

Light efficiency:

56 Lumen/Watt

Light quality:

CRI: 95.4

Color temperature:

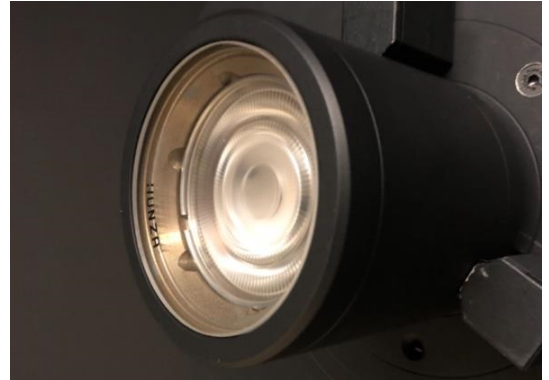
2201 K

Output: 134 lm

Peak: 151 cd

Power: 2.4 W

PF: 0.48



Tracking number: [n/a](#)

Product name:

Ultra 12 Dim to Warm 60 deg 2200K 60mA

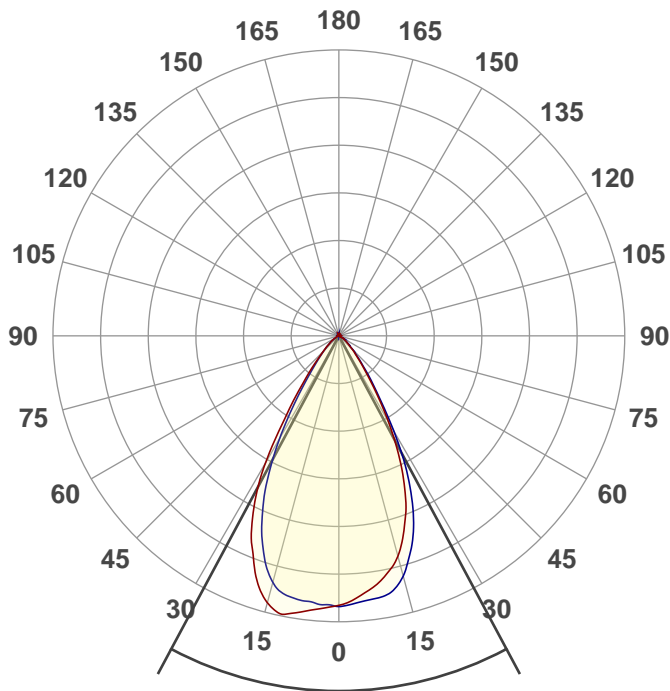
Item number:

U12-DW-57-22

Date and time:

3/09/2020 6:28:48 PM

Description:



