

# PHOTOMETRIC TEST REPORT

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MINIMA PRO SQUARE FIXED IP65  
- MATT WHITE - 4001011

astro

# MINIMA PRO SQUARE FIXED IP65 - MATT

astro

## LIGHT EFFICIENCY:

97 Lumen/Watt

## LIGHT QUALITY:

CRI: 96.2

## COLOR TEMPERATURE:

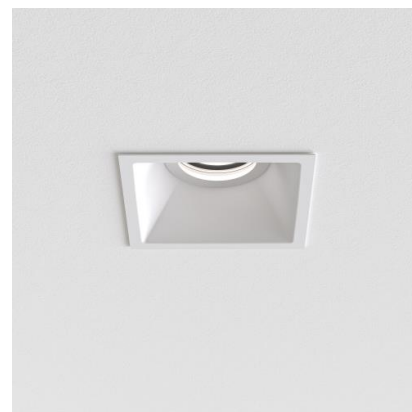
2689 K

OUTPUT: 1149 lm

PEAK: 6005 cd

POWER: 11.8 W

PF: 0.95



Tracking number: [n/a](#)

Product name:

Minima Pro Square Fixed IP65 - Matt  
White - 4001011

Item number:

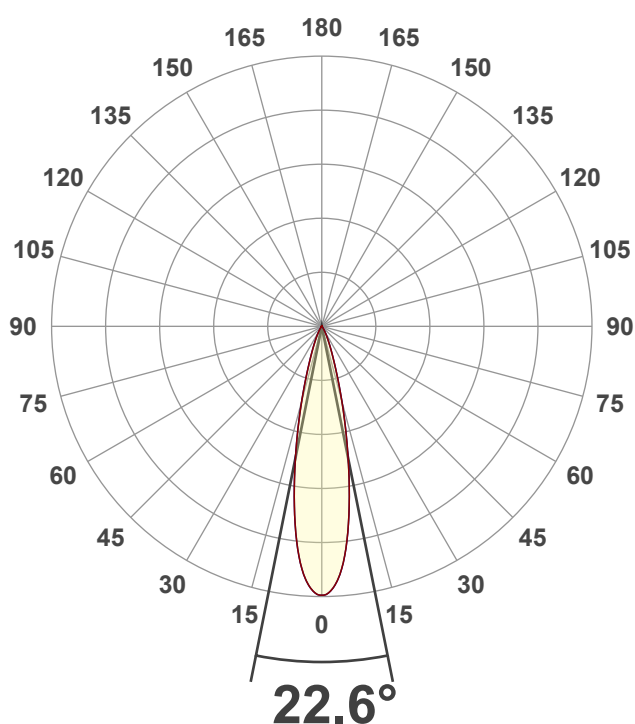
MSF-MW-HE27G1-15G1-X-D1

Date and time:

31/01/2025 16:03:49

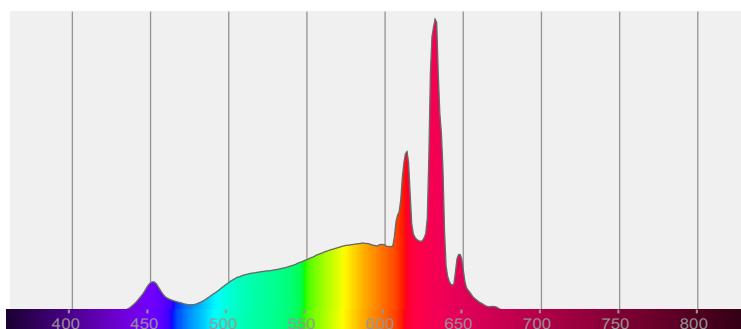
Description:

IP65 LED Downlight

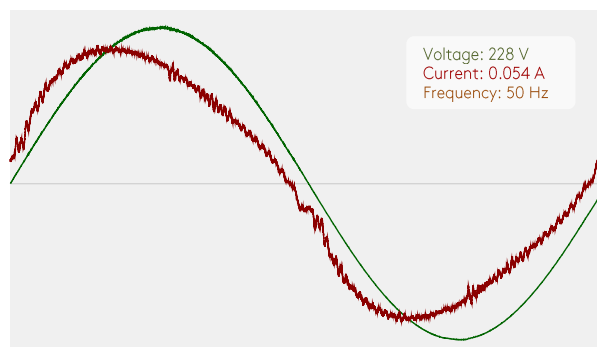


CIE 1931  
x: 0.462  
y: 0.413

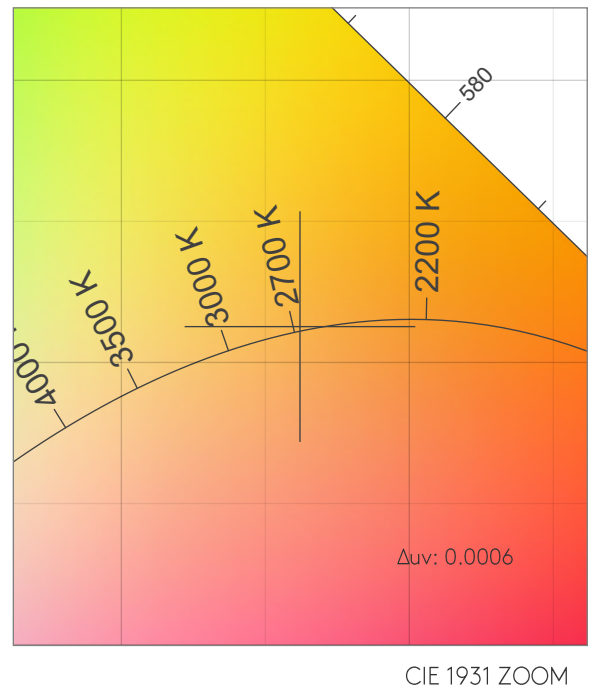
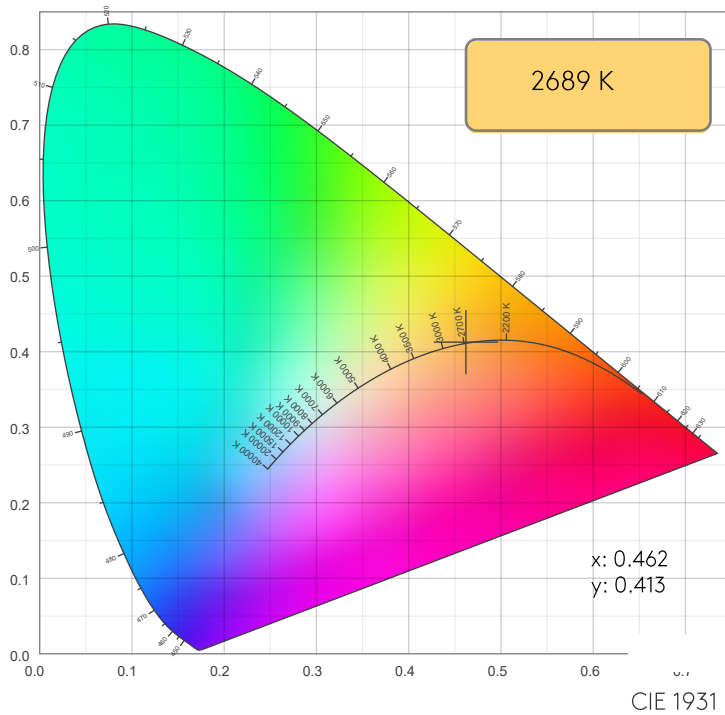
## SPECTRA



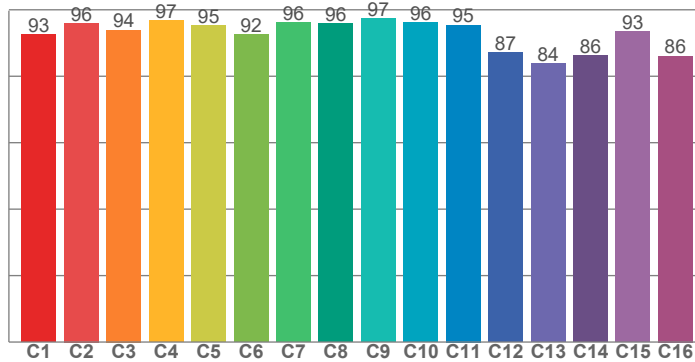
## POWER



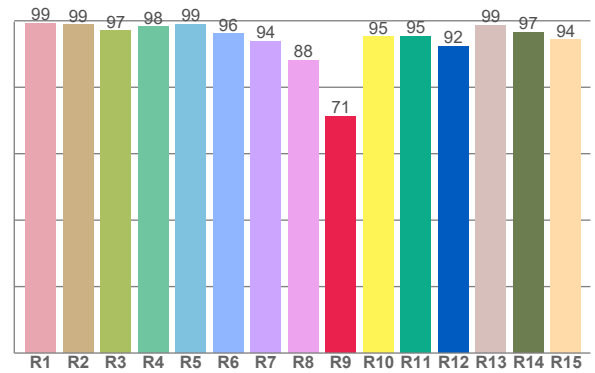
## COLOR DETAILS



TM30: 93.3



CRI: 96.2 (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
99.1	98.8	97.0	98.2	98.9	96.1	93.8	88.1	71.2	95.2	95.3	92.3	98.7	96.6	94.3

