PHOTOMETRIC TEST REPORT

HALFTONE 400

astro

LIGHT EFFICIENCY:

23 Lumen/Watt

LIGHT QUALITY:

CRI: 83.7

COLOR TEMPERATURE:

2667 K

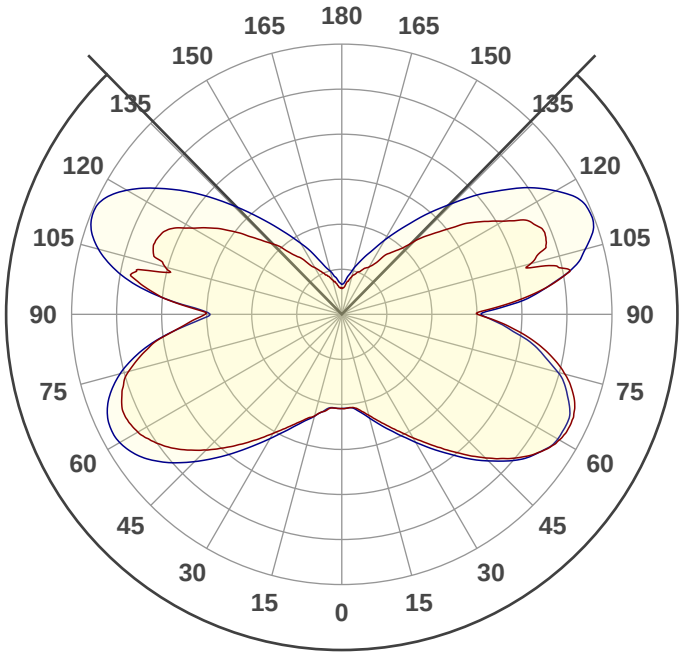
OUTPUT: 171 lm

PEAK: 20.1 cd

POWER: 7.5 W

PF: 0.42

No photo



271.2°

CIE 1931
x: 0.460
y: 0.406

Tracking number: n/a

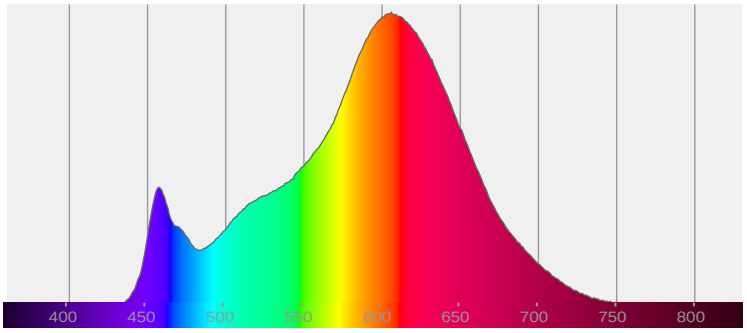
Product name:
Halftone 400

Item number:
1425001

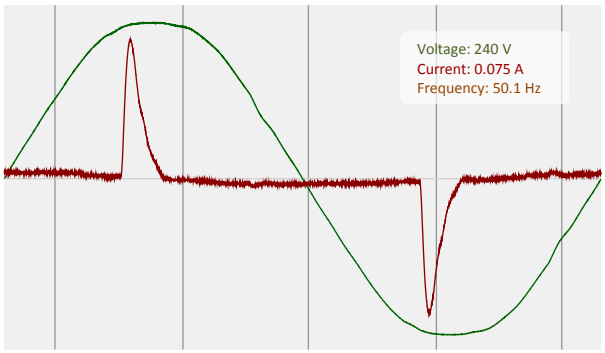
Date and time:
07/01/2020 15:43:06

Description:
IP20 LED Wall Light

SPECTRA



POWER



HALFTONE 400

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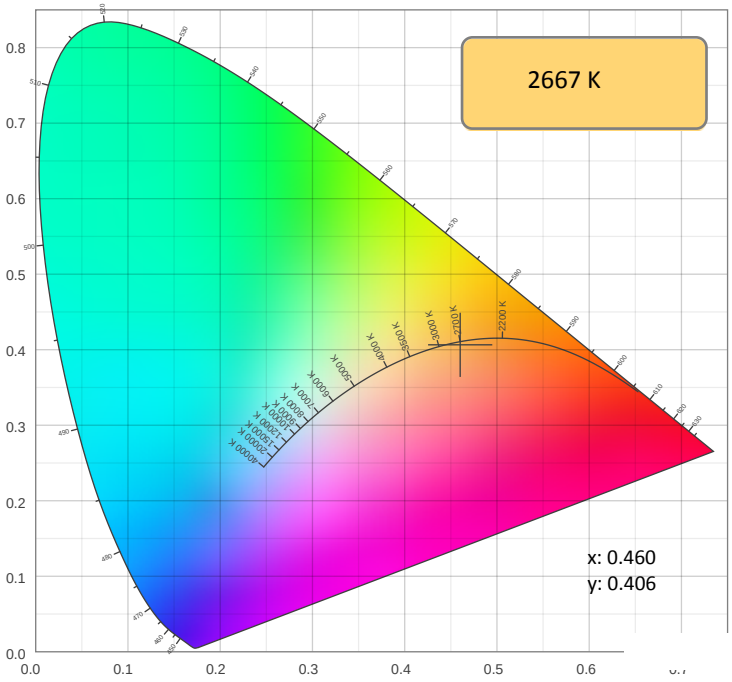
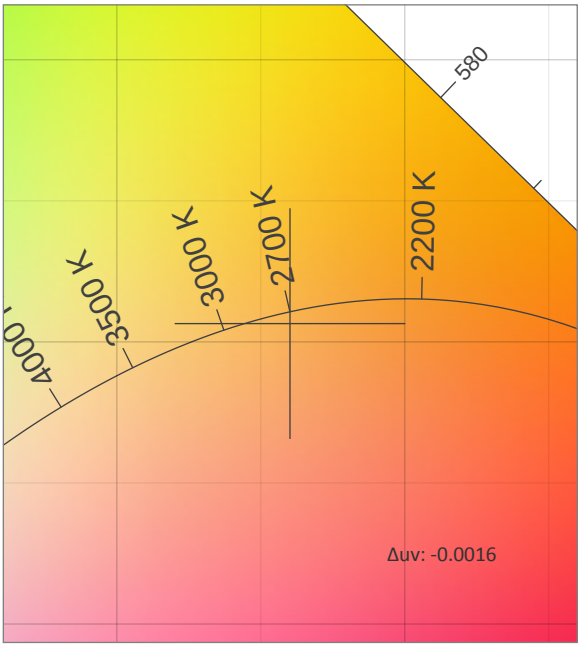
COLOR DETAILS

