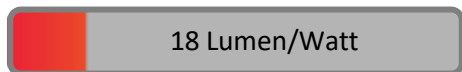


PHOTOMETRIC TEST REPORT

HALFTONE 400 UL

astro

LIGHT EFFICIENCY:



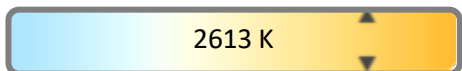
OUTPUT: 161 lm

LIGHT QUALITY:



PEAK: 18.7 cd

COLOR TEMPERATURE:



POWER: 8.7 W

PF: 0.99

Tracking number: [n/a](#)

Product name:

Halftone 400 UL

Item number:

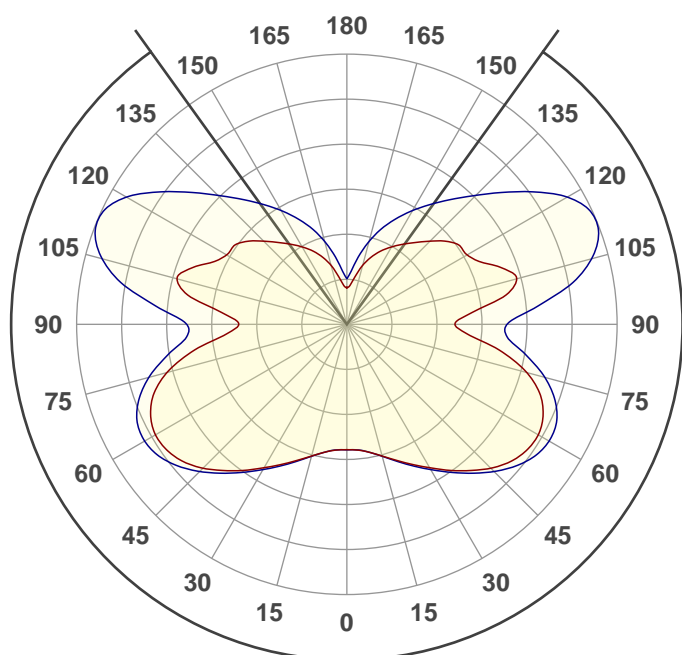
1425005

Date and time:

26/08/2020 16:57:55

Description:

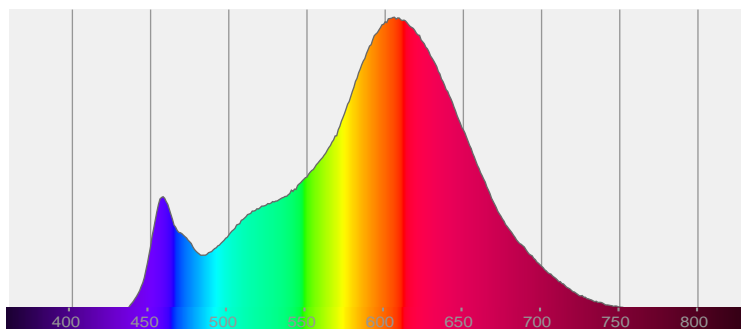
IP20 LED Wall Light



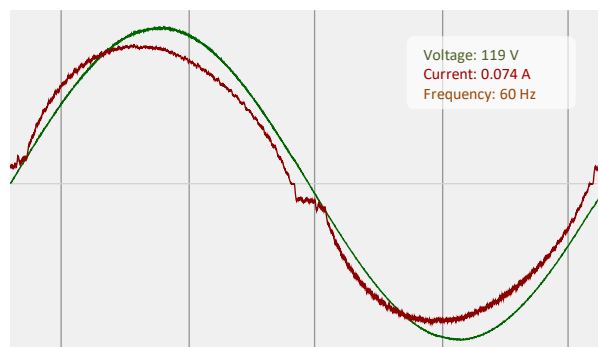
288.5°

CIE 1931
x: 0.463
y: 0.405

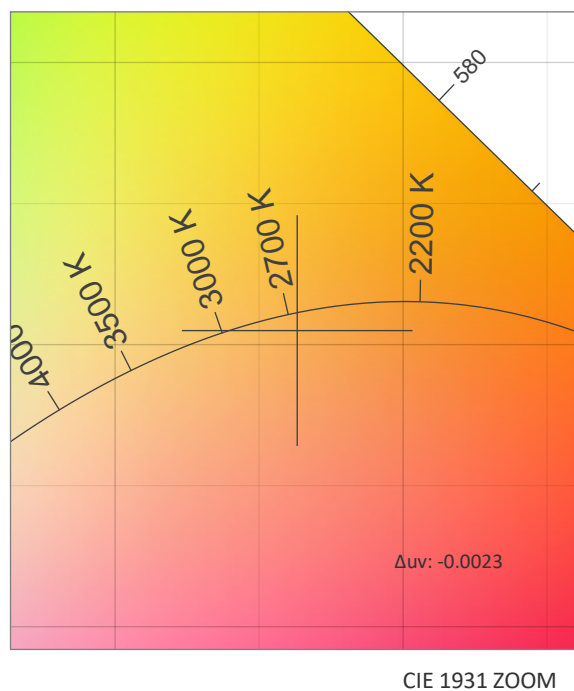
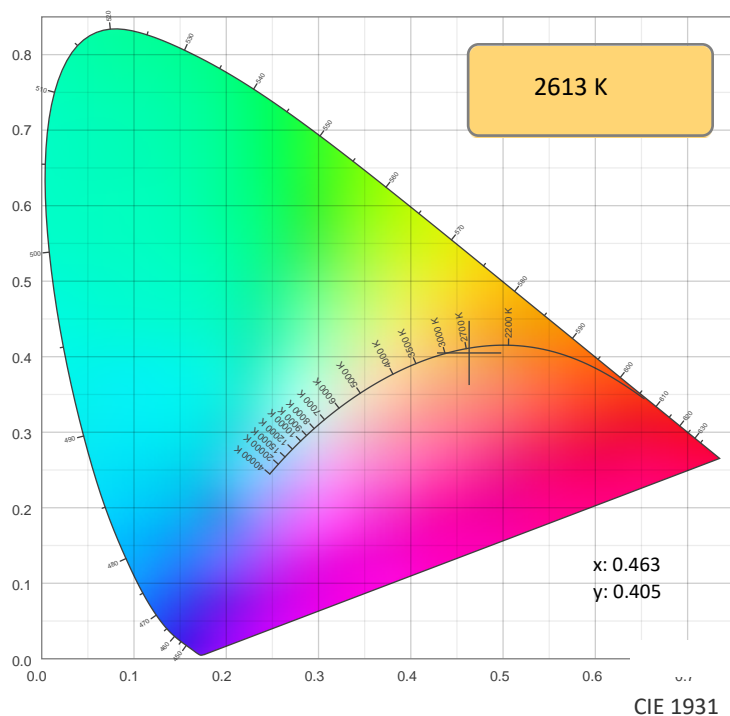
SPECTRA



POWER

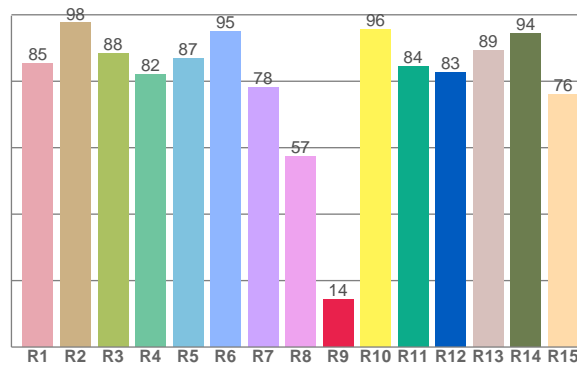
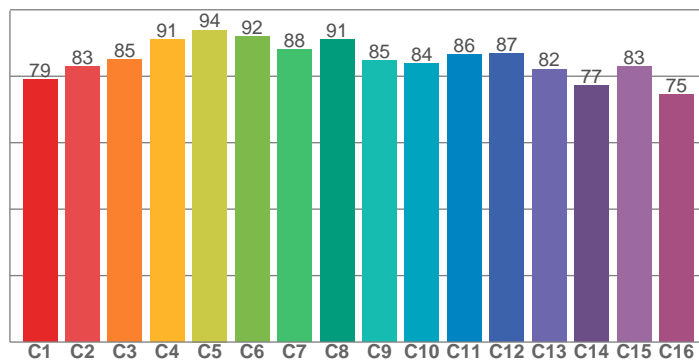


COLOR DETAILS



TM30: 85.1

CRI: 83.9 (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
85.4	97.5	88.4	82.2	86.9	95.0	78.1	57.4	14.3	95.5	84.3	82.6	89.2	94.3	75.9

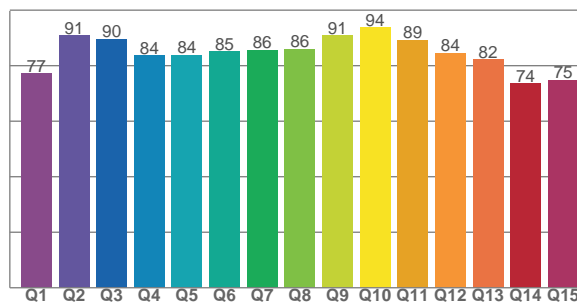
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
79.0	82.9	85.1	91.0	93.9	92.0	88.1	91.1	84.6	83.8	86.5	86.8	82.1	77.3	82.8	74.6