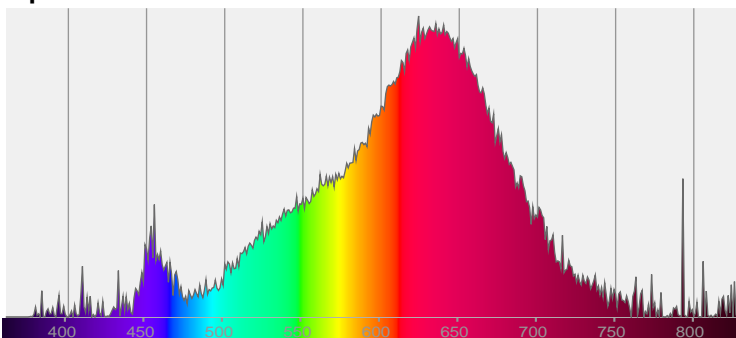
Beam angle

56.3°

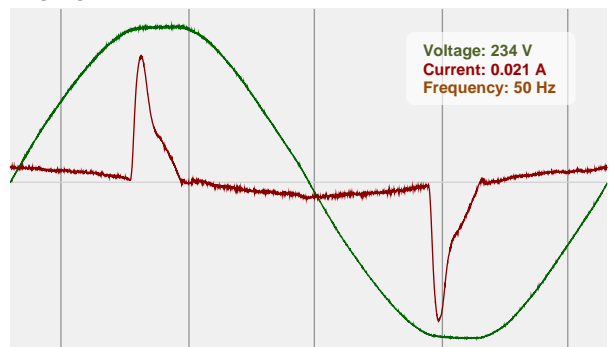


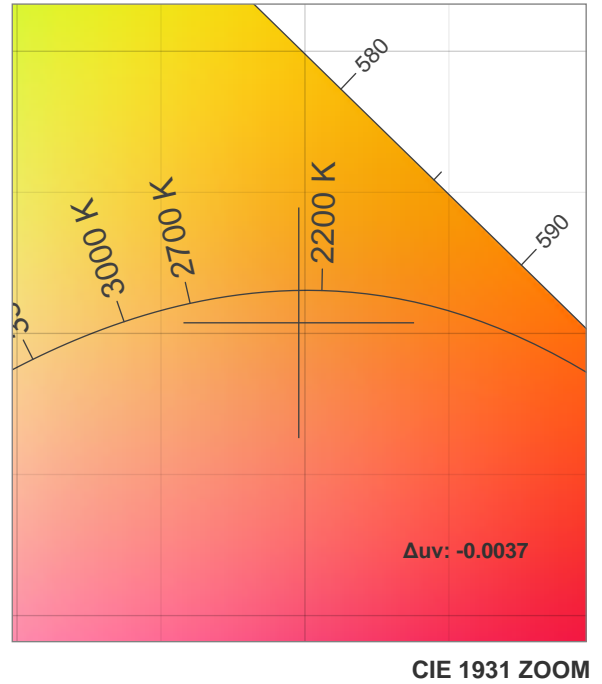
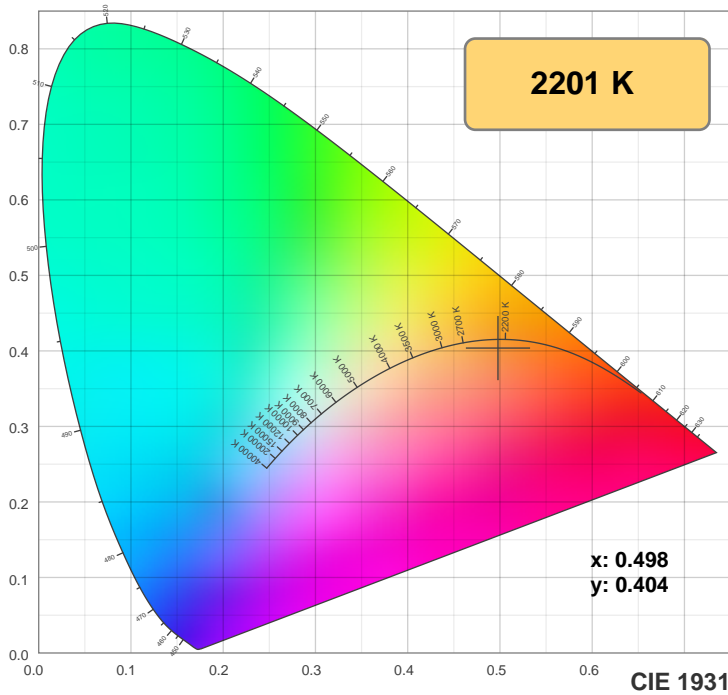
CIE 1931
x: 0.498
y: 0.404

Spectra

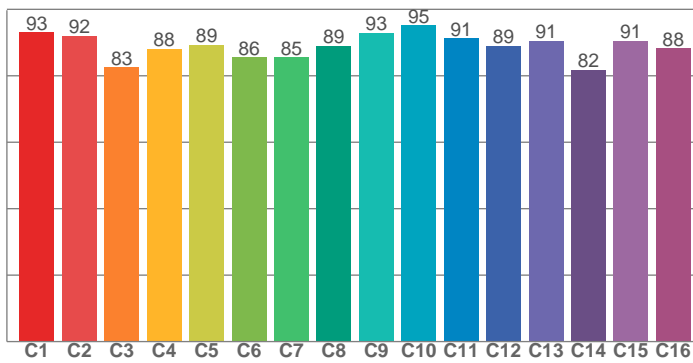


Power

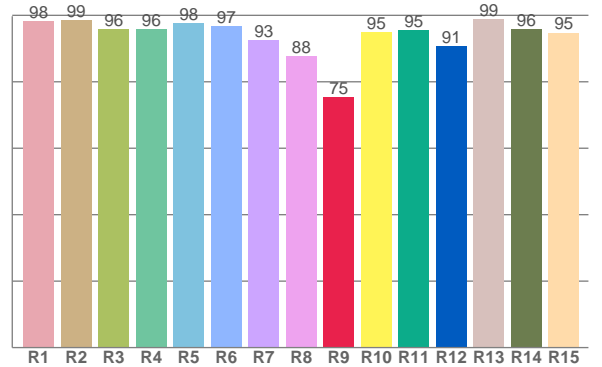




TM-30: 89.7



CRI: 95.4 (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
98.2	98.6	95.9	95.8	97.7	96.6	92.5	87.7	75.4	94.8	95.5	90.6	98.8	95.9	94.7

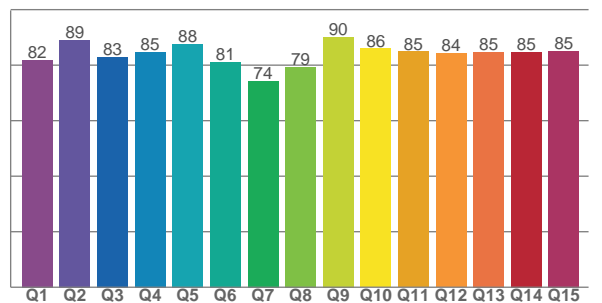
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
93.1	92.1	82.6	88.2	89.3	85.6	85.5	89.0	92.9	95.1	91.2	89.0	90.6	81.9	90.5	88.3

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
81.9	89.1	82.9	84.7	87.7	81.1	74.3	79.3	90.1	86.0	84.9	84.3	84.7	84.7	85.0

CQS: 83.2



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 deviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
2201 K	95.4	75.4	89.7	106.6	83.2	0.498	0.404	0.291	0.354	-0.0037