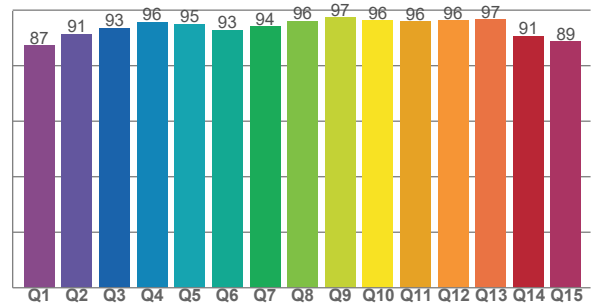
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
92.6	96.0	93.9	96.8	95.4	92.4	96.2	95.9	97.4	96.3	95.4	87.0	83.9	86.2	93.4	86.1

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
87.2	91.4	93.5	95.7	95.1	92.8	94.1	96.1	97.3	96.2	95.9	96.3	96.7	90.7	88.7

CQS: 92.8



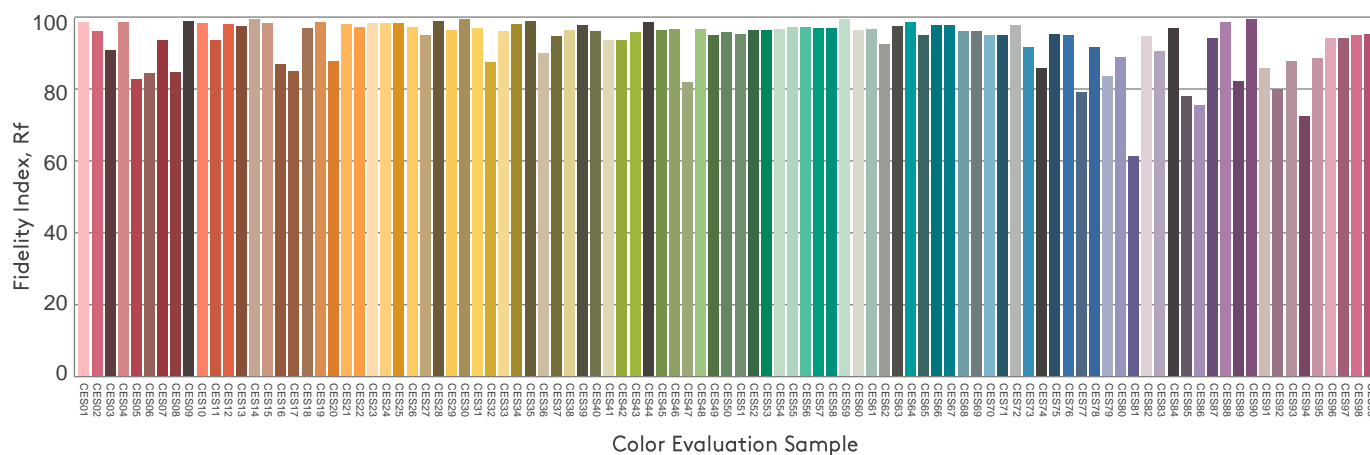
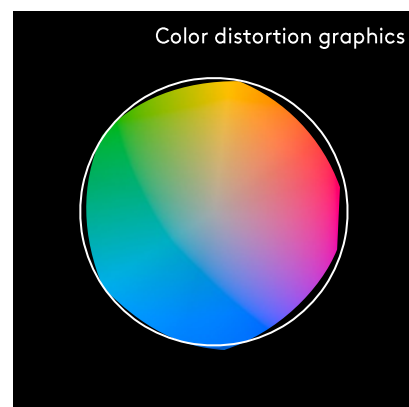
