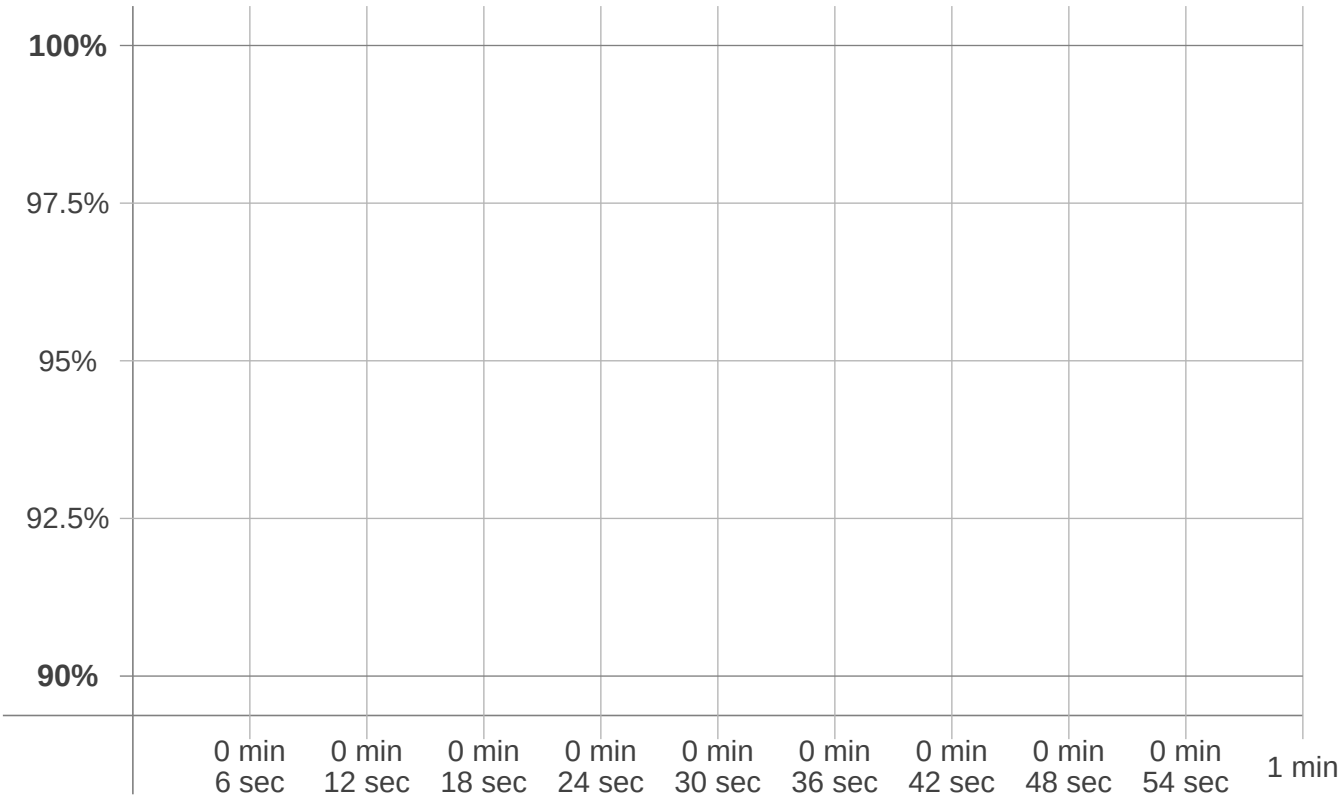
BUG rating:	B1 U2 G0	
Forward light	Lumens	Lumens %
Low(0-30):	298.6	35.1%
Medium(30-60):	109.9	12.9%
High(60-80):	4.7	0.5%
Very high(80-90):	0.6	0.1%
Back light		
Low(0-30):	302.7	35.6%
Medium(30-60):	117.1	13.8%
High(60-80):	5.1	0.6%
Very high(80-90):	0.7	0.1%
Uplight		
Low(90-100):	1.3	0.2%
High(100-180):	10.8	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**	**5054 K**

