

# PHOTOMETRIC TEST REPORT

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MINIMA PRO SQUARE  
ADJUSTABLE - MATT WHITE -  
4001395

astro

# MINIMA PRO SQUARE ADJUSTABLE - MATT

astro

## LIGHT EFFICIENCY:

69 Lumen/Watt

## LIGHT QUALITY:

CRI: 94.7

## COLOR TEMPERATURE:

2702 K

OUTPUT: 820 lm

PEAK: 4478 cd

POWER: 11.8 W

PF: 0.95



Tracking number: [n/a](#)

Product name:

Minima Pro Square Adjustable - Matt  
White - 4001395

Item number:

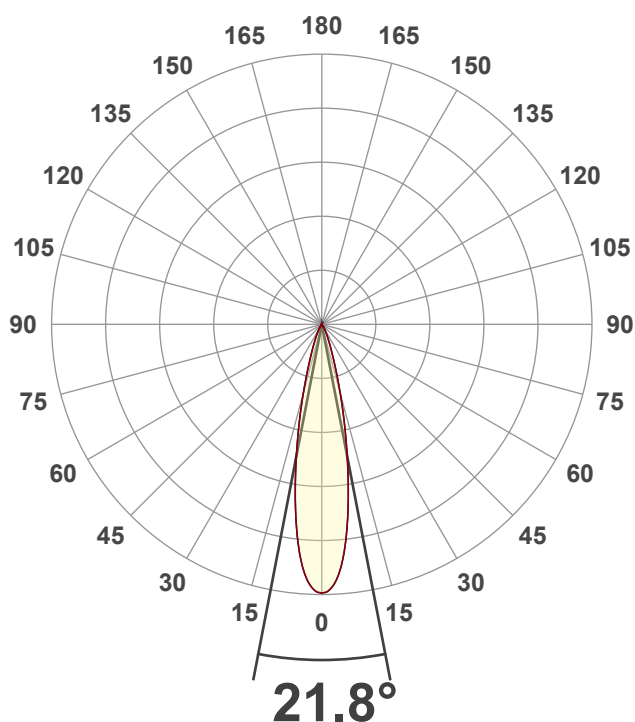
MSA-MW-HQ27G1-15G1-X-D1

Date and time:

04/02/2025 15:31:04

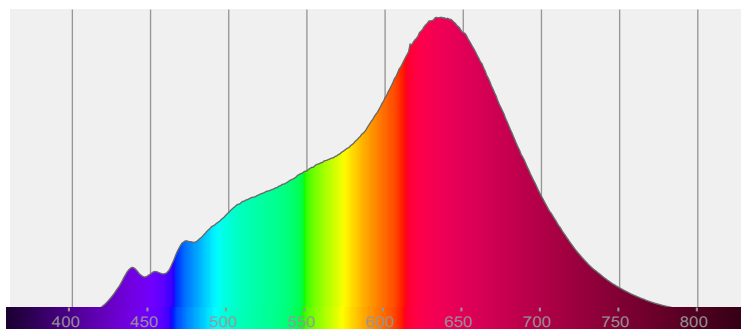
Description:

IP20 LED Downlight

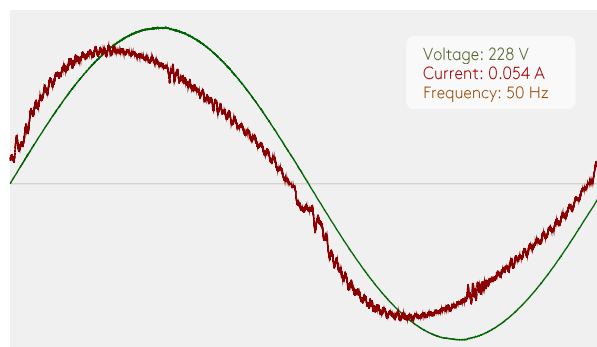


CIE 1931  
x: 0.460  
y: 0.410

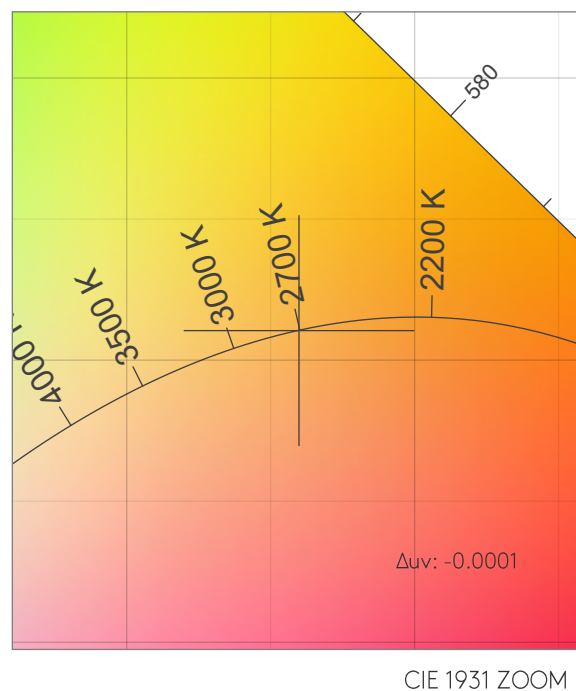
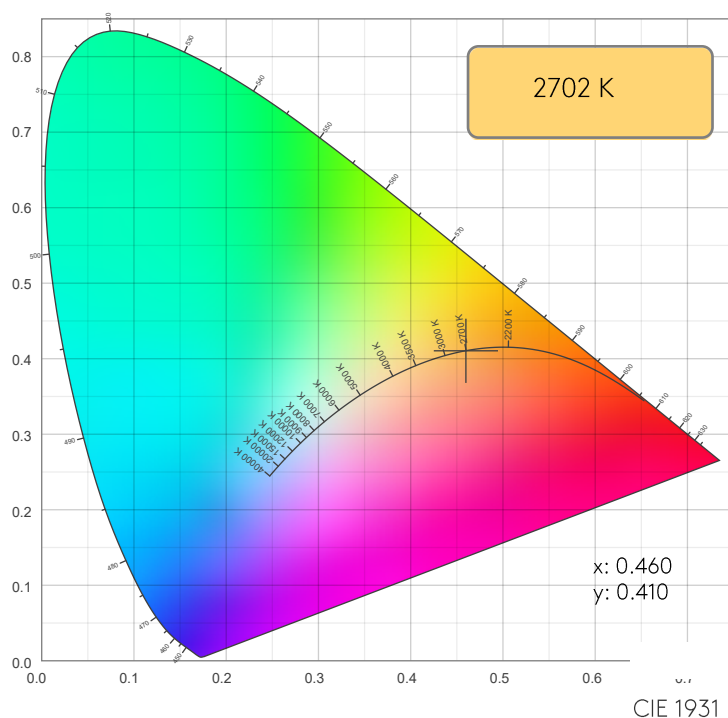
## SPECTRA



## POWER

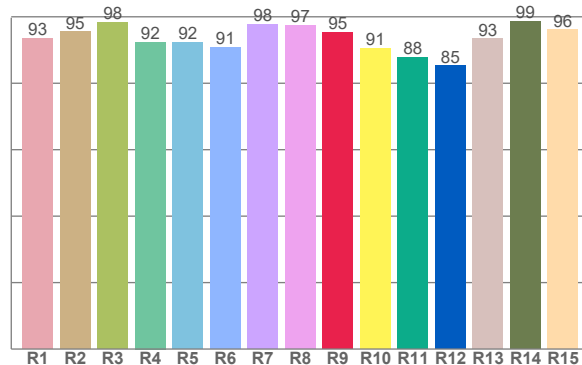
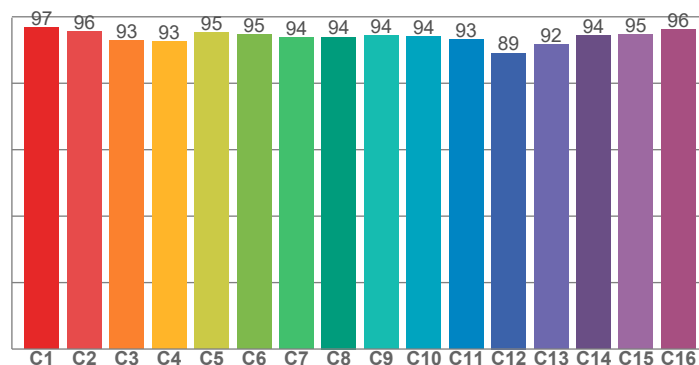


## COLOR DETAILS



TM30: 94.1

CRI: 94.7 (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
93.5	95.4	98.3	92.4	92.3	90.7	97.8	97.4	95.3	90.5	87.8	85.2	93.4	98.6	96.1