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
77.2	90.8	89.6	83.7	83.7	85.1	85.6	86.0	90.9	93.7	89.2	84.5	82.2	73.6	74.7

CQS: 83.5



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
2613 K	83.9	14.3	85.1	93.8	83.5	0.463	0.405	0.267	0.350	-0.0023

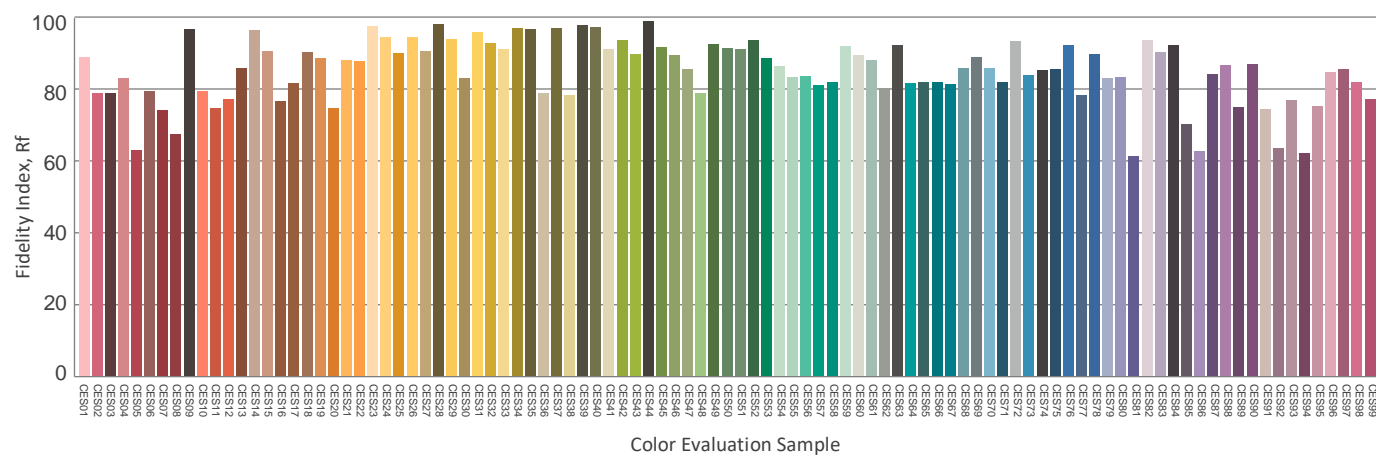
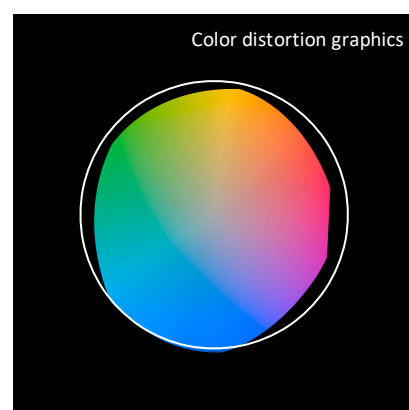
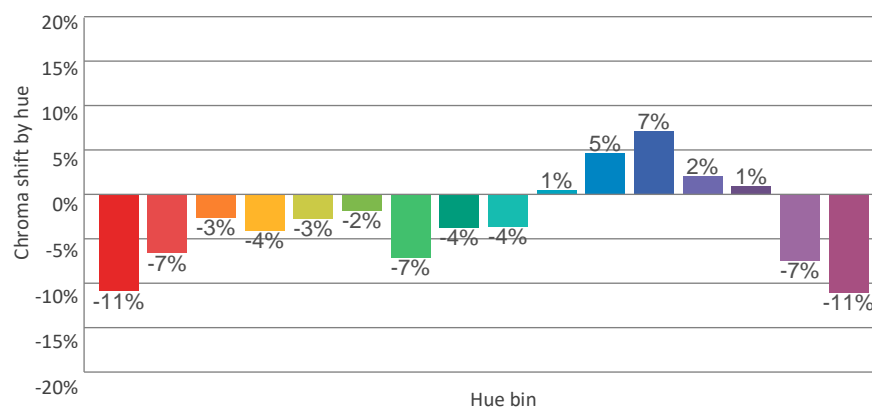
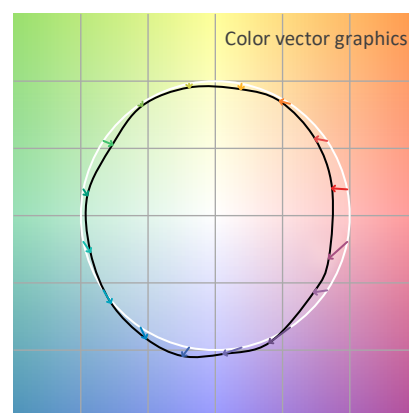
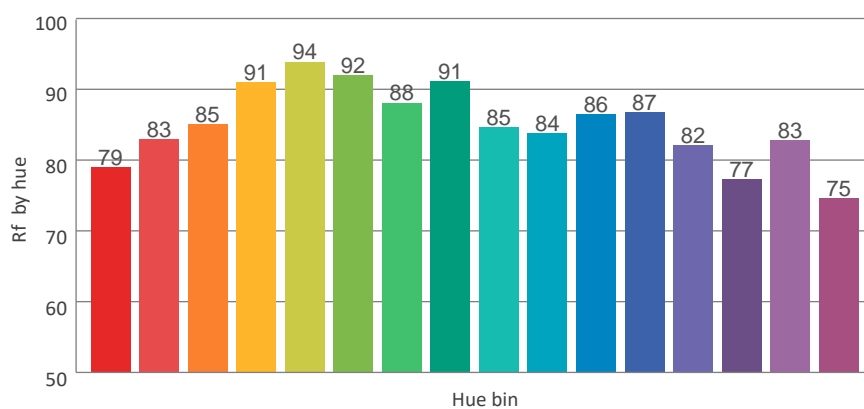
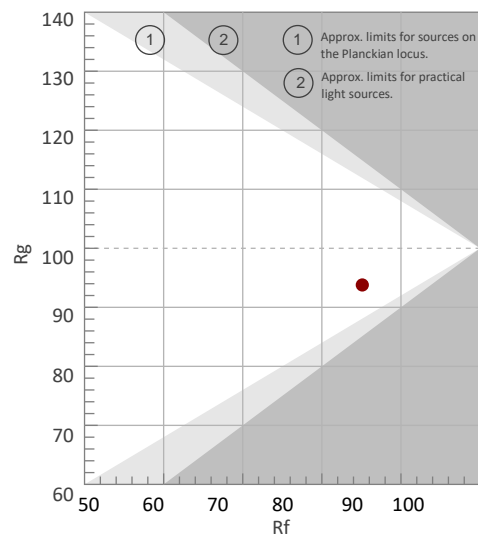
Rf 85.1