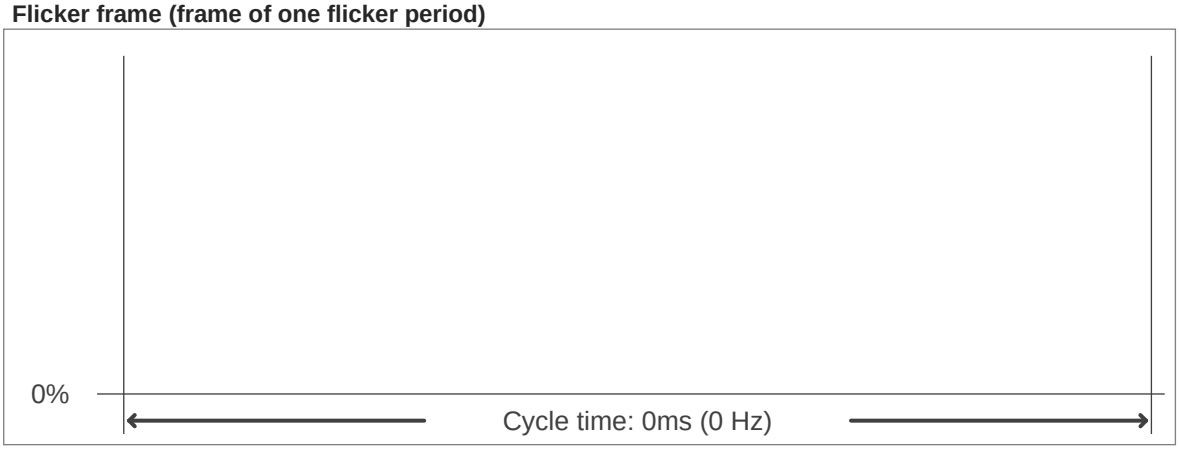
Output change

Output start	Output change	Output end
n/a lm	**n/a lm**	**851 lm**

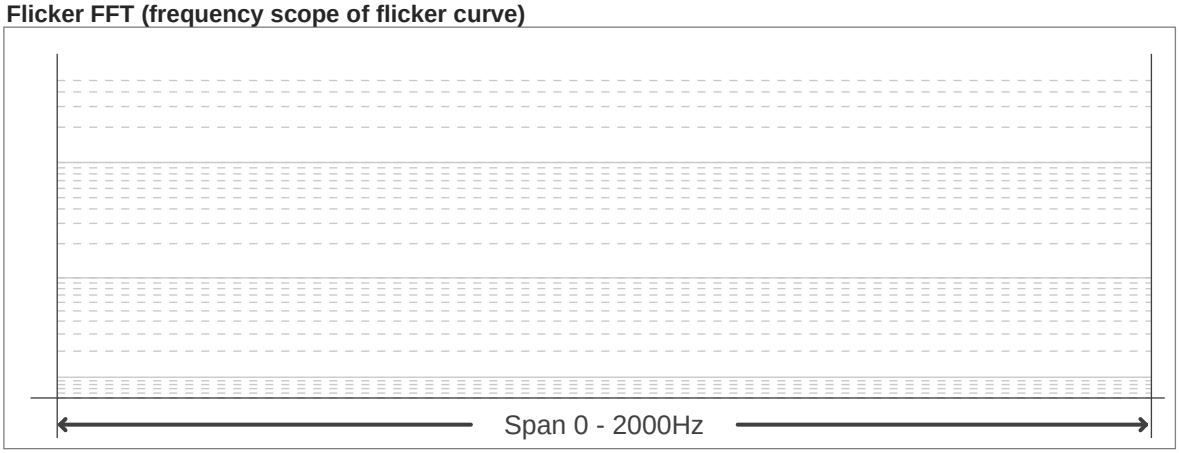
Flicker

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**