

PHOTOMETRIC TEST REPORT

MASSA 300

astro

LIGHT EFFICIENCY:

39 Lumen/Watt

LIGHT QUALITY:

CRI: 82.0

COLOR TEMPERATURE:

3542 K

OUTPUT: 1119 lm

PEAK: 289 cd

POWER: 28.6 W

PF: 0.92

Tracking number: [n/a](#)

Product name:

Massa 300

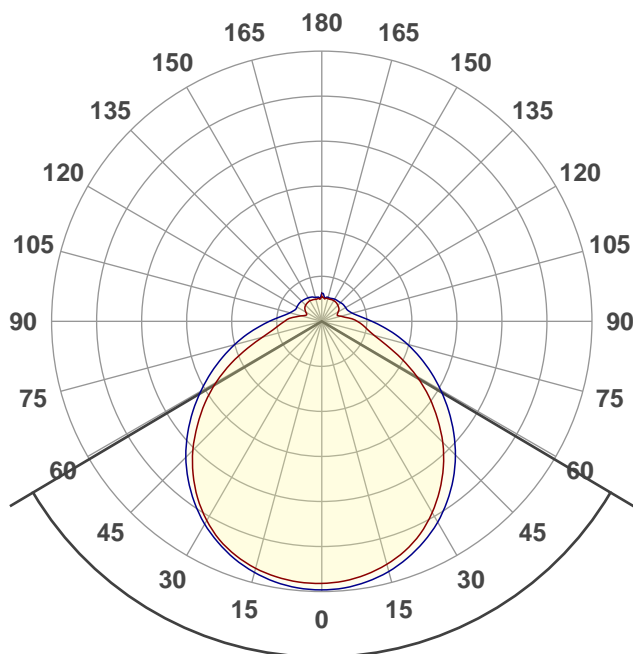
Item number:

1337001

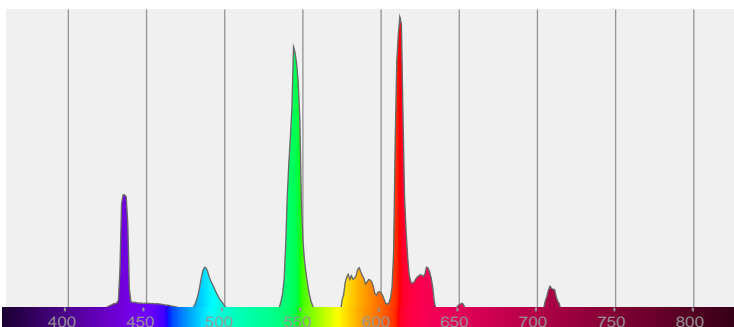
Date and time:

18/09/2019 11:40:05

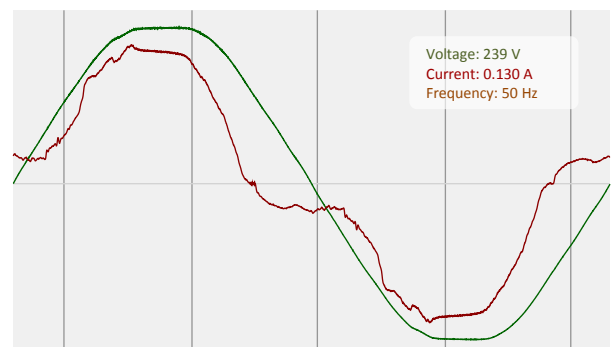
Description:

IP44 Fluorescent Ceiling Light**118.7°**CIE 1931
x: 0.403
y: 0.390

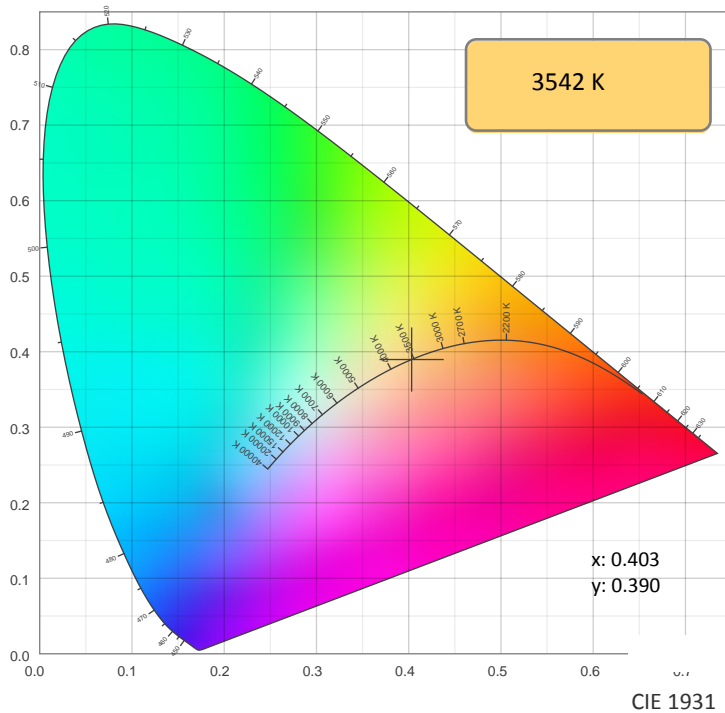
SPECTRA



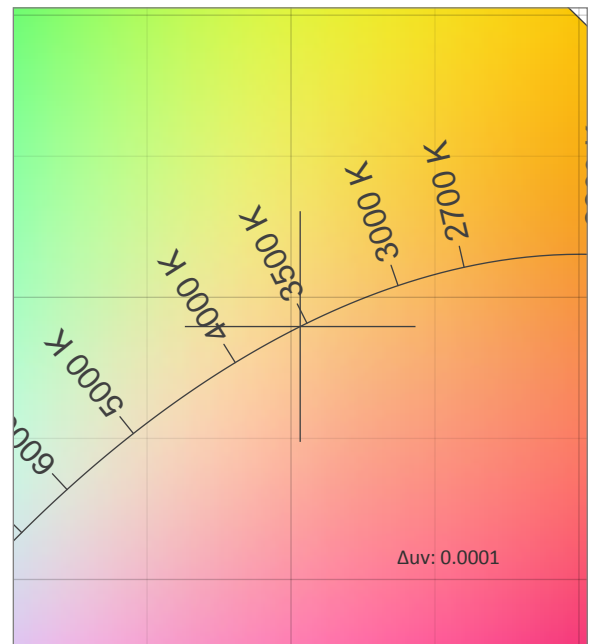
POWER



COLOR DETAILS

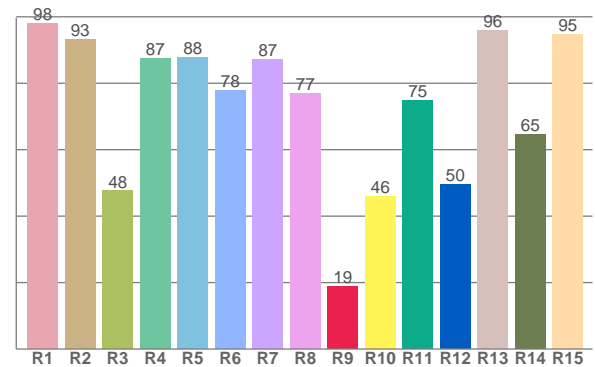
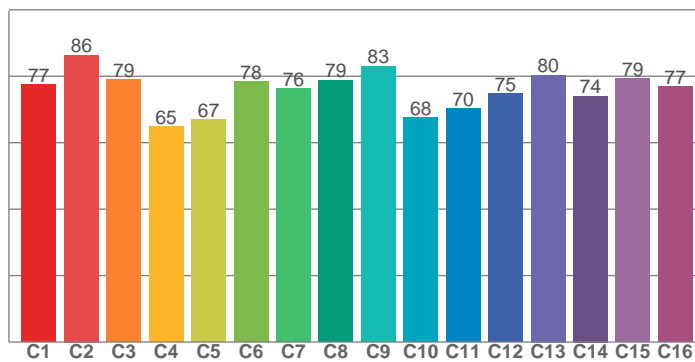


TM30: 75.2



CIE 1931 ZOOM

CRI: 82.0 (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
98.0	93.2	47.6	87.4	87.7	77.7	87.2	77.0	18.9	45.9	74.8	49.7	95.9	64.6	94.6

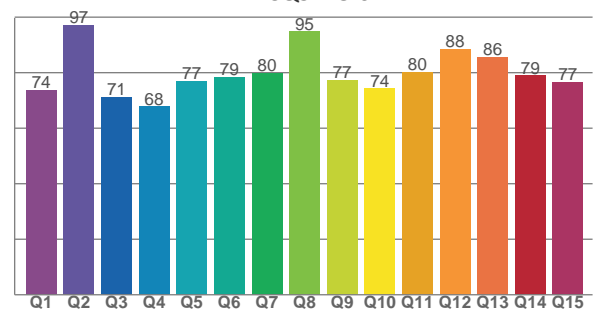
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
77.4	86.4	78.9	64.8	66.9	78.4	76.2	78.9	83.1	67.6	70.3	74.8	80.4	74.0	79.3	76.8