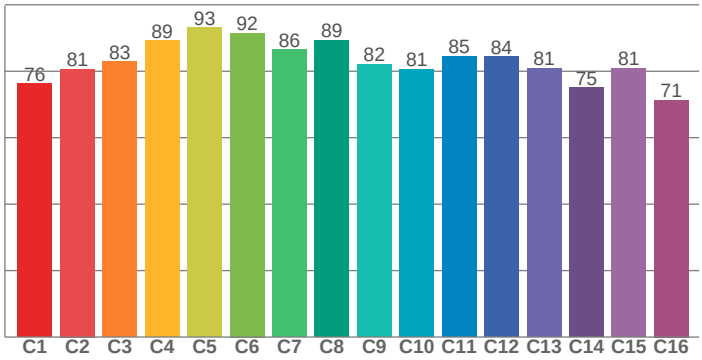


CIE 1931

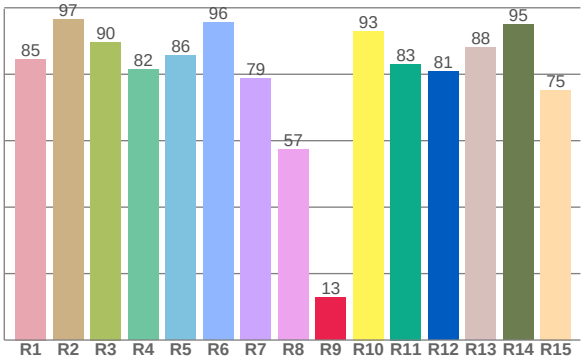


CIE 1931 ZOOM

TM30: 83.0



CRI: 83.7 (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
84.6	96.6	89.7	81.5	85.7	95.6	78.8	57.5	12.8	93.0	83.1	80.9	88.2	95.0	75.3

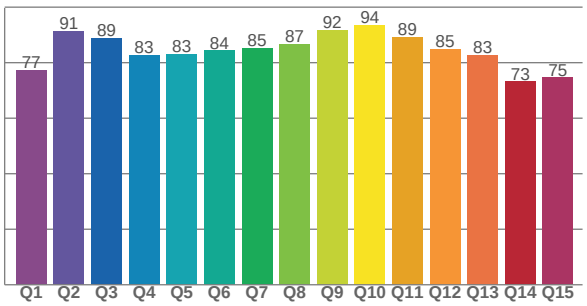
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
76.3	80.7	82.9	89.2	93.2	91.5	86.5	89.4	82.1	80.6	84.5	84.4	80.9	75.0	80.9	71.4

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
77.3	91.3	88.9	82.8	83.2	84.4	85.2	86.6	91.8	93.6	89.3	84.8	82.7	73.2	74.6

CQS: 83.4



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
2667 K	83.7	12.8	83.0	93.3	83.4	0.460	0.406	0.265	0.351	-0.0016