Fidelity index Rf

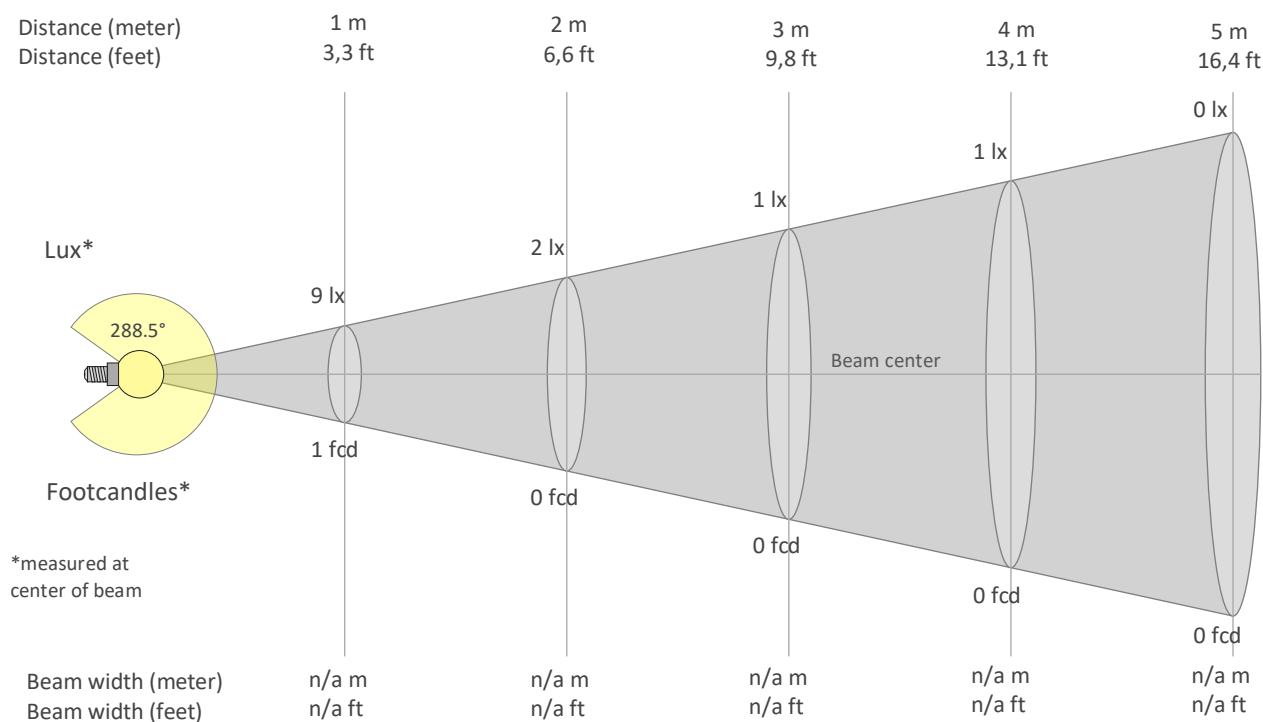
Rg 93.8

Gammut index Rg

Hue Bin	Graphic shifts (%)		
	R _f	Chroma	Hue
1	79	-11%	3%
2	83	-7%	6%
3	85	-3%	7%
4	91	-4%	0%
5	94	-3%	0%
6	92	-2%	0%
7	88	-7%	-1%
8	91	-4%	4%
9	85	-4%	8%
10	84	1%	11%
11	86	5%	8%
12	87	7%	-3%
13	82	2%	-14%
14	77	1%	-19%
15	83	-7%	-7%
16	75	-11%	-15%



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
9lx	2lx	1lx	1lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx
0.8fcd	0.2fcd	0.1fcd	0.1fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd

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°
8.7	9.0	9.8	11.0	12.6	14.1	15.2	15.2	13.8	10.5	7.6	10.5	11.8	10.0	9.5	8.2	6.9	5.9	4.7	3.3