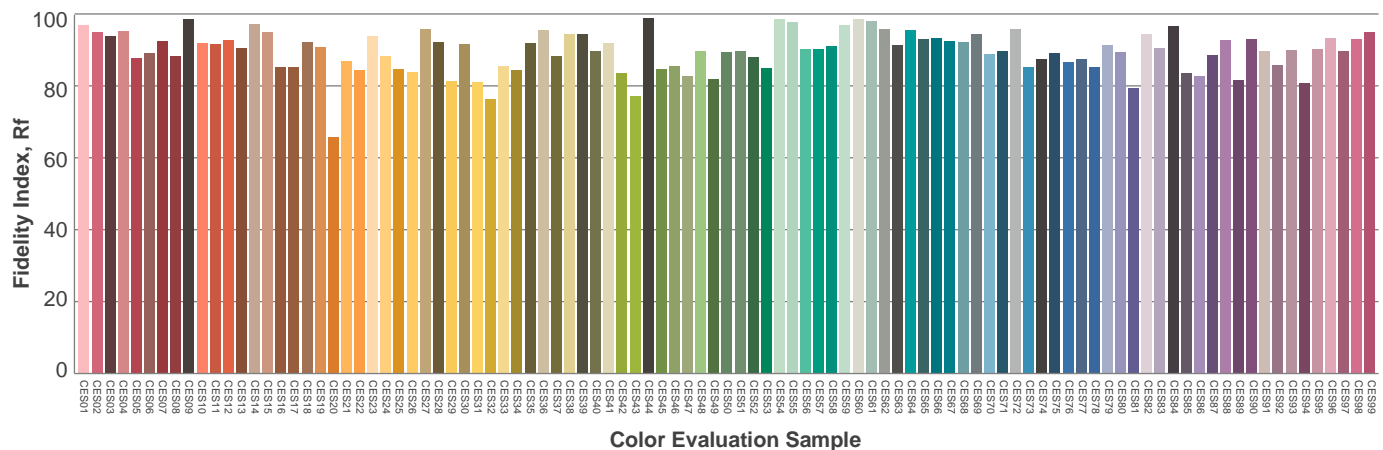
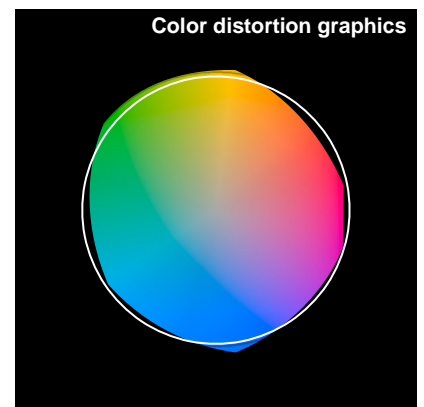
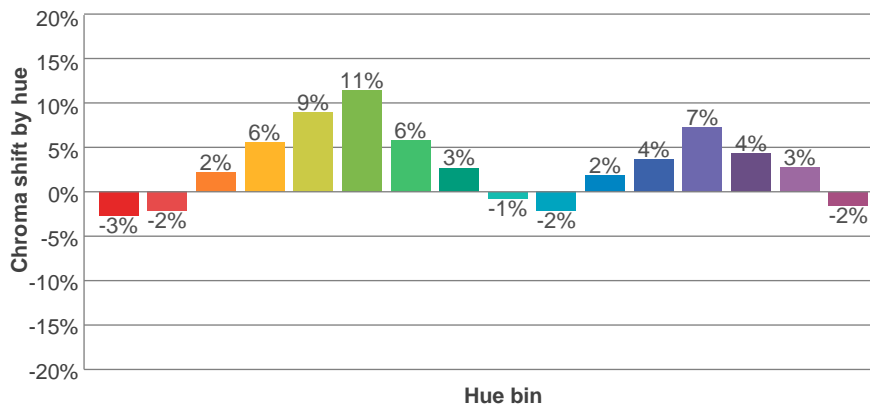
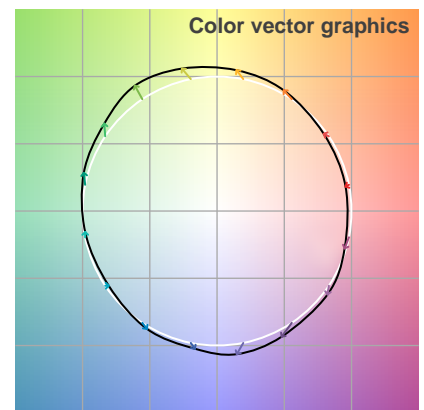
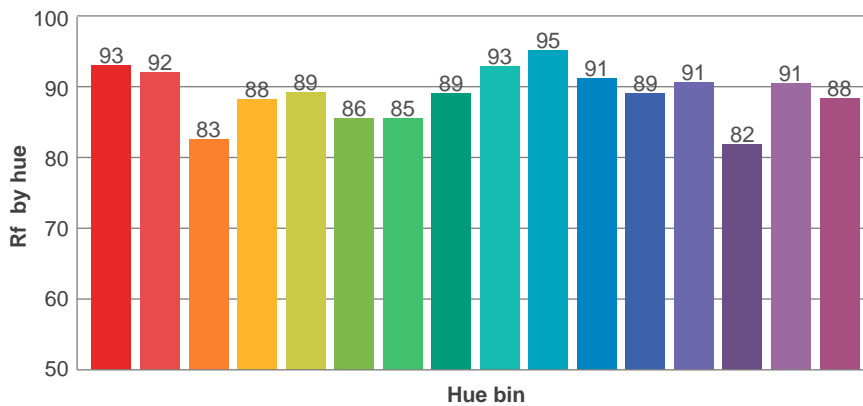
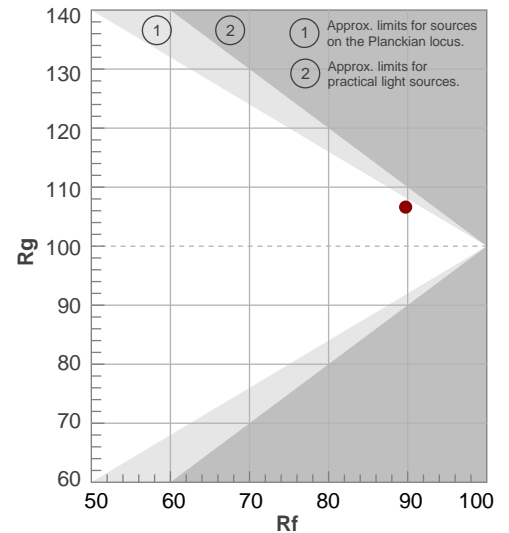
Rf 89.7