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
73.6	97.1	71.2	67.8	76.9	78.5	80.0	94.7	77.3	74.3	80.3	88.4	85.7	78.9	76.6

CQS: 78.6



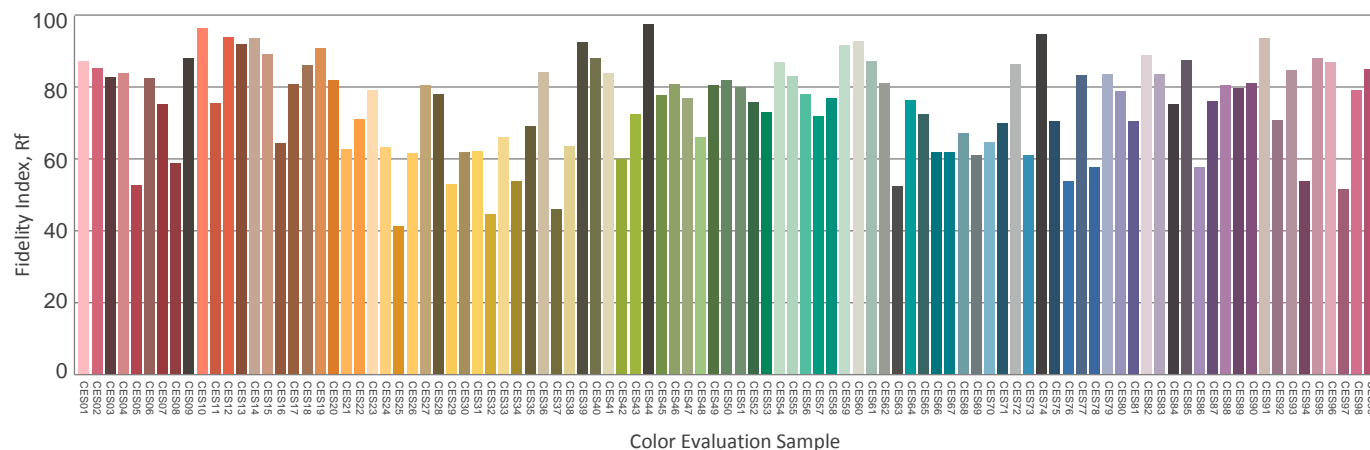
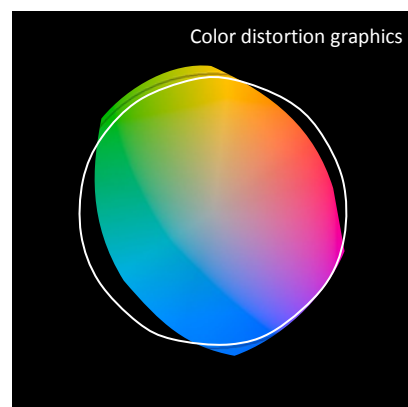
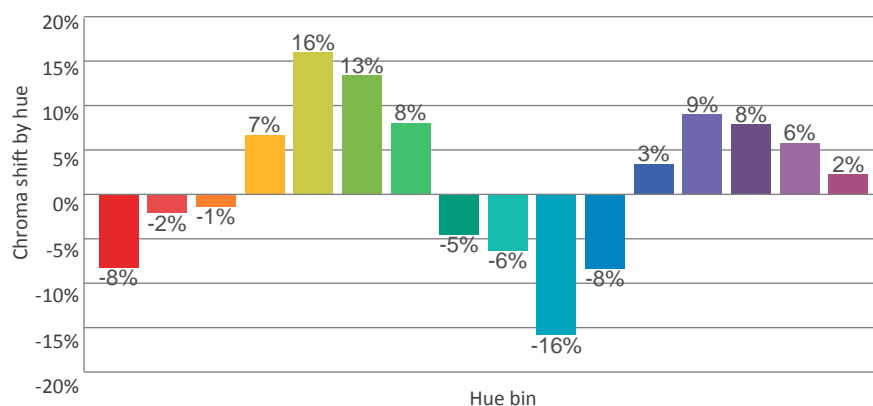
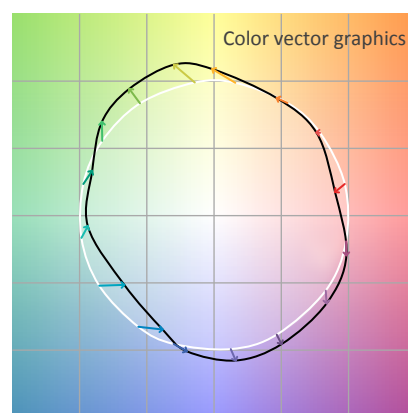
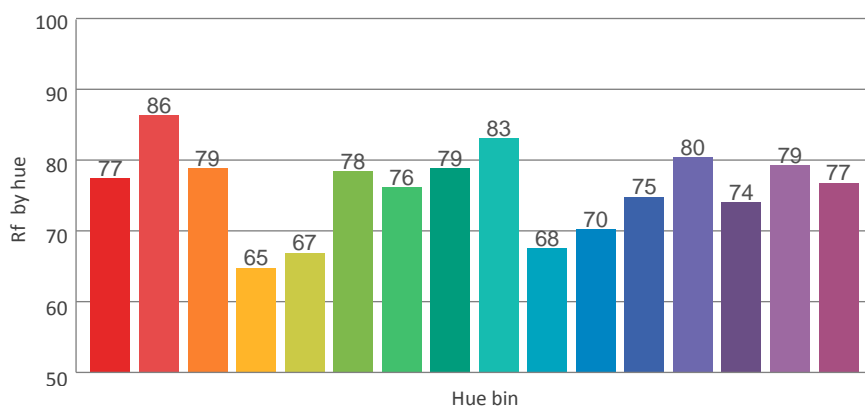
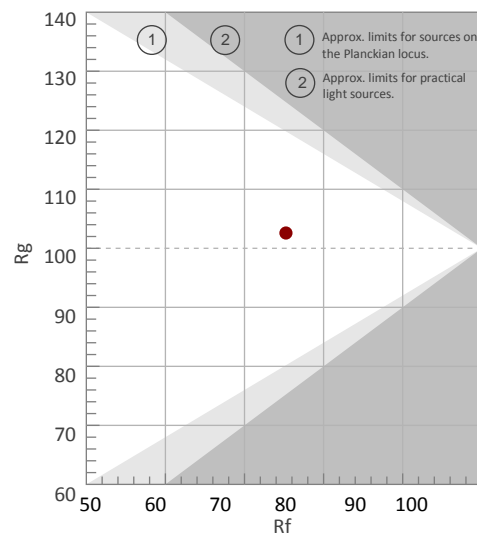
COLOR PARAMETERS