TM30 DETAILS

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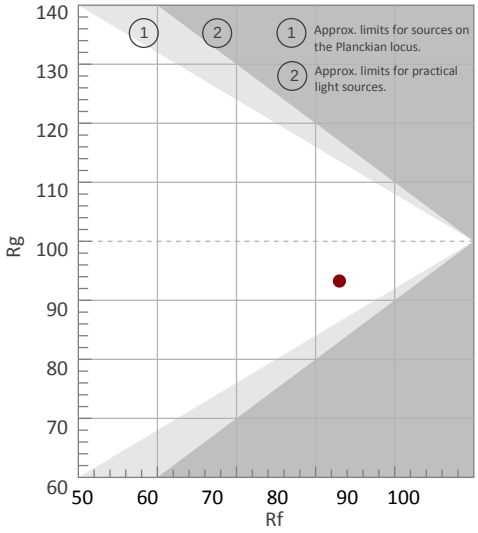
Rf 83.0

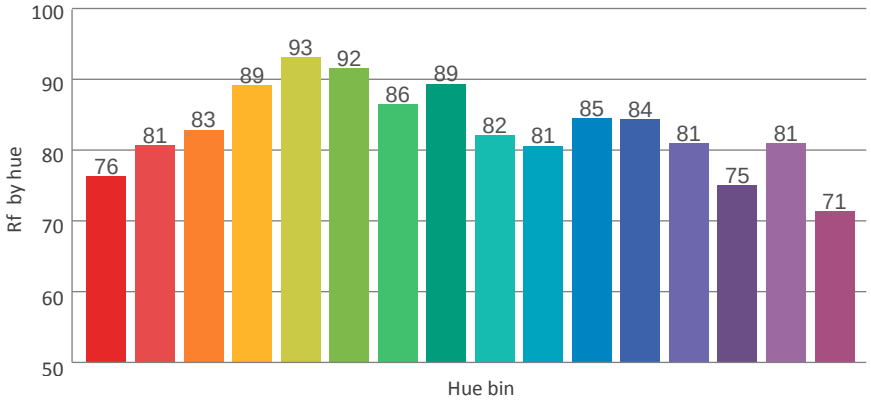
Fidelity index Rf

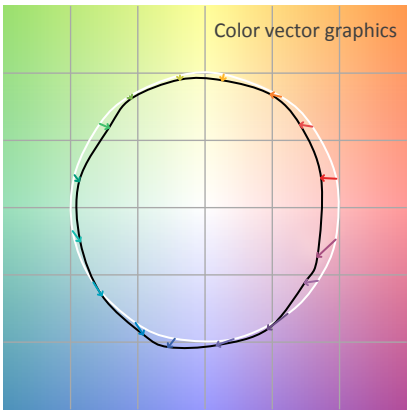
Rg 93.3

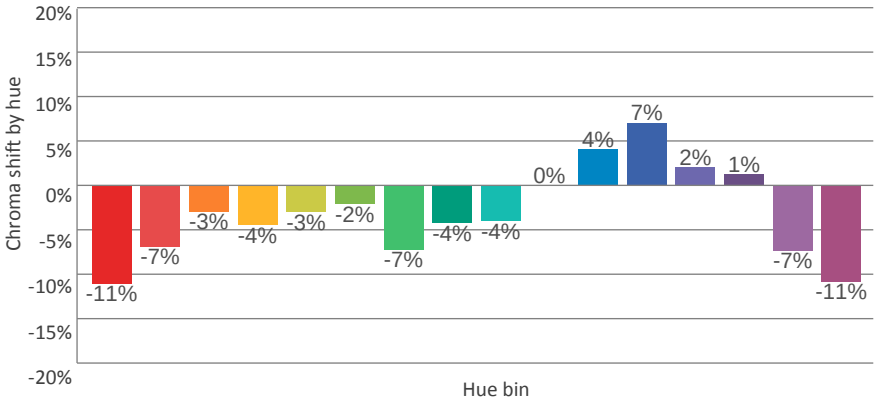
Gammut index Rg

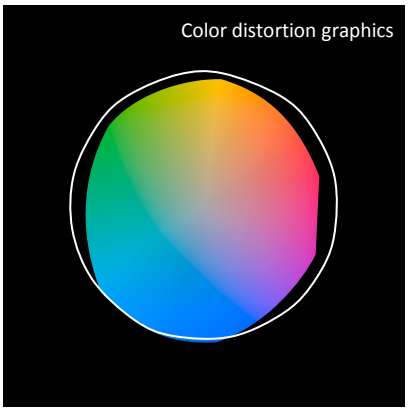
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	76	-11%	3%
2	81	-7%	6%
3	83	-3%	7%
4	89	-4%	0%
5	93	-3%	1%
6	92	-2%	0%
7	86	-7%	-1%
8	89	-4%	4%
9	82	-4%	9%
10	81	0%	12%
11	85	4%	10%
12	84	7%	-4%
13	81	2%	-13%
14	75	1%	-19%
15	81	-7%	-7%
16	71	-11%	-15%