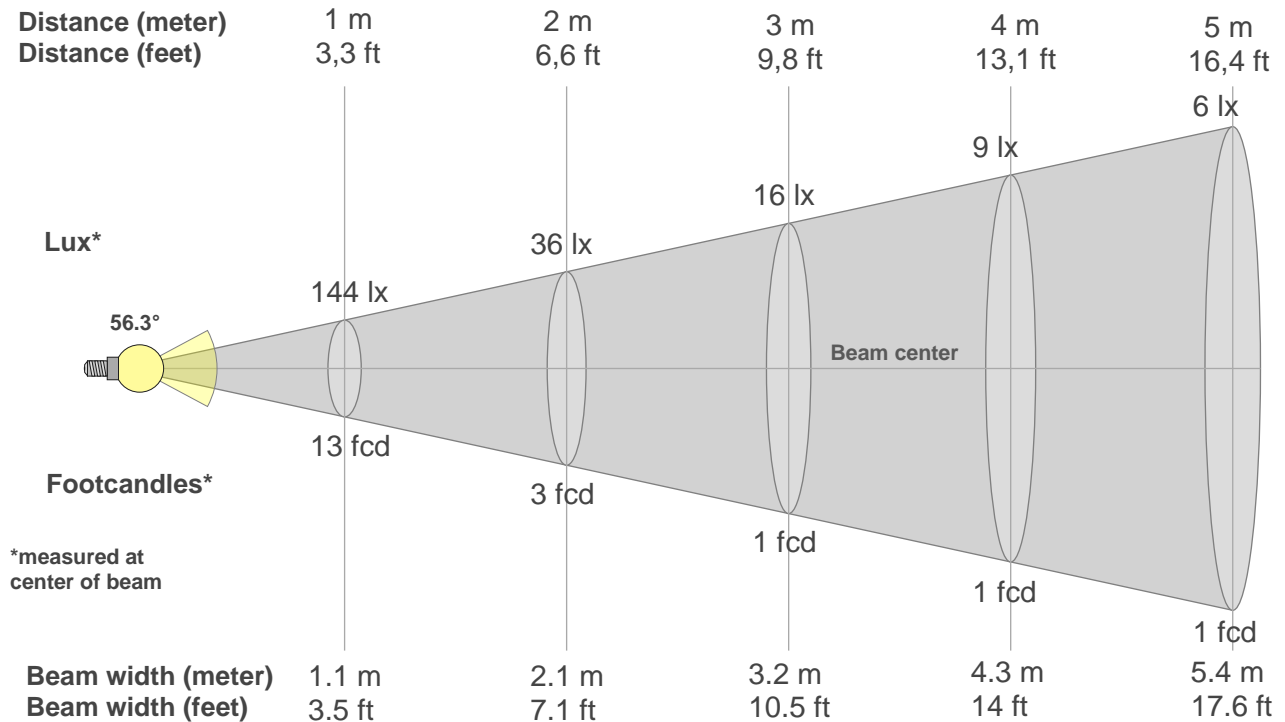
Fidelity index Rf

Rg 106.6

Gamut index Rg

Hue Bin	R _f	Shifts (%)	
		Chroma	Hue
1	93	-3%	-1%
2	92	-2%	4%
3	83	2%	9%
4	88	6%	6%
5	89	9%	5%
6	86	11%	-1%
7	85	6%	-7%
8	89	3%	-9%
9	93	-1%	-4%
10	95	-2%	1%
11	91	2%	5%
12	89	4%	4%
13	91	7%	-6%
14	82	4%	-12%
15	91	3%	-6%
16	88	-2%	-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
144lx	36lx	16lx	9lx	6lx	4lx	3lx	2lx	2lx	1lx	1lx	1lx	1lx	1lx	1lx	1lx	0lx	0lx	0lx	0lx
13.3fcd	3.3fcd	1.5fcd	0.8fcd	0.5fcd	0.4fcd	0.3fcd	0.2fcd	0.2fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0fcd	0fcd	0fcd	0fcd

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°
144	142	139	137	135	132	128	124	118	111	103	95	85	75	64	53	42	33	26	21
100%	99%	97%	95%	94%	92%	89%	86%	82%	77%	72%	66%	59%	52%	44%	37%	30%	23%	18%	15%

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°
144	143	142	141	141	140	138	135	129	122	115	106	96	84	72	58	46	36	29	23
100%	100%	99%	99%	98%	98%	96%	94%	90%	85%	80%	74%	67%	59%	50%	41%	32%	25%	20%	16%