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
3542 K	82.0	18.9	75.2	102.6	78.6	0.403	0.390	0.235	0.340	0.0001

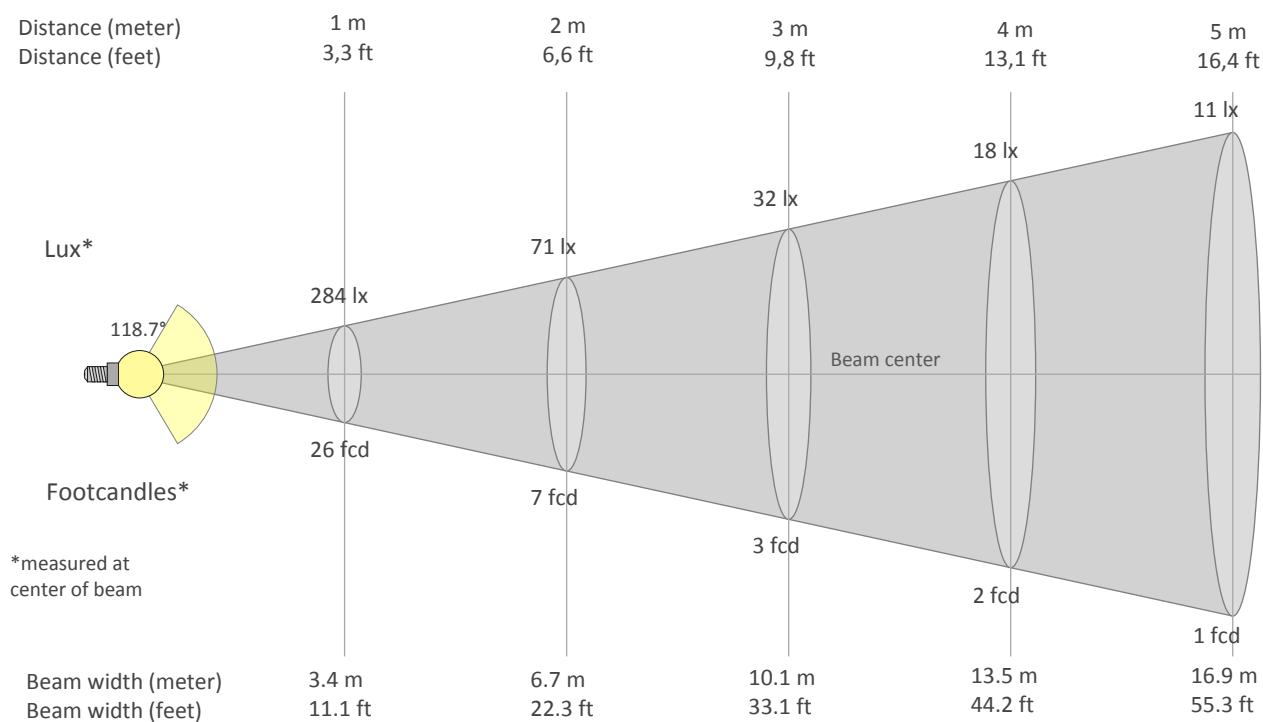
Rf 75.2
Fidelity index Rf

Rg 102.6
Gammut index Rg

Hue Bin	Graphic shifts (%)		
	R _f	Chroma	Hue
1	77	-8%	-4%
2	86	-2%	2%
3	79	-1%	9%
4	65	7%	19%
5	67	16%	13%
6	78	13%	1%
7	76	8%	-12%
8	79	-5%	-11%
9	83	-6%	-8%
10	68	-16%	10%
11	70	-8%	16%
12	75	3%	11%
13	80	9%	2%
14	74	8%	-1%
15	79	6%	-8%
16	77	2%	-10%



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
284lx	71lx	32lx	18lx	11lx	8lx	6lx	4lx	4lx	3lx	2lx	2lx	2lx	1lx	1lx	1lx	1lx	1lx	1lx	1lx
26.4fcd	6.6fcd	2.9fcd	1.6fcd	1.1fcd	0.7fcd	0.5fcd	0.4fcd	0.3fcd	0.3fcd	0.2fcd	0.2fcd	0.2fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd

Intensities in 0° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°
284	277	265	246	218	184	145	104	67	49	38	27	19	19	23	24	26	26	25	25
100%	98%	94%	87%	77%	65%	51%	36%	24%	17%	13%	9%	7%	7%	8%	9%	9%	9%	9%	9%