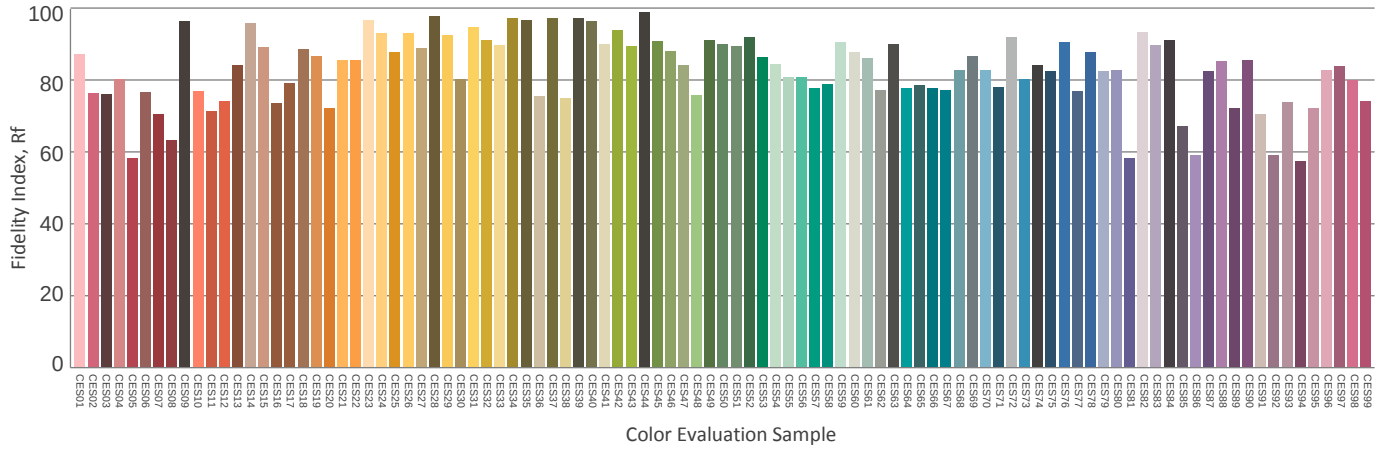












HALFTONE 400

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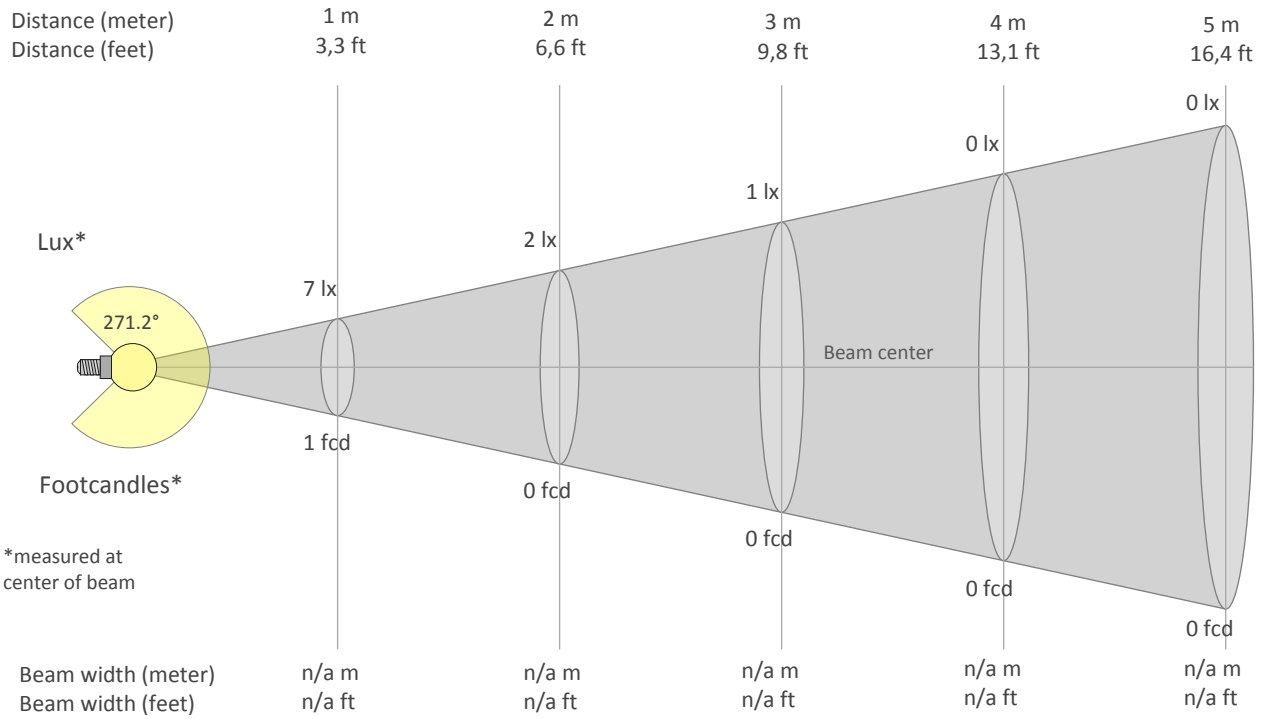
BEAM DETAILS