Intensities in 180° c-plane

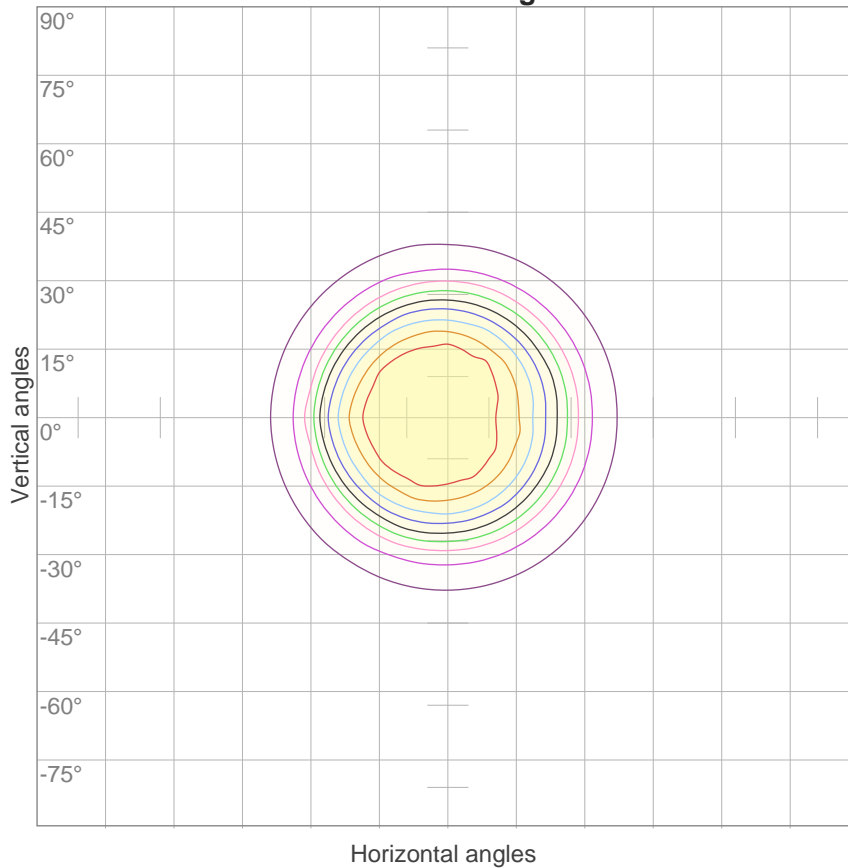
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
144	144	145	147	148	150	151	148	145	139	131	123	114	104	92	78	62	48	37	29
100%	101%	101%	102%	103%	104%	105%	103%	101%	97%	91%	85%	80%	72%	64%	54%	43%	33%	26%	20%

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°
144	143	143	142	142	141	140	138	133	126	118	109	99	88	75	63	50	39	30	24
100%	100%	100%	99%	99%	98%	98%	96%	93%	88%	82%	76%	69%	61%	53%	44%	35%	27%	21%	17%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
56.3°	84.1°	110.3°	94.9%	89.8%

iso-candela diagram



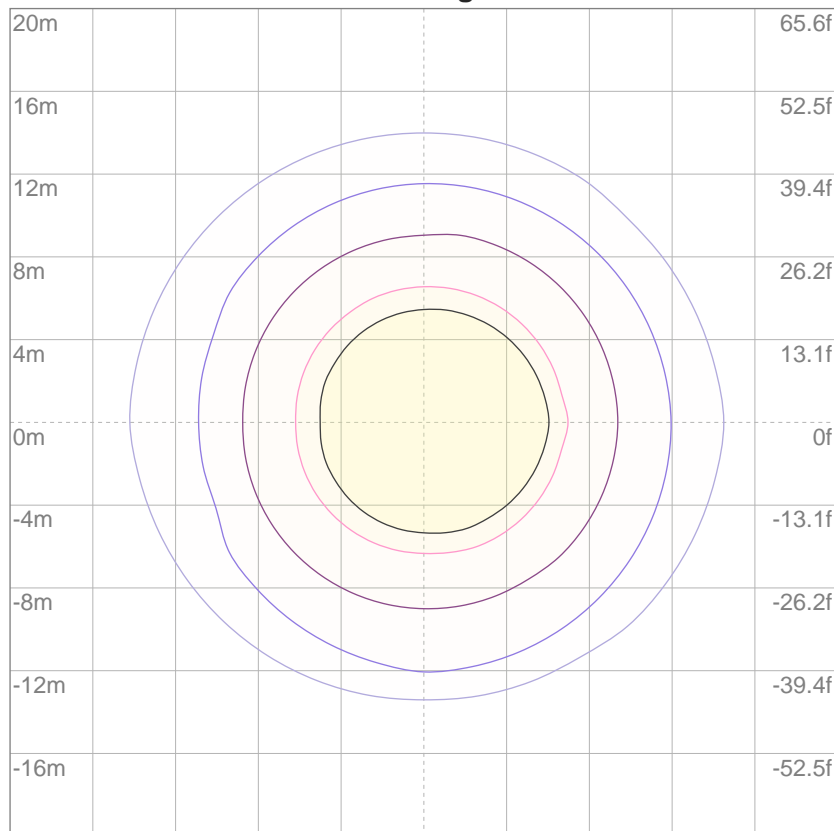
10%	14 cd
20%	29 cd
30%	43 cd
40%	57 cd
50%	72 cd
60%	86 cd
70%	100 cd
80%	115 cd
90%	129 cd

Conditions:

Number of c-planes: 4

Candela at center: 144 cd

iso-lux diagram



3%	43.1m lx
5%	71.8m lx
10%	0.144 lx
30%	0.431 lx
50%	0.718 lx

Conditions:

Number of c-planes: 4

Lux at center: 1.44 lx

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

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 134 lm total luminous flux										

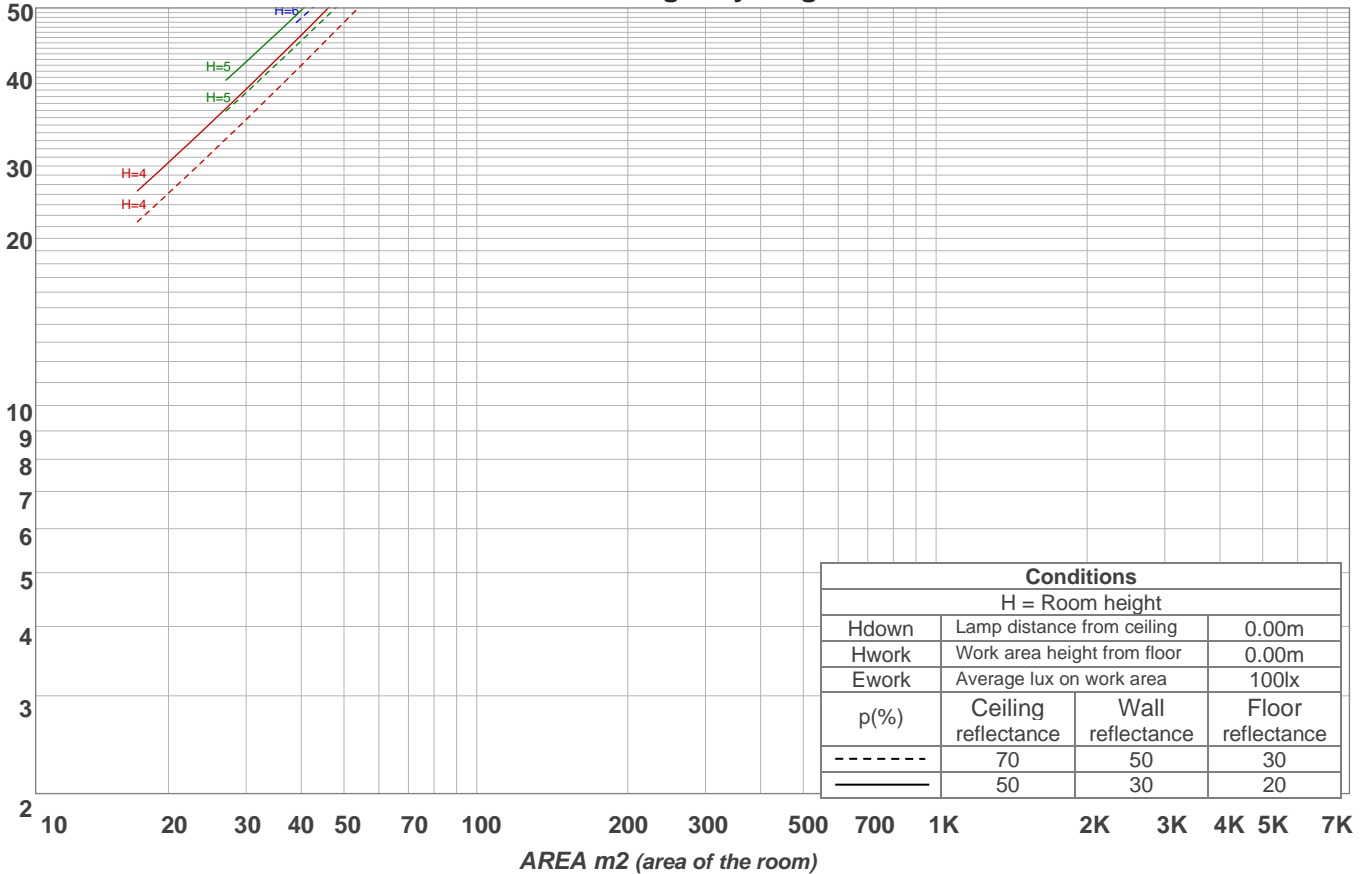
Viso Systems Aps – Copenhagen, Denmark – www.visosystems.com

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	118	118	118	118	115	115	115	115	109	109	109	104	104	104	99	99	99	97
1	112	109	107	104	110	107	104	102	102	100	99	98	97	95	94	93	92	90
2	106	101	97	93	104	99	95	92	96	92	90	92	90	87	89	87	85	83
3	101	94	89	85	99	92	88	84	89	85	82	87	83	80	84	81	79	77
4	96	88	82	78	93	86	81	77	84	79	76	81	78	74	79	76	73	72
5	91	82	76	71	89	81	75	71	79	74	70	77	72	69	75	71	68	67
6	86	77	71	66	84	76	70	66	74	69	65	72	68	65	71	67	64	62
7	82	72	66	62	80	71	66	61	70	65	61	68	64	60	67	63	60	58
8	78	68	62	58	76	67	61	57	66	61	57	65	60	57	63	59	56	55
9	74	64	58	54	73	64	58	54	62	57	54	61	57	53	60	56	53	51
10	70	61	55	51	69	60	54	51	59	54	50	58	53	50	57	53	50	49

LAMPS (number of lamps)