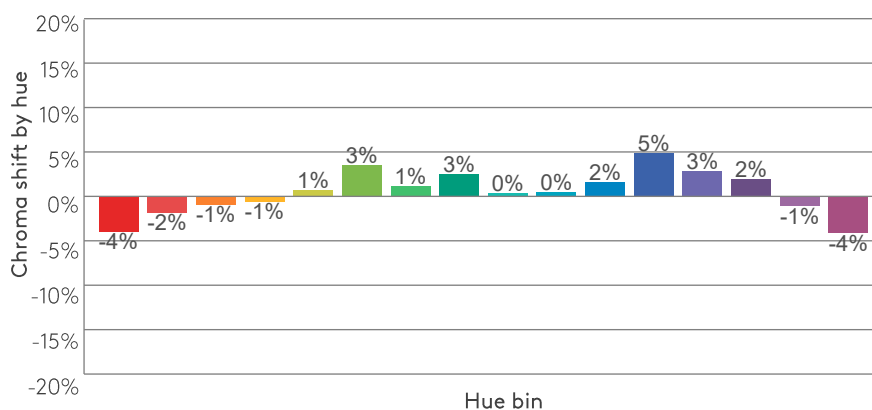
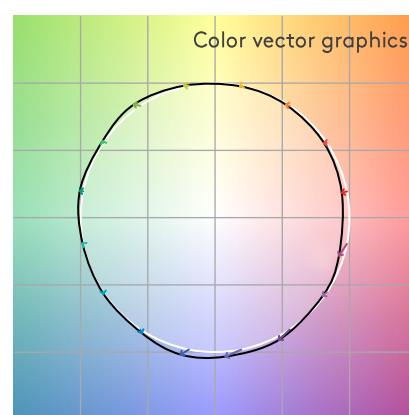
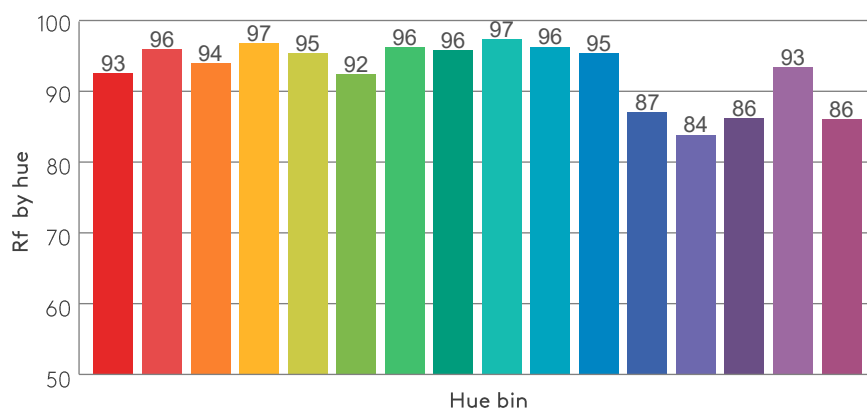
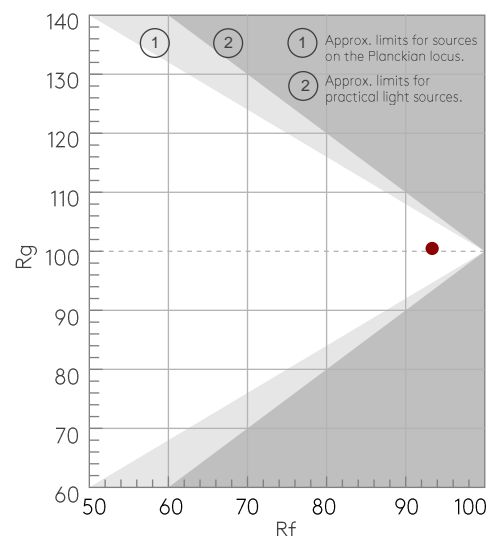
## COLOR PARAMETERS

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 deviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
2689 K	96.2	71.2	93.3	100.5	92.8	0.462	0.413	0.263	0.352	0.0006