Intensities in 90° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°
284	285	274	256	232	203	170	137	105	77	54	40	32	30	29	28	28	27	26	26
100%	100%	96%	90%	82%	72%	60%	48%	37%	27%	19%	14%	11%	10%	10%	10%	10%	10%	9%	9%

Intensities in 180° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°
284	279	271	255	229	196	158	117	78	52	40	30	20	19	22	24	25	25	25	25
100%	98%	95%	90%	81%	69%	56%	41%	27%	18%	14%	10%	7%	7%	8%	9%	9%	9%	9%	9%

Intensities in 270° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°
284	285	275	258	235	207	173	139	107	79	56	41	34	31	31	31	30	29	27	26
100%	100%	97%	91%	83%	73%	61%	49%	38%	28%	20%	15%	12%	11%	11%	11%	10%	10%	10%	9%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
118.7°	248.8°	360°	59.2%	39.7%

ISO CANDELA DIAGRAM



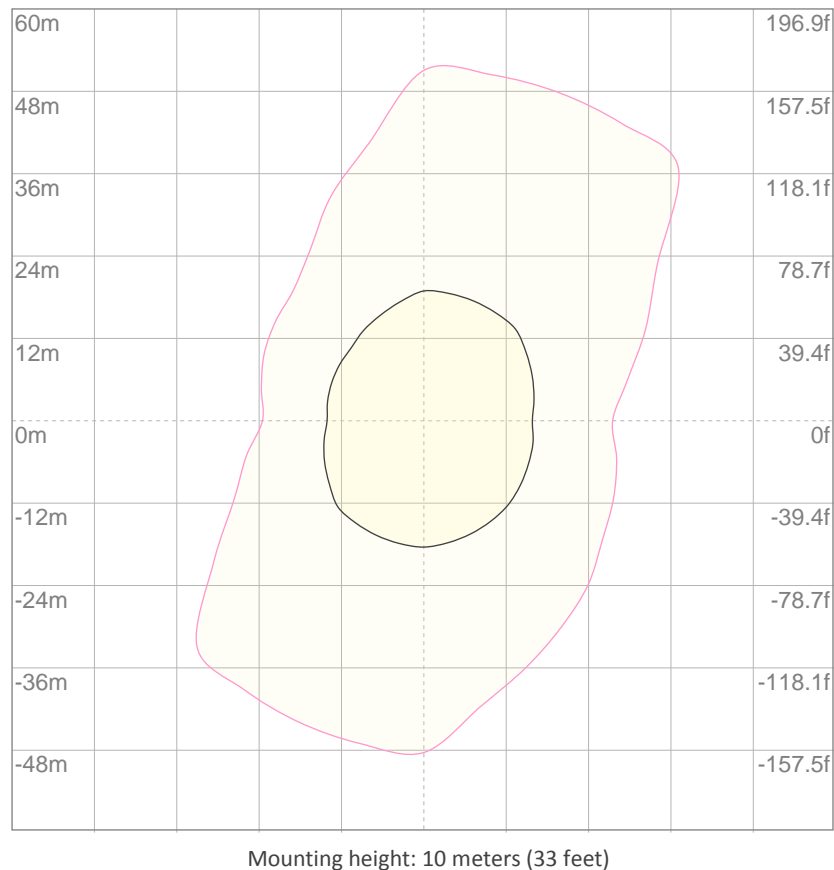
10%	28 cd
20%	57 cd
30%	85 cd
40%	114 cd
50%	142 cd
60%	170 cd
70%	199 cd
80%	227 cd
90%	256 cd