Luminaire budgetary diagram



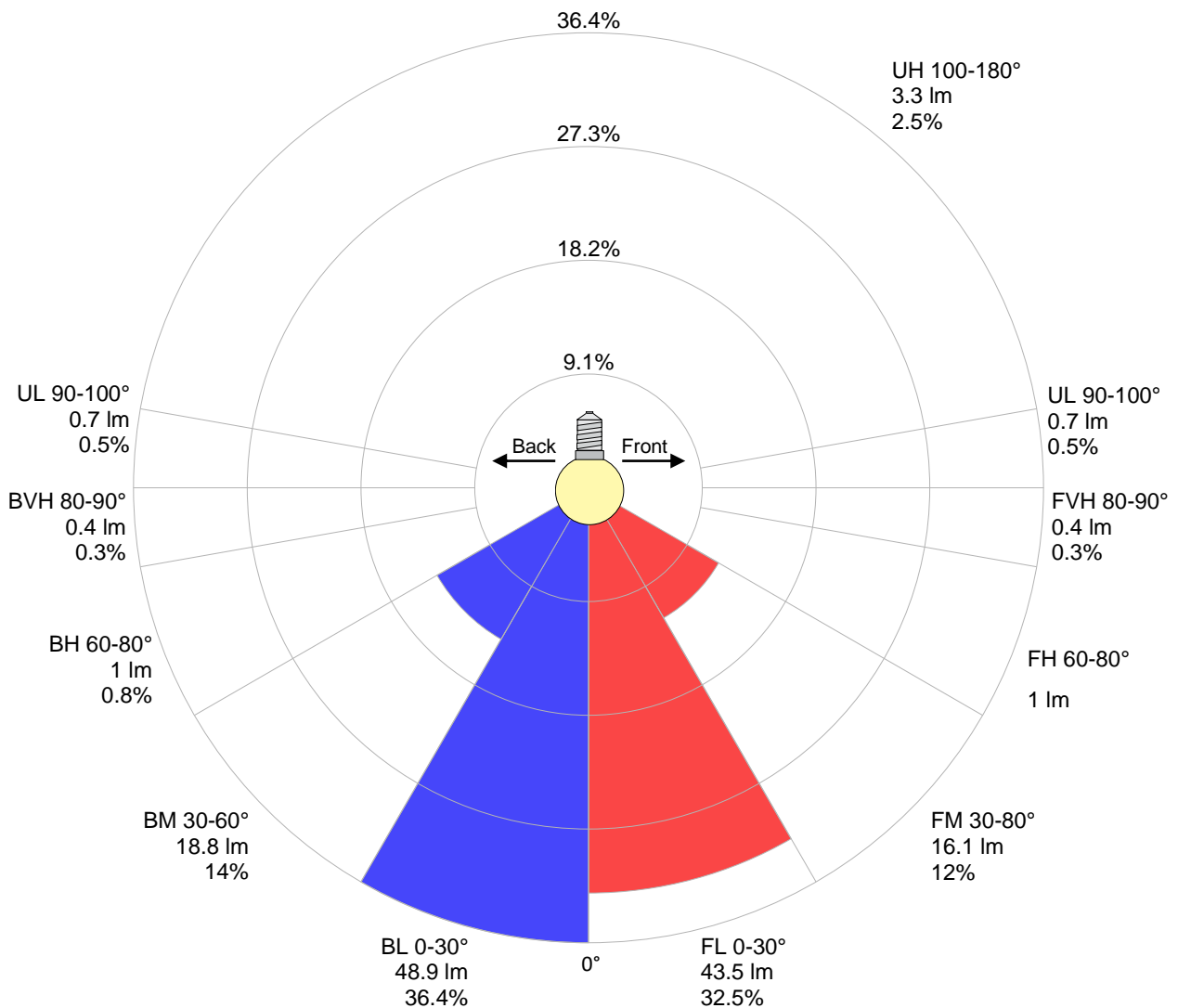
Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	37.1 lm	41.9 lm	22.5 lm	8.75 lm	3.52 lm	1.22 lm	0.808 lm	0.746 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0.675 lm	0.654 lm	0.650 lm	0.542 lm	0.552 lm	0.393 lm	0.289 lm	0.183 lm	0.064 lm