100%	103%	113%	127%	145%	163%	175%	175%	158%	121%	87%	121%	136%	115%	109%	94%	80%	68%	54%	38%

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°
8.7	9.0	9.9	11.2	12.7	14.5	15.8	16.1	14.9	12.4	11.2	15.2	18.2	18.3	15.7	12.7	10.4	8.5	6.6	4.6
100%	103%	114%	129%	147%	166%	182%	186%	172%	143%	129%	175%	210%	210%	181%	146%	120%	98%	76%	53%

Intensities in 180° c-plane

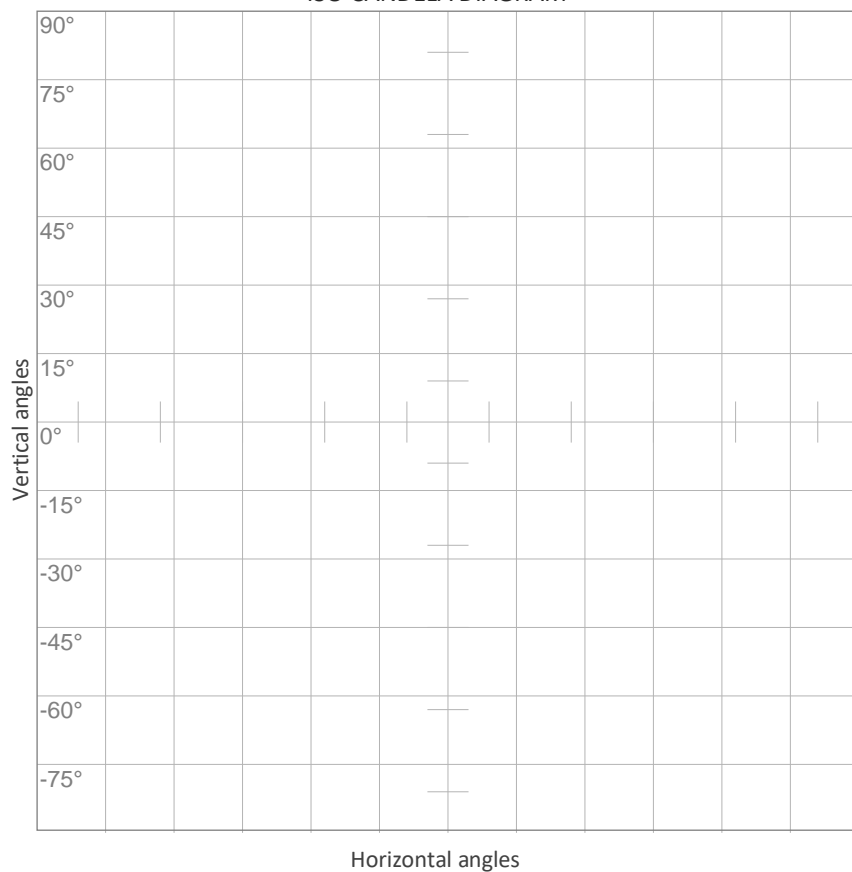
0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°
8.7	9.0	9.8	11.0	12.6	14.1	15.2	15.2	13.8	10.5	7.6	10.5	11.8	10.0	9.5	8.2	6.9	5.9	4.7	3.3
100%	103%	113%	127%	145%	163%	175%	175%	158%	121%	87%	121%	136%	115%	109%	94%	80%	68%	54%	38%