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
7lx	2lx	1lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx
0.6fcd	0.2fcd	0.1fcd	0fcd	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°
7.0	7.1	8.2	9.9	12.2	15.1	17.6	18.8	17.9	14.9	10.1	16.3	15.9	15.4	11.5	7.7	5.4	3.8	3.1	2.4
100%	101%	117%	141%	174%	216%	253%	269%	257%	213%	145%	233%	227%	220%	164%	111%	77%	55%	45%	35%

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°
7.0	7.2	8.5	10.2	12.6	15.4	17.7	18.5	17.4	14.4	10.5	16.2	19.5	19.3	15.9	11.7	8.1	5.6	4.0	2.8
100%	103%	121%	146%	180%	220%	253%	265%	250%	206%	150%	232%	280%	276%	227%	167%	116%	80%	57%	41%

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°
7.0	7.2	8.1	9.5	11.7	14.2	16.5	17.7	17.0	14.2	10.1	15.3	14.7	14.0	10.7	7.5	5.2	3.7	2.9	2.3
100%	103%	116%	137%	168%	204%	236%	253%	244%	204%	145%	219%	210%	201%	153%	107%	74%	52%	41%	33%

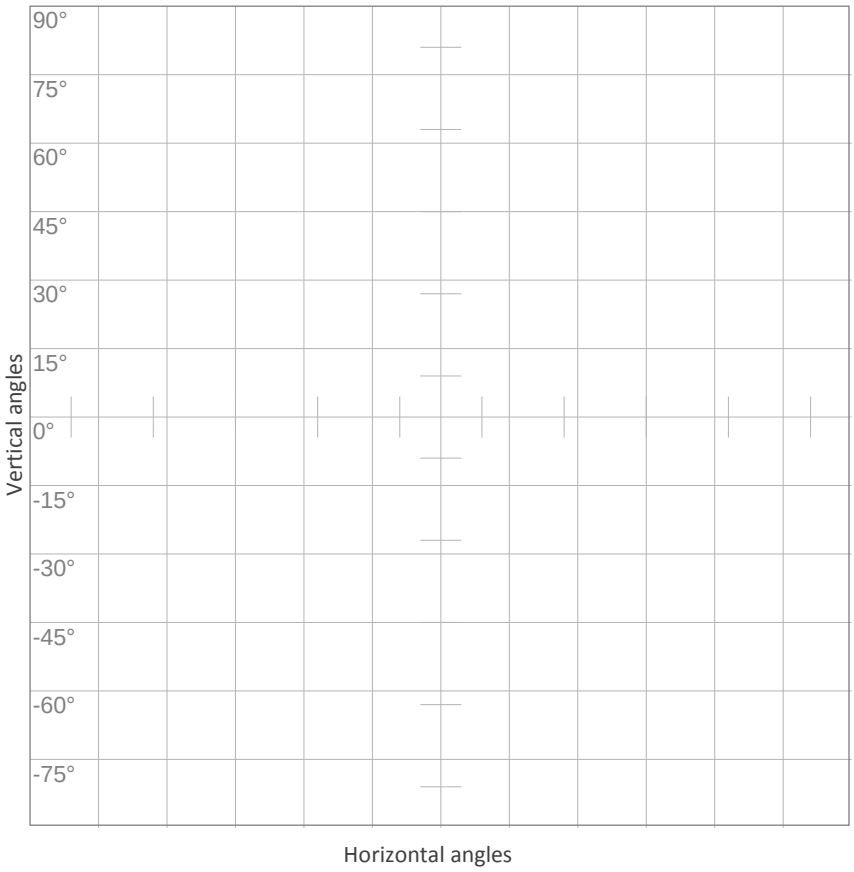
Intensities in 270° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°
7.0	7.1	8.2	9.9	12.4	15.4	18.1	19.1	17.9	14.4	9.8	15.9	19.5	19.3	15.8	11.4	7.8	5.4	3.6	2.8
100%	102%	118%	141%	178%	221%	259%	274%	256%	206%	140%	228%	279%	277%	226%	164%	112%	77%	52%	40%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
271.2°	360°	360°	24.7%	11.8%