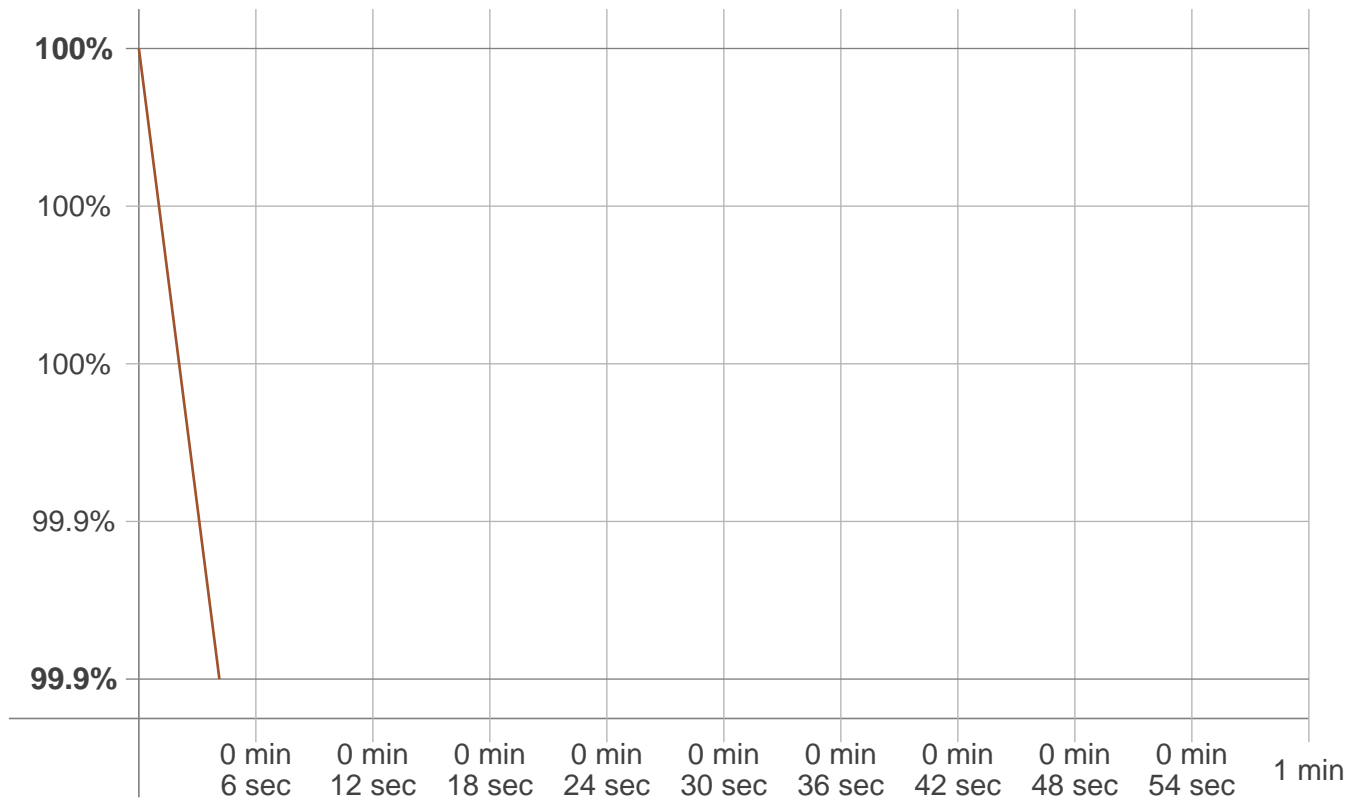
LCS table

BUG rating:	B0 U1 G0	
Forward light	Lumens	Lumens %
Low(0-30):	43.5	32.5%
Medium(30-60):	16.1	12%
High(60-80):	1	0.7%
Very high(80-90):	0.4	0.3%
Back light		
Low(0-30):	48.9	36.4%
Medium(30-60):	18.8	14%
High(60-80):	1	0.8%
Very high(80-90):	0.4	0.3%
Uplight		
Low(90-100):	0.7	0.5%
High(100-180):	3.3	2.5%

LCS graph



Warmup curve



Warmup result

Warmup time:	Not completed
Warmup variation	-0.1%

Warmup conditions

Stable period:	15 min
Stable change max:	2.0%
Minimum time:	15 min

Color temperature change

CCT start	CCT change	CCT end
2204 K	-3 K	2201 K

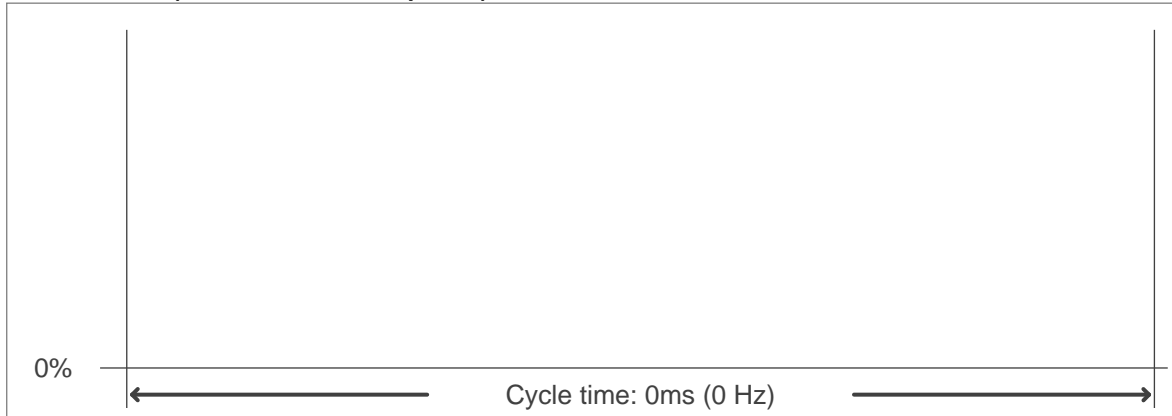
Output change

Output start	Output change	Output end
134 lm	lm	134 lm

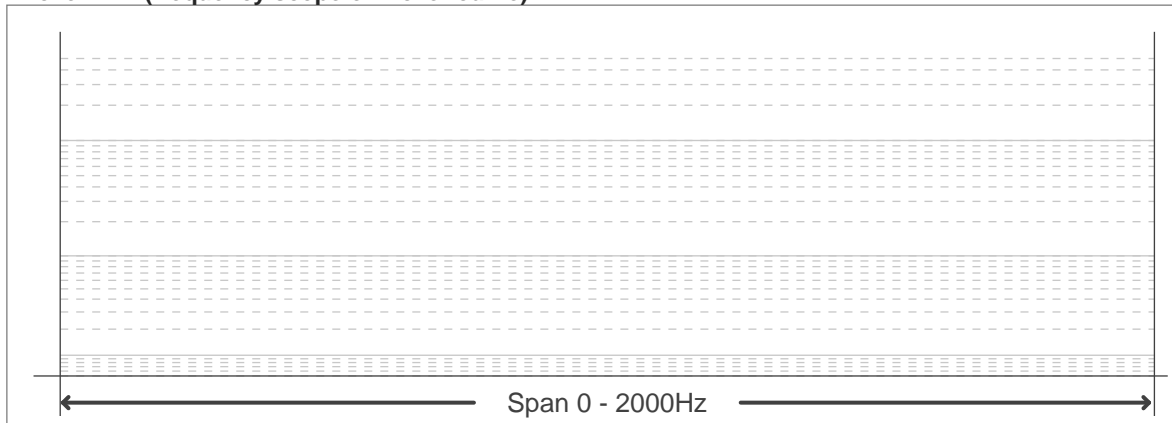
Flicker curve (complete sampled flicker signal)



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
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