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°
8.7	9.0	9.9	11.2	12.7	14.5	15.8	16.1	14.9	12.4	11.2	15.2	18.2	18.3	15.7	12.7	10.4	8.5	6.6	4.6
100%	103%	114%	129%	147%	166%	182%	186%	172%	143%	129%	175%	210%	210%	181%	146%	120%	98%	76%	53%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
288.5°	360°	360°	25.8%	13.4%

ISO CANDELA DIAGRAM



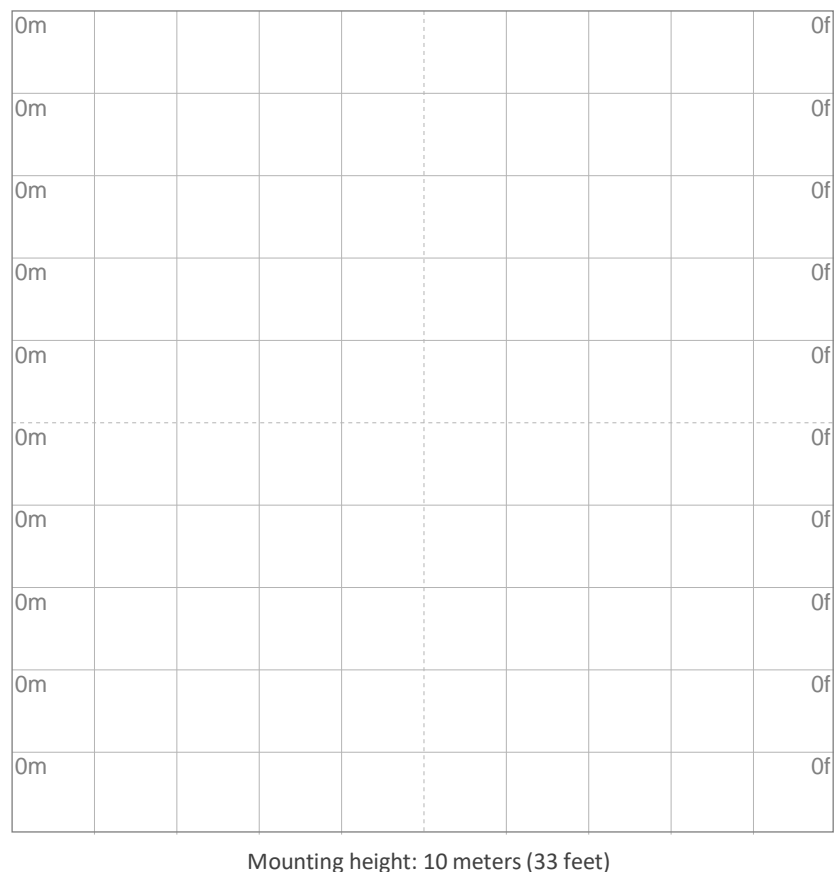
10%	1 cd
20%	2 cd
30%	3 cd
40%	3 cd
50%	4 cd
60%	5 cd
70%	6 cd
80%	7 cd
90%	8 cd

Conditions:

Number of c-planes: 8

Candela at center: 9 cd

ISO LUX DIAGRAM



3%	2.61m lx
5%	4.34m lx
10%	8.69m lx
30%	26.1m lx
50%	{LUX_10M50} lx

Conditions:

Number of c-planes: 8

Lux at center: 86.9m lx

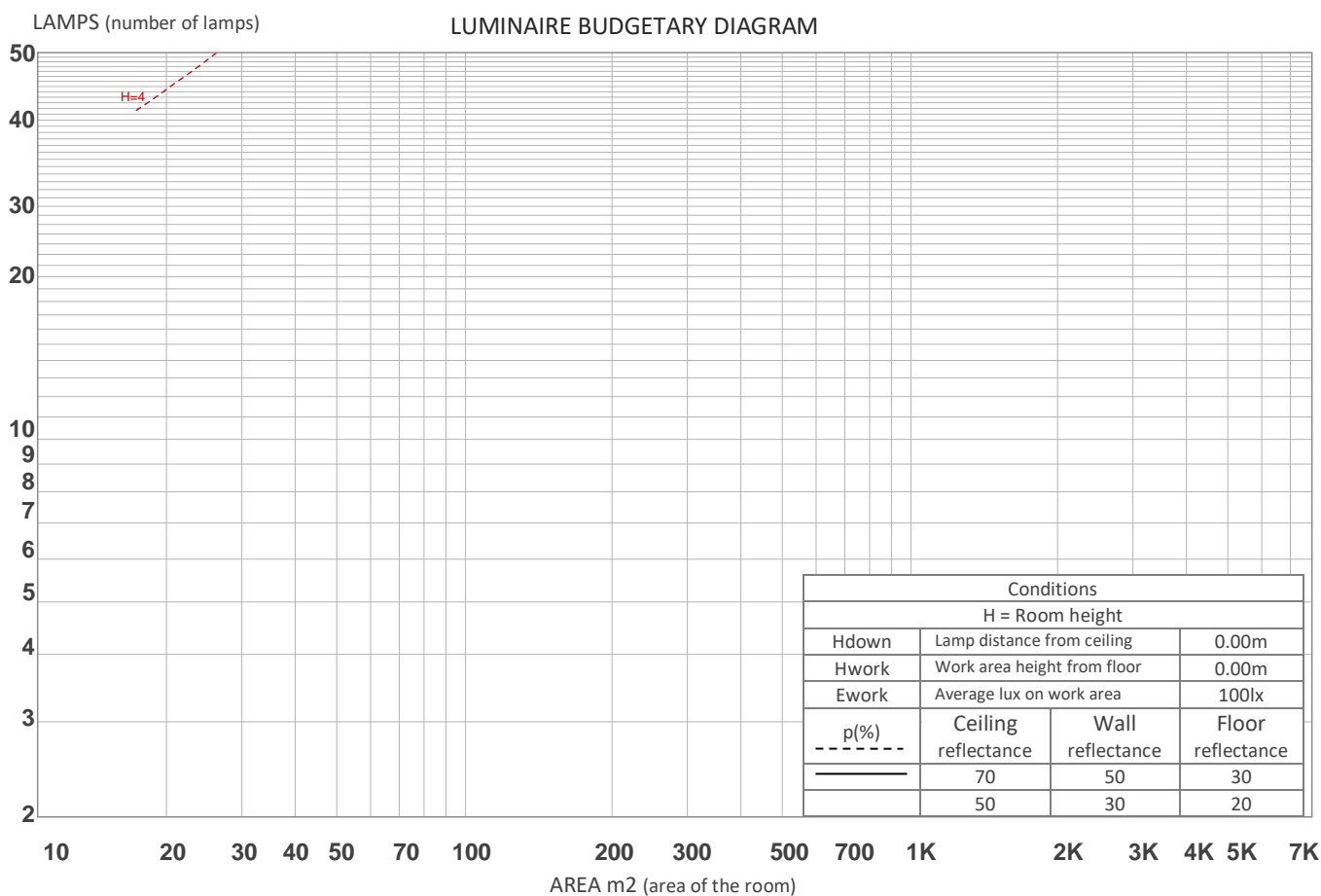
Lux distribution on a surface when lamp is mounted at 10 meters from the surface.

GLARE EVALUATION ACCORDING TO UGR

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	108	108	108	108	99	99	99	99	84	84	84	71	71	71	58	58	58	52
1	94	88	83	78	86	81	76	72	68	64	61	56	53	51	45	43	41	35
2	84	74	67	60	77	68	61	55	57	52	47	46	42	39	37	34	31	26
3	75	64	55	48	69	59	51	44	49	42	37	39	35	31	31	27	24	20
4	68	55	46	39	62	51	42	36	42	36	30	34	29	25	27	23	20	16
5	62	49	39	32	57	45	36	30	37	30	25	30	25	21	23	19	16	13
6	57	43	34	27	52	40	31	25	33	26	21	27	21	17	21	17	14	10
7	52	39	30	23	48	35	27	22	30	23	18	24	19	15	19	15	12	9
8	48	35	26	20	44	32	24	19	27	20	16	22	17	13	17	13	10	8
9	45	31	23	18	41	29	22	16	24	18	14	20	15	11	16	12	9	7
10	42	29	21	16	38	26	19	14	22	16	12	18	13	10	14	11	8	6