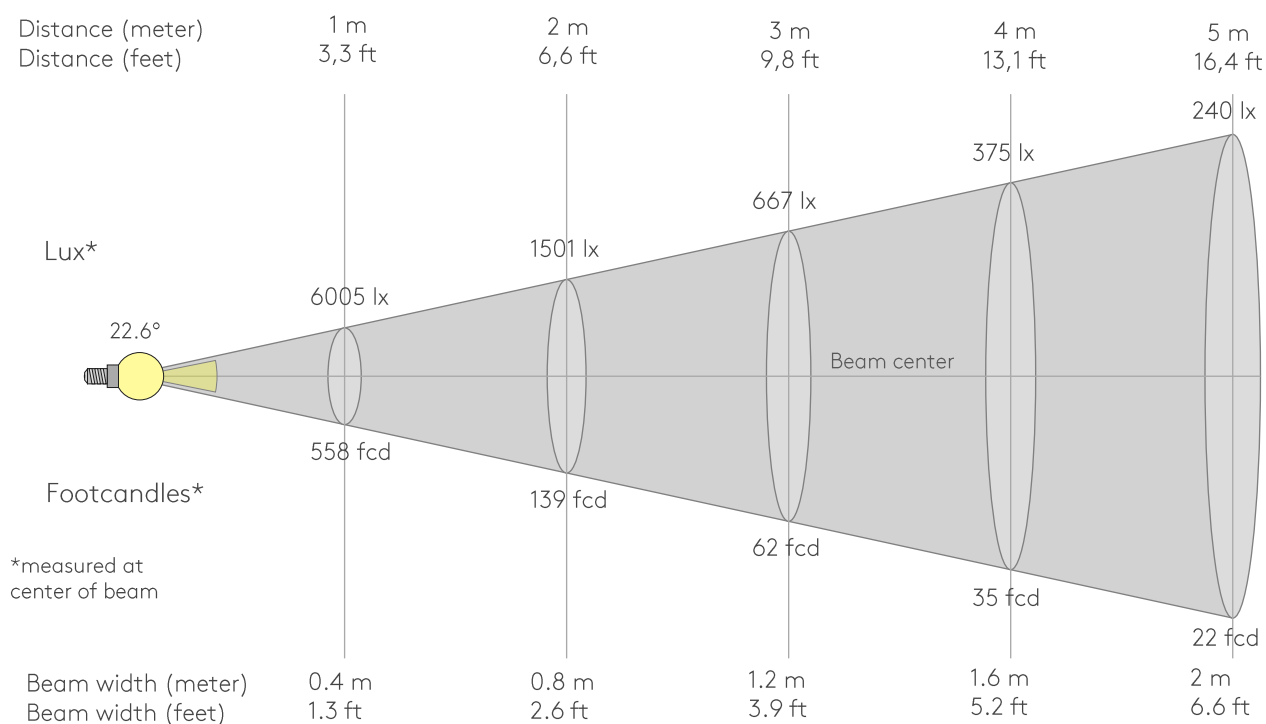
Rf 93.3  
Fidelity index Rf

Rg 100.5  
Gammut index Rg

Hue Bin	Rf	Graphic shifts (%)	
		Chroma	Hue
1	93	-4%	0%
2	96	-2%	1%
3	94	-1%	3%
4	97	-1%	1%
5	95	1%	3%
6	92	3%	4%
7	96	1%	-1%
8	96	3%	0%
9	97	0%	0%
10	96	0%	1%
11	95	2%	2%
12	87	5%	-5%
13	84	3%	-12%
14	86	2%	-11%
15	93	-1%	-4%
16	86	-4%	-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
6005lx	1501lx	667lx	375lx	240lx	167lx	123lx	94lx	74lx	60lx	50lx	42lx	36lx	31lx	27lx	23lx	21lx	19lx	17lx	15lx
557.9fcd	139.5fcd	62fcd	34.9fcd	22.3fcd	15.5fcd	11.4fcd	8.7fcd	6.9fcd	5.6fcd	4.6fcd	3.9fcd	3.3fcd	2.8fcd	2.5fcd	2.2fcd	1.9fcd	1.7fcd	1.5fcd	1.4fcd

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°
6005	5905	5592	5056	4330	3523	2740	2047	1463	1020	720	517	372	267	191	137	98	70	49	34
100%	98%	93%	84%	72%	59%	46%	34%	24%	17%	12%	9%	6%	4%	3%	2%	2%	1%	1%	1%

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°
6005	5905	5592	5056	4330	3523	2740	2047	1463	1020	720	517	372	267	191	137	98	70	49	34
100%	98%	93%	84%	72%	59%	46%	34%	24%	17%	12%	9%	6%	4%	3%	2%	2%	1%	1%	1%

Intensities in 180° c-plane

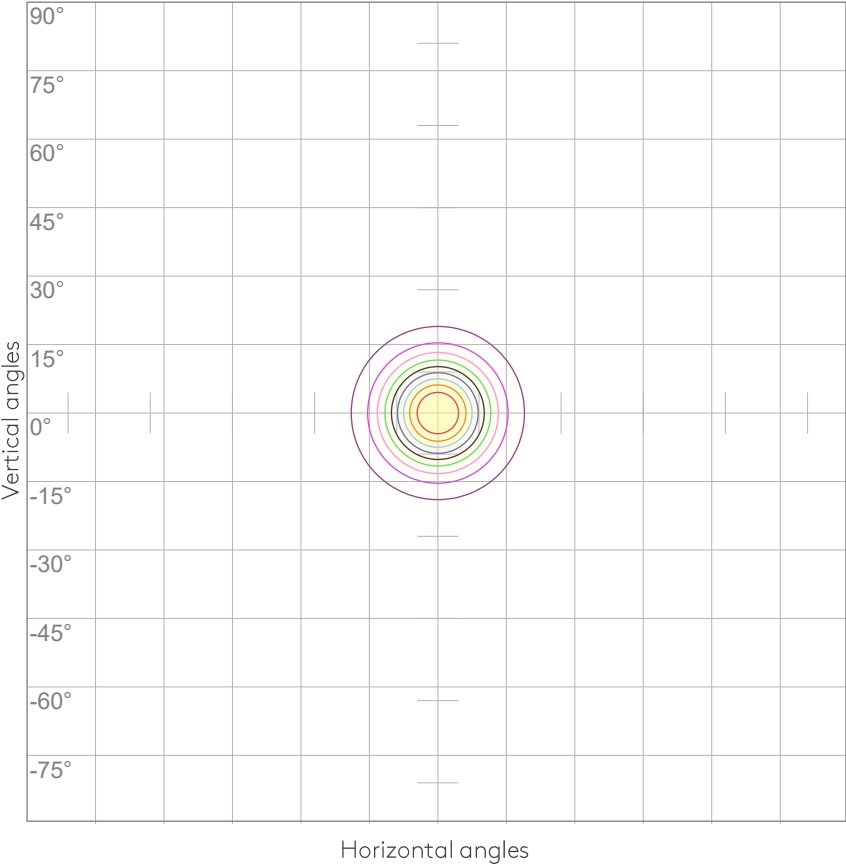
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
6005	5905	5592	5056	4330	3523	2740	2047	1463	1020	720	517	372	267	191	137	98	70	49	34
100%	98%	93%	84%	72%	59%	46%	34%	24%	17%	12%	9%	6%	4%	3%	2%	2%	1%	1%	1%

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°
6005	5905	5592	5056	4330	3523	2740	2047	1463	1020	720	517	372	267	191	137	98	70	49	34
100%	98%	93%	84%	72%	59%	46%	34%	24%	17%	12%	9%	6%	4%	3%	2%	2%	1%	1%	1%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
22.6°	42.2°	58.9°	99.5%	98.9%

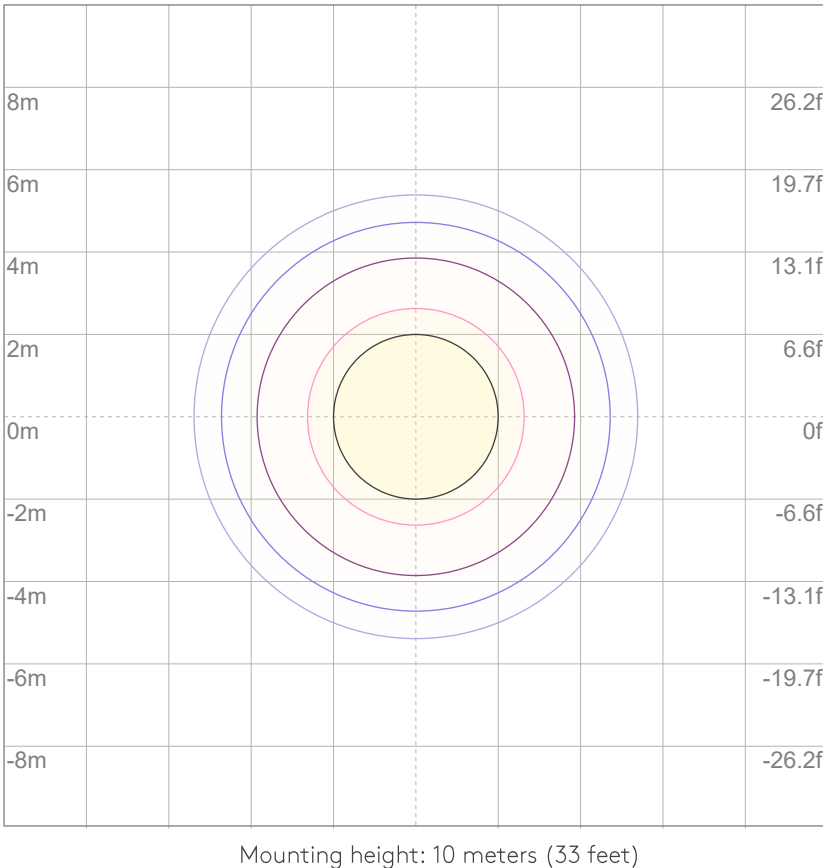
ISO CANDELA DIAGRAM



10%	600 cd
20%	1201 cd
30%	1801 cd
40%	2402 cd
50%	3002 cd
60%	3603 cd
70%	4203 cd
80%	4804 cd
90%	5404 cd

Conditions:  
Number of c-planes: 8  
Candela at center: 6005 cd

ISO LUX DIAGRAM



3%	1.80 lx
5%	3.00 lx
10%	6.00 lx
30%	18.0 lx
50%	{LUX_10M50} lx

Conditions:  
Number of c-planes: 8  
Lux at center: 60.0 lx

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

## UGR

## GLARE EVALUATION ACCORDING TO UGR

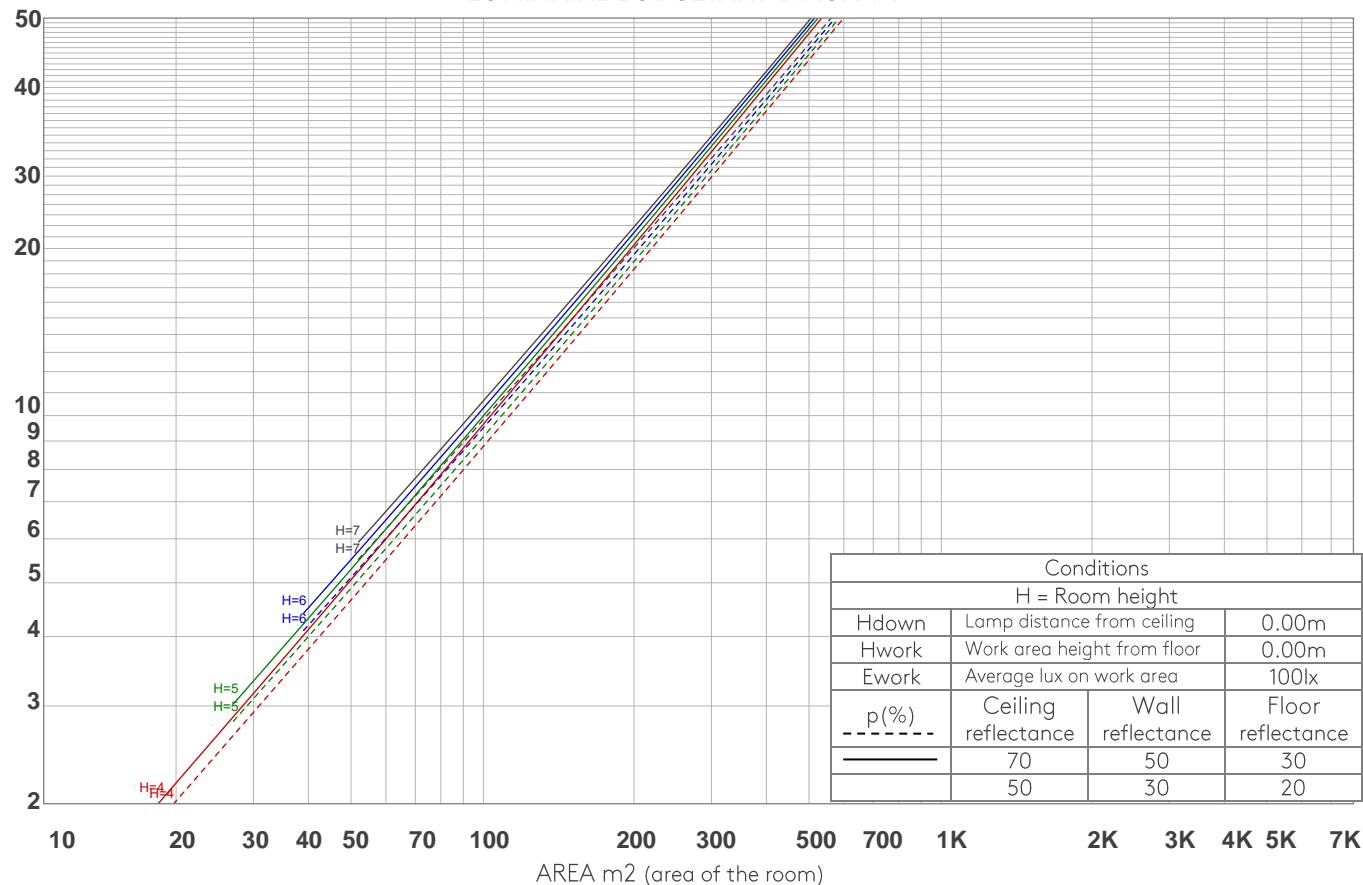
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X      Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	12.1	12.5	12.2	12.7	12.9	12.1	12.5	12.2	12.7	12.9
	3H	11.9	12.4	12.3	12.6	12.8	11.9	12.4	12.3	12.6	12.8
	4H	11.8	12.4	12.2	12.6	12.8	11.8	12.4	12.2	12.6	12.8
	6H	11.8	12.3	12.1	12.6	12.9	11.8	12.3	12.1	12.6	12.9
	8H	11.8	12.2	12.1	12.6	12.9	11.8	12.2	12.1	12.6	12.9
	12H	11.8	12.2	12.1	12.5	12.9	11.8	12.2	12.1	12.5	12.9
4H	2H	11.8	12.4	12.2	12.6	12.8	11.8	12.4	12.2	12.6	12.8
	3H	11.8	12.2	12.1	12.6	13.0	11.8	12.2	12.1	12.6	13.0
	4H	11.7	12.1	12.1	12.5	13.0	11.7	12.1	12.1	12.5	13.0
	6H	11.6	12.1	12.1	12.4	12.8	11.6	12.1	12.1	12.4	12.8
	8H	11.6	12.0	12.1	12.3	12.7	11.6	12.0	12.1	12.3	12.7
	12H	11.5	11.9	12.1	12.3	12.7	11.5	11.9	12.1	12.3	12.7
8H	4H	11.6	12.0	12.1	12.3	12.7	11.6	12.0	12.1	12.3	12.7
	6H	11.5	11.8	12.0	12.3	12.8	11.5	11.8	12.0	12.3	12.8
	8H	11.6	11.8	12.1	12.3	12.9	11.6	11.8	12.1	12.3	12.9
	12H	11.5	11.7	12.1	12.2	12.8	11.5	11.7	12.1	12.2	12.8
12H	4H	11.5	11.8	12.0	12.2	12.7	11.5	11.8	12.0	12.2	12.7
	6H	11.5	11.7	12.1	12.3	12.9	11.5	11.7	12.1	12.3	12.9
	8H	11.5	11.7	12.1	12.2	12.8	11.5	11.7	12.1	12.2	12.8
Variation of the observer position for the luminaire distance S											
S = 1.0H		5.1 / -5.2					5.1 / -5.2				
S = 1.5H		7.7 / -6.3					7.7 / -6.3				
S = 2.0H		9.6 / -7.8					9.6 / -7.8				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 1149 lm total luminous flux											

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	111	111	111	106	106	106	102	102	102	100
1	115	113	111	109	113	111	109	108	107	106	104	103	102	101	100	99	98	97
2	111	108	105	102	109	106	104	101	103	101	99	100	98	97	97	96	95	93
3	108	103	100	97	106	102	99	96	100	97	95	97	95	93	95	93	92	91
4	105	99	96	93	103	98	95	92	96	93	91	95	92	90	93	91	89	88
5	102	96	92	89	100	95	91	89	94	90	88	92	89	87	91	88	86	85
6	99	93	89	86	98	92	88	86	91	88	85	90	87	85	88	86	84	83
7	96	90	86	83	95	89	86	83	88	85	83	87	84	82	86	84	82	81
8	94	87	83	81	93	87	83	81	86	83	80	85	82	80	84	82	80	79
9	91	85	81	78	91	85	81	78	84	80	78	83	80	78	82	80	78	77
10	89	83	79	76	89	83	79	76	82	78	76	81	78	76	81	78	76	75

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°
450 lm	485 lm	154 lm	40.1 lm	9.56 lm	4.08 lm	1.76 lm	0.566 lm	0.260 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0.189 lm	0.200 lm	0.185 lm	0.221 lm	0.261 lm	0.463 lm	0.630 lm	0.497 lm	0.105 lm



FLICKER

FLICKER CURVE (COMPLETE SAMPLED)



FLICKER FRAME (FRAME OF ONE FLICKER



FLICKER FFT (FREQUENCY SCOPE OF FLICKER



FLICKER RESULTS:

Flicker frequency:	n/a Hz
Flicker index:	n/a
Flicker percentage:	n/a %
SVM: (Visual flicker)	n/a

FLICKER CONDITIONS:

Sample rate:	n/a samples/second
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