ISO DIAGRAMS

ISO CANDELA DIAGRAM



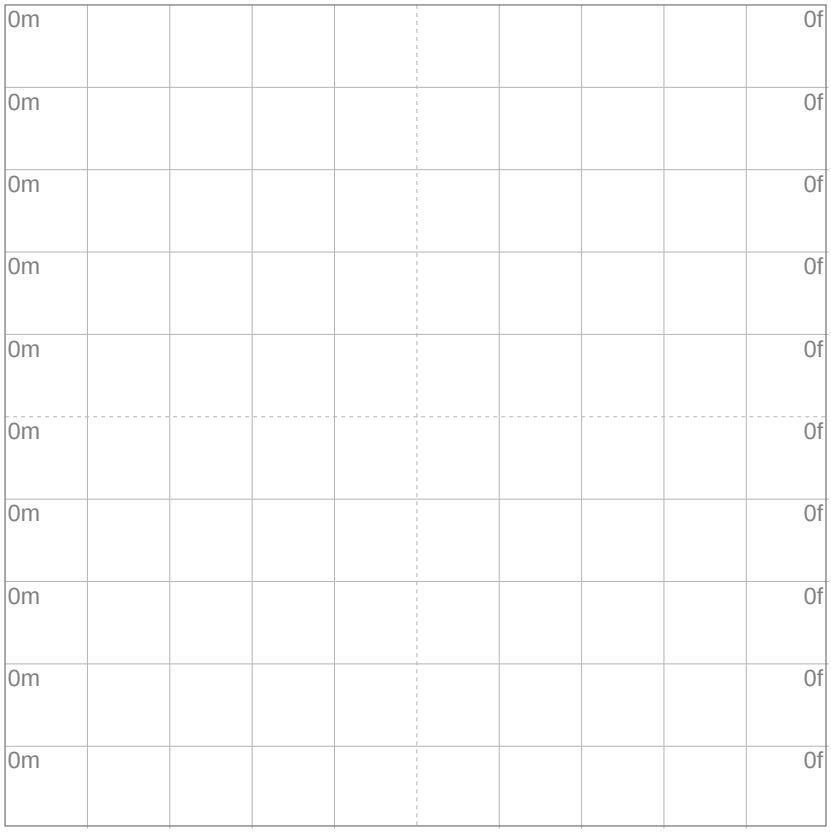
10%	1 cd
20%	1 cd
30%	2 cd
40%	3 cd
50%	3 cd
60%	4 cd
70%	5 cd
80%	6 cd
90%	6 cd

Conditions:

Number of c-planes: 8

Candela at center: 7 cd

ISO LUX DIAGRAM



3%	2.09m lx
5%	3.49m lx
10%	6.98m lx
30%	20.9m lx
50%	{LUX_10M50} lx

Conditions:

Number of c-planes: 8

Lux at center: 69.8m lx

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

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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	10.8	11.8	11.6	12.7	13.8	10.7	11.7	11.5	12.6	13.7
	3H	14.1	15.0	15.0	15.9	17.1	13.9	14.9	14.8	15.8	16.9
	4H	15.8	16.6	16.6	17.5	18.7	15.6	16.5	16.5	17.4	18.6
	6H	17.4	18.2	18.3	19.2	20.4	17.2	18.0	18.1	19.0	20.2
	8H	18.3	19.1	19.2	20.0	21.2	18.1	18.9	19.0	19.8	21.0
	12H	19.2	19.9	20.1	20.9	22.1	19.0	19.7	19.9	20.7	21.9
4H	2H	11.9	12.8	12.8	13.7	14.9	11.8	12.7	12.7	13.6	14.8
	3H	15.3	16.0	16.2	17.0	18.2	15.1	15.9	16.1	16.8	18.0
	4H	17.1	17.7	18.0	18.7	19.9	16.9	17.6	17.8	18.5	19.8
	6H	18.9	19.5	19.8	20.4	21.7	18.7	19.3	19.6	20.3	21.5
	8H	19.8	20.4	20.8	21.3	22.6	19.6	20.2	20.6	21.2	22.4
	12H	20.8	21.3	21.8	22.3	23.6	20.6	21.1	21.6	22.1	23.4
8H	4H	17.7	18.2	18.7	19.2	20.5	17.6	18.1	18.5	19.1	20.4
	6H	19.7	20.2	20.7	21.2	22.5	19.6	20.1	20.6	21.1	22.4
	8H	20.9	21.3	21.8	22.3	23.6	20.7	21.1	21.7	22.1	23.4
	12H	22.1	22.4	23.1	23.4	24.8	21.9	22.3	22.9	23.3	24.6
12H	4H	17.8	18.3	18.8	19.3	20.6	17.7	18.2	18.7	19.2	20.5
	6H	20.0	20.4	21.0	21.4	22.7	19.9	20.3	20.9	21.3	22.6
	8H	21.2	21.6	22.2	22.6	23.9	21.1	21.4	22.1	22.5	23.8

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	+0.4 / -0.4	+0.4 / -0.4
Standard table	---	BK12
Correction summand	---	6.0

Corrected glare indices referring to 171 lm total luminous flux

UGR data could be incorrect as lamp output is not symmetrical. Goto Edit->Photometric->Corrections and select Correct asymmetry.