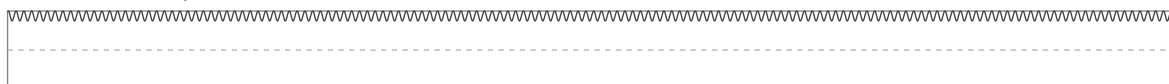


ZONAL LUMEN SUMMARY

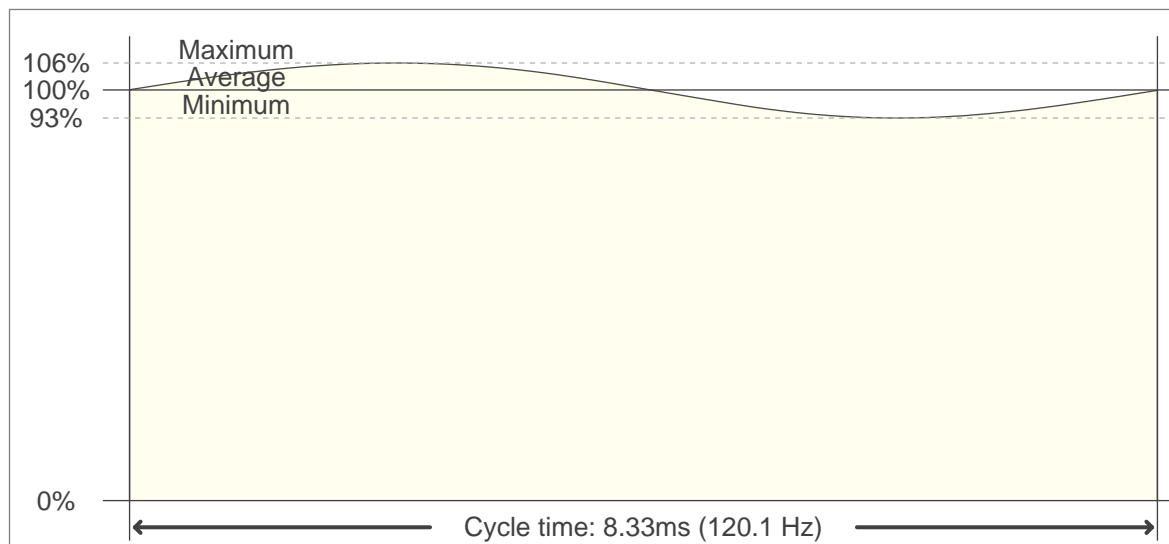
0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
0.847 lm	2.72 lm	5.03 lm	7.86 lm	11.1 lm	14.0 lm	15.5 lm	14.5 lm	11.8 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
13.2 lm	16.7 lm	15.8 lm	12.5 lm	8.64 lm	5.51 lm	3.20 lm	1.46 lm	0.345 lm

FLICKER

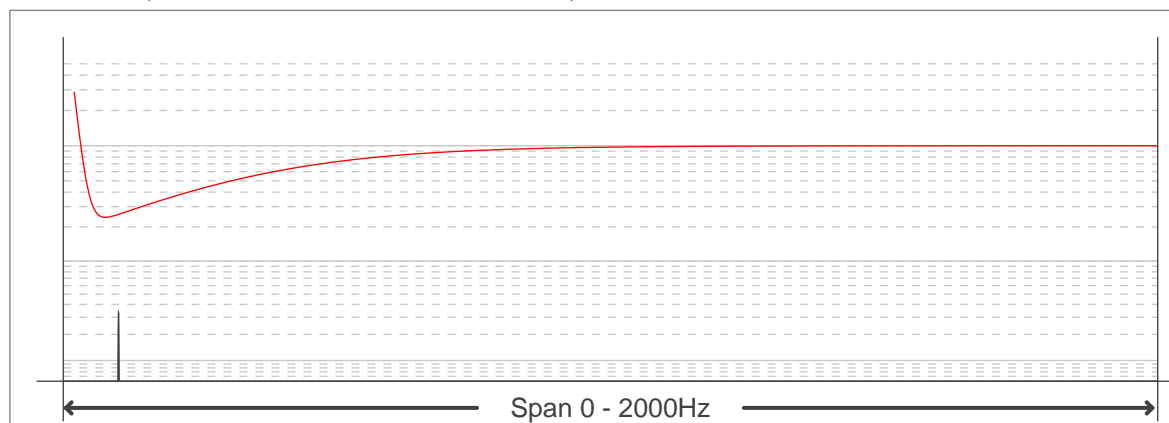
FLICKER CURVE (COMPLETE SAMPLED FLICKER)



FLICKER FRAME (FRAME OF ONE FLICKER PERIOD)



FLICKER FFT (FREQUENCY SCOPE OF FLICKER CURVE)



FLICKER RESULTS:

Flicker frequency:	120.12 Hz
Flicker index:	0.02
Flicker percentage:	6.74 %
SVM: (Visual flicker)	0.24

FLICKER CONDITIONS:

Sample rate:	40000 samples/second
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