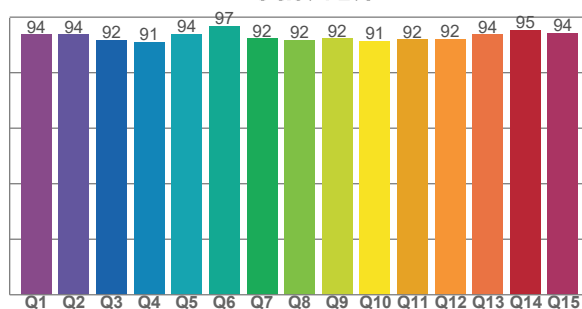
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
96.7	95.7	92.7	92.5	95.3	94.6	93.7	93.9	94.3	94.0	93.2	89.1	91.8	94.3	94.8	96.2

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
93.7	93.7	91.7	91.0	93.9	96.7	92.4	91.8	92.3	91.4	92.0	92.1	93.8	95.4	94.4

CQS: 92.8



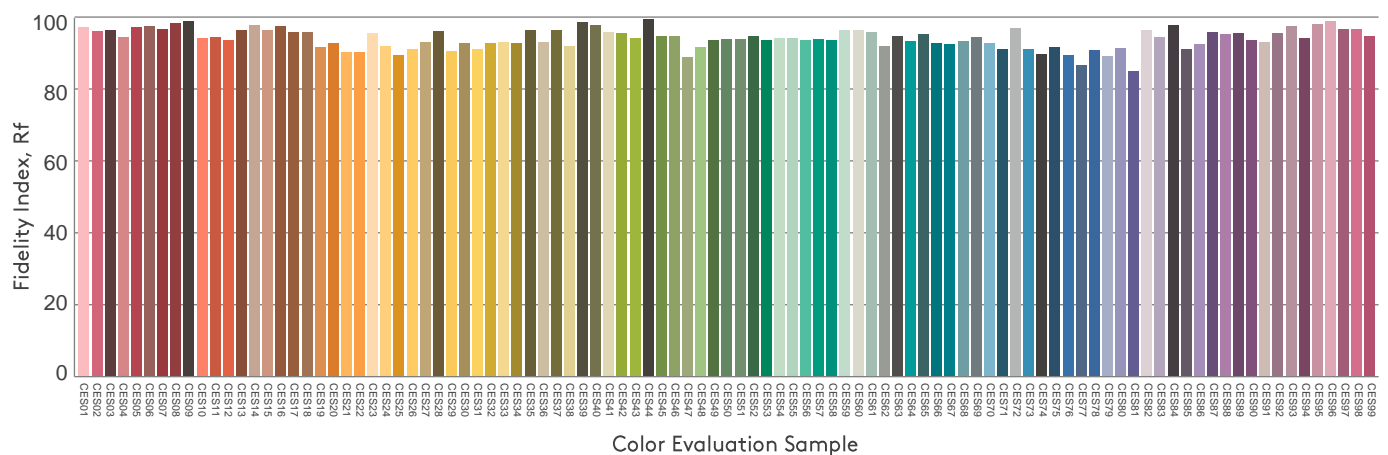
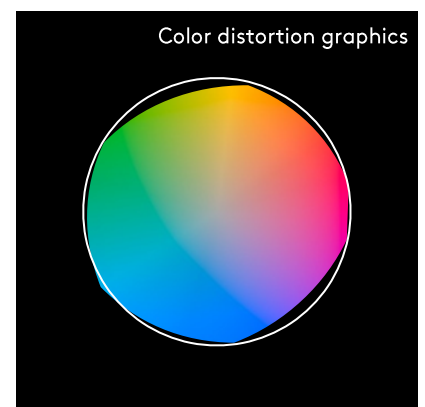
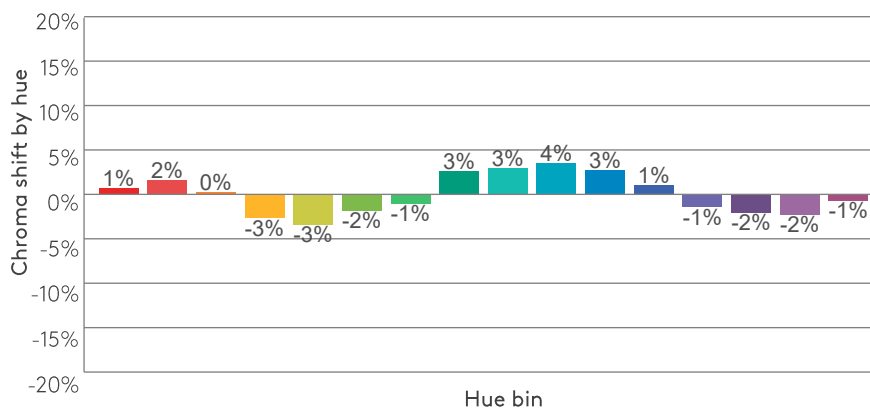