Conditions:

Number of c-planes: 8

Candela at center: 284 cd

ISO LUX DIAGRAM



3%	85.2m lx
5%	0.142 lx
10%	0.284 lx
30%	0.852 lx
50%	{LUX_10M50} lx

Conditions:

Number of c-planes: 8

Lux at center: 2.84 lx

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

UGR

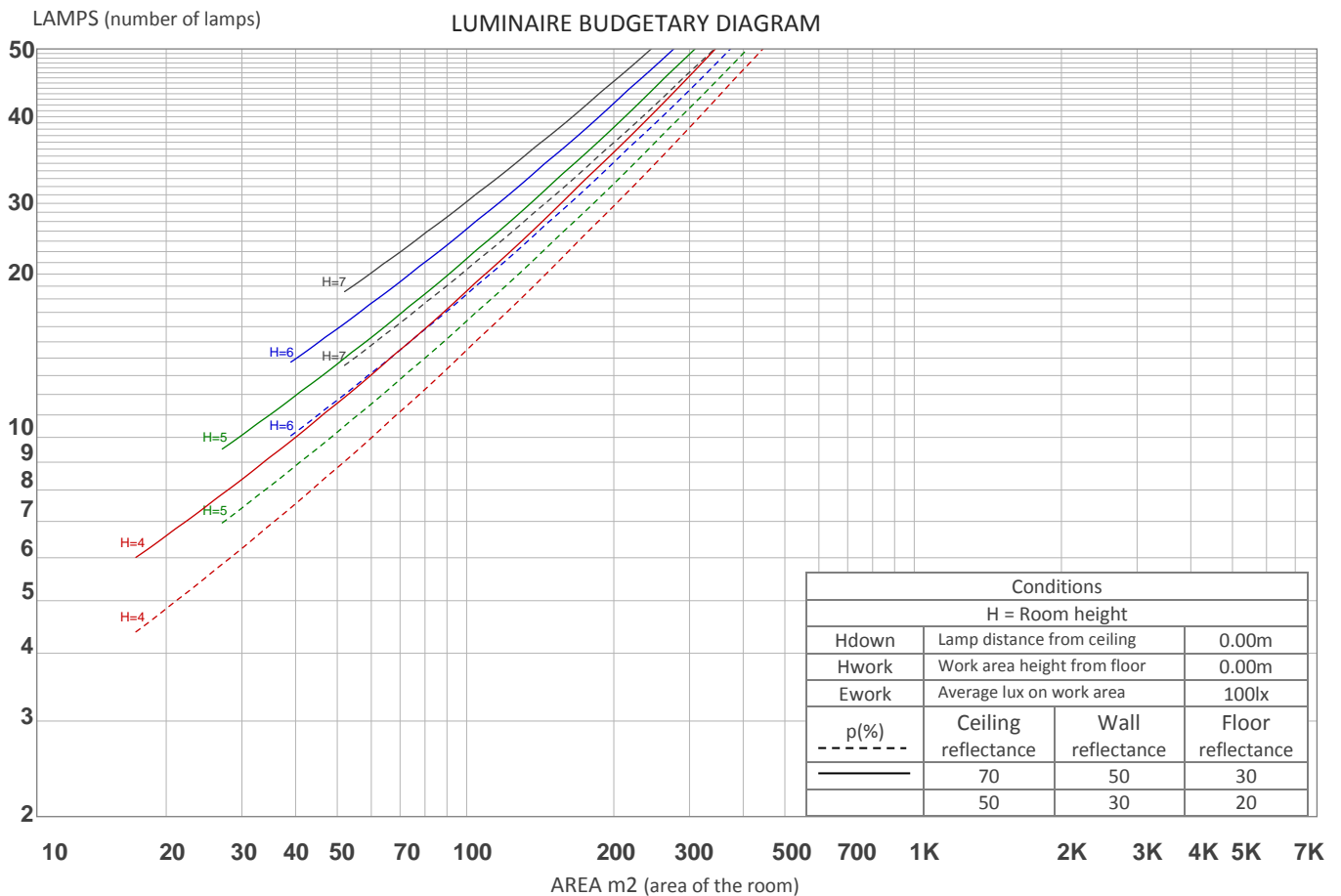
GLARE EVALUATION ACCORDING TO UGR

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	15.6	16.8	16.1	17.3	17.9	16.5	17.7	17.0	18.2	18.8
	3H	17.2	18.2	17.7	18.8	19.4	18.6	19.7	19.1	20.2	20.8
	4H	17.9	18.9	18.5	19.5	20.1	19.7	20.7	20.2	21.2	21.9
	6H	18.8	19.7	19.4	20.3	20.9	20.8	21.8	21.4	22.4	23.0
	8H	19.3	20.2	19.9	20.8	21.4	21.5	22.4	22.1	23.0	23.6
	12H	19.9	20.8	20.5	21.4	22.0	22.2	23.0	22.8	23.6	24.3
4H	2H	16.4	17.4	17.0	18.0	18.6	17.2	18.2	17.8	18.8	19.4
	3H	18.2	19.1	18.8	19.7	20.4	19.5	20.4	20.1	21.0	21.6
	4H	19.2	20.0	19.8	20.6	21.3	20.8	21.5	21.4	22.1	22.9
	6H	20.2	20.9	20.9	21.6	22.3	22.1	22.8	22.8	23.4	24.2
	8H	20.8	21.5	21.5	22.1	22.9	22.8	23.5	23.5	24.1	24.9
	12H	21.6	22.2	22.3	22.8	23.6	23.7	24.3	24.4	24.9	25.7
8H	4H	19.8	20.5	20.5	21.1	21.9	21.2	21.8	21.8	22.5	23.2
	6H	21.2	21.7	21.9	22.4	23.2	22.8	23.3	23.5	24.0	24.8
	8H	22.0	22.5	22.7	23.2	24.0	23.7	24.2	24.4	24.9	25.7
	12H	22.9	23.3	23.7	24.1	24.9	24.8	25.2	25.5	25.9	26.8