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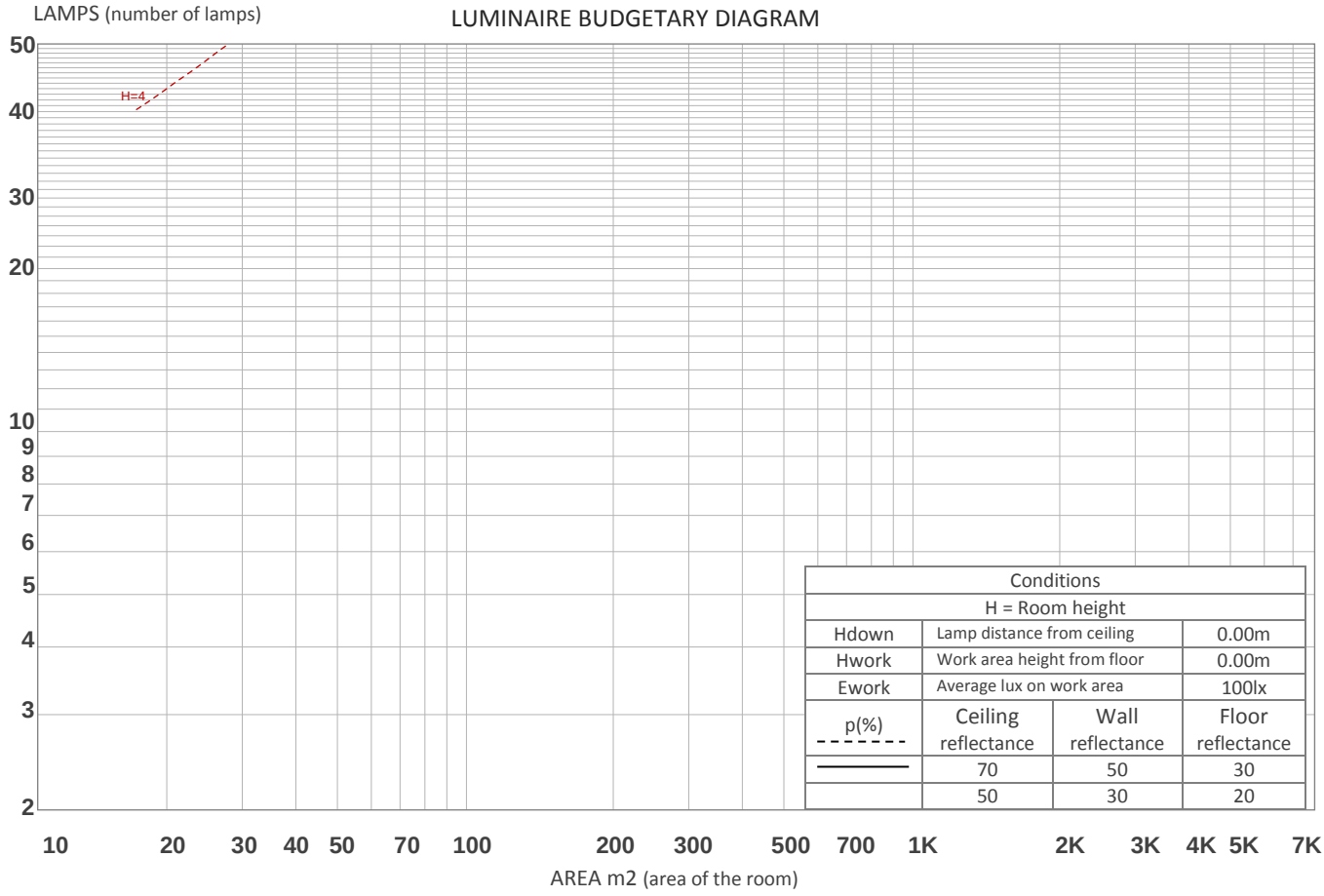
LIGHT PLANNING

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	100	100	100	100	85	85	85	72	72	72	59	59	59	54
1	94	88	82	77	86	81	76	71	68	64	61	56	53	51	45	43	41	36
2	83	74	65	59	76	68	60	54	57	51	46	46	42	38	37	33	31	26
3	75	63	54	46	68	58	49	43	48	42	36	39	34	30	31	27	24	19
4	68	54	45	37	61	50	41	35	41	35	29	34	28	24	26	22	19	15
5	61	48	38	31	56	44	35	29	36	29	24	29	24	20	23	19	15	12
6	56	42	33	26	51	39	30	24	32	25	20	26	21	16	20	16	13	10
7	52	38	28	22	47	35	26	20	29	22	17	23	18	14	18	14	11	8
8	48	34	25	19	43	31	23	18	26	19	15	21	16	12	17	12	9	7
9	44	31	22	17	40	28	21	15	24	17	13	19	14	10	15	11	8	6
10	41	28	20	15	38	26	18	13	22	15	11	18	13	9	14	10	7	5