12H	4H	20.0	20.6	20.7	21.2	22.0	21.2	21.8	21.9	22.5	23.3
	6H	21.5	22.0	22.2	22.7	23.5	23.0	23.4	23.7	24.1	25.0
	8H	22.4	22.8	23.1	23.5	24.4	24.0	24.4	24.7	25.1	26.0
Variation of the observer position for the luminaire distance S											
S = 1.0H		+0.1 / -0.1					+0.1 / -0.1				
S = 1.5H		+0.3 / -0.3					+0.3 / -0.3				
S = 2.0H		+0.3 / -0.6					+0.3 / -0.5				
Standard table		BK09					BK10				
Correction summand		6.0					8.1				
Corrected glare indices referring to 1119 lm total luminous flux											

UGR data could be incorrect as lamp output is not symmetrical. 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	115	115	115	115	110	110	110	110	102	102	102	94	94	94	87	87	87	83
1	103	97	93	88	98	94	89	85	86	83	79	79	77	74	73	71	69	66
2	93	84	77	70	89	81	74	68	74	69	64	69	64	60	63	60	56	53
3	84	73	65	58	81	70	63	56	65	59	53	60	55	50	55	51	47	44
4	77	65	56	49	73	62	54	47	58	51	45	53	47	43	49	44	40	37
5	71	58	48	42	67	55	47	41	51	44	39	48	42	37	44	39	35	32
6	65	52	43	36	62	50	41	35	46	39	34	43	37	32	40	35	30	28
7	60	47	38	32	58	45	37	31	42	35	30	39	33	28	36	31	27	25
8	56	42	34	28	54	41	33	27	38	31	26	36	30	25	33	28	24	22
9	52	39	31	25	50	38	30	25	35	28	24	33	27	23	31	26	22	20
10	49	36	28	23	47	35	27	22	33	26	21	31	25	20	29	23	20	18