LUMINAIRE BUDGETARY DIAGRAM



ZONAL LUMEN SUMMARY

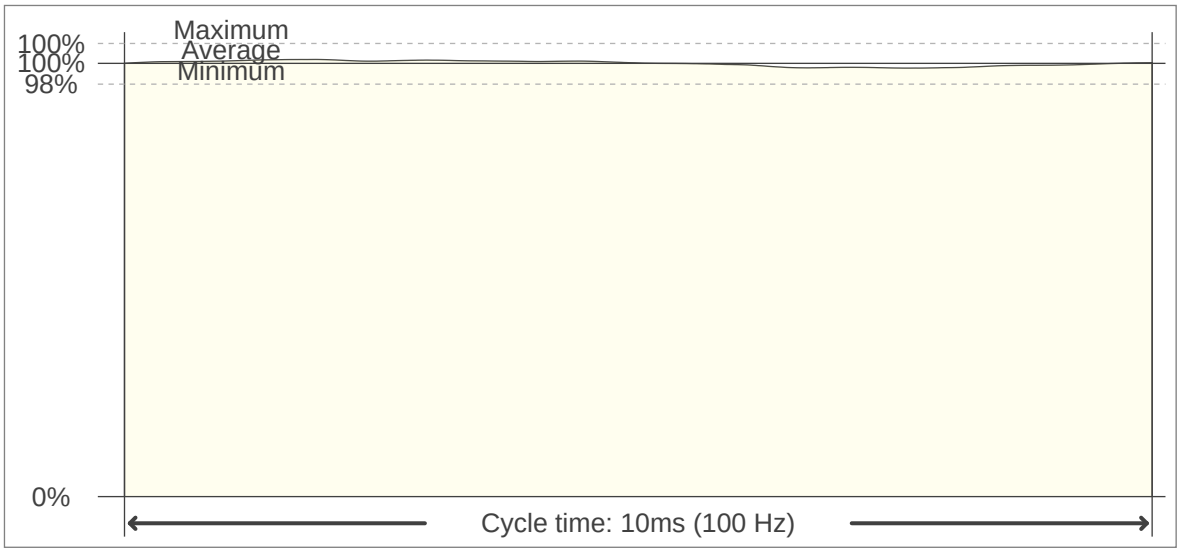
0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
0.672 lm	2.24 lm	4.42 lm	7.54 lm	11.6 lm	15.8 lm	18.2 lm	17.5 lm	13.5 lm

90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
14.4 lm	18.6 lm	17.8 lm	13.2 lm	8.01 lm	4.24 lm	2.06 lm	0.884 lm	0.223 lm

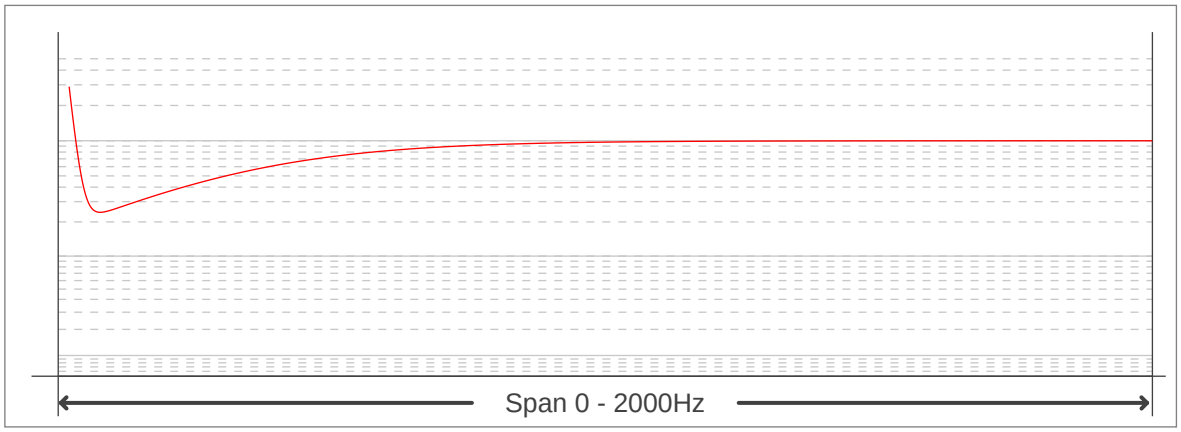
FLICKER

FLICKER CURVE (COMPLETE SAMPLED FLICKER

FLICKER FRAME (FRAME OF ONE FLICKER PERIOD)



FLICKER FFT (FREQUENCY SCOPE OF FLICKER CURVE)



FLICKER RESULTS:

Flicker frequency:	100 Hz
Flicker index:	0
Flicker percentage:	1.13 %
SVM: (Visual flicker)	0.03

FLICKER CONDITIONS:

Sample rate:	40000 samples/second