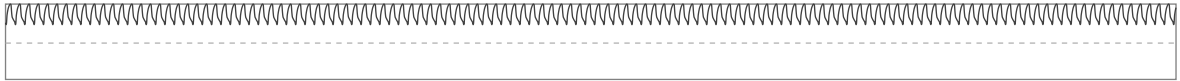


ZONAL LUMEN SUMMARY

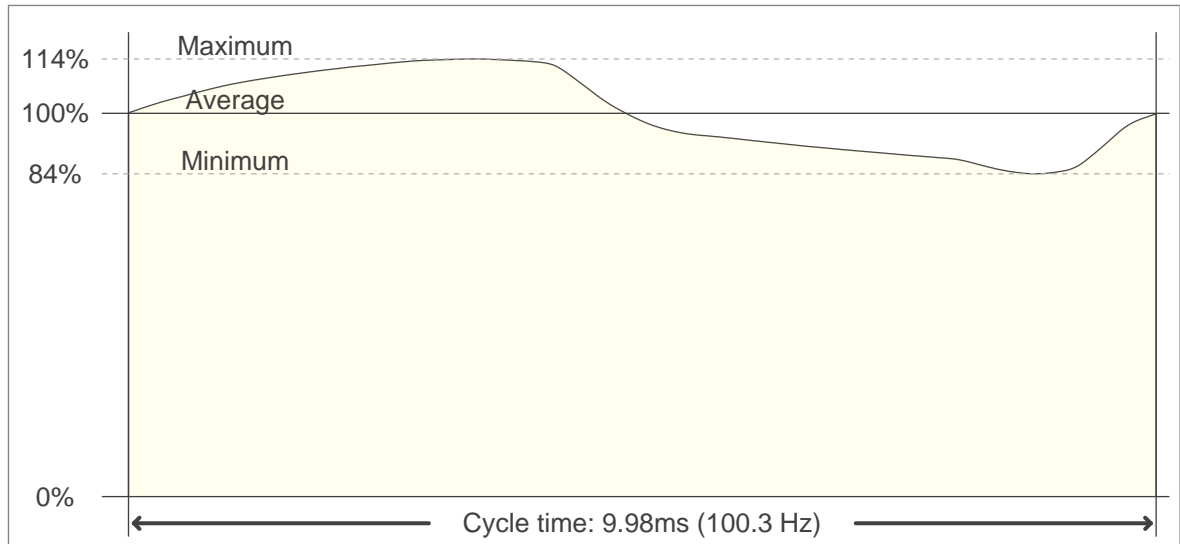
0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
26.9 lm	77.5 lm	119 lm	145 lm	153 lm	142 lm	117 lm	87.7 lm	64.7 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
46.6 lm	32.3 lm	25.1 lm	23.3 lm	20.8 lm	16.9 lm	12.2 lm	7.17 lm	2.39 lm

FLICKER

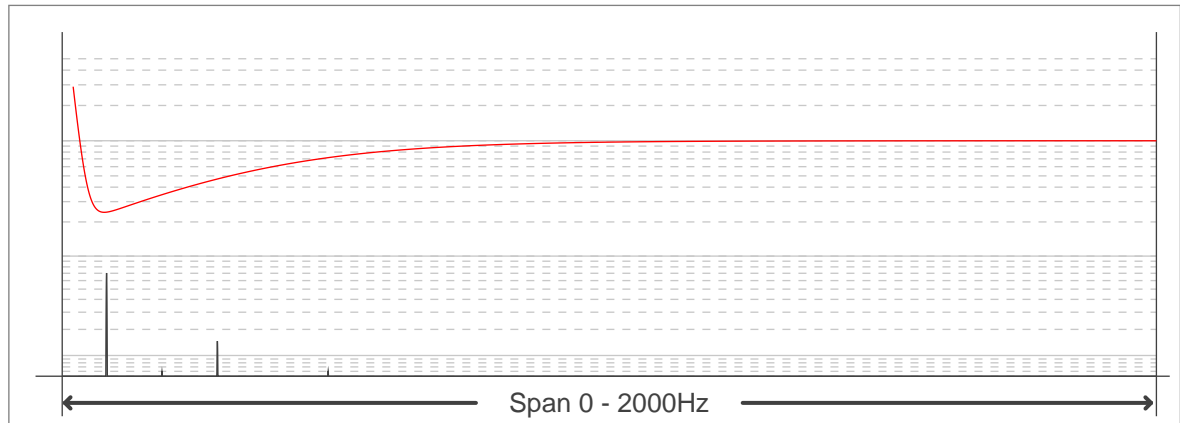
FLICKER CURVE (COMPLETE SAMPLED FLICKER)



FLICKER FRAME (FRAME OF ONE FLICKER PERIOD)



FLICKER FFT (FREQUENCY SCOPE OF FLICKER CURVE)



FLICKER RESULTS:

Flicker frequency:	100.25 Hz
Flicker index:	0.05
Flicker percentage:	15.15 %
SVM: (Visual flicker)	0.55

FLICKER CONDITIONS:

Sample rate:	40000 samples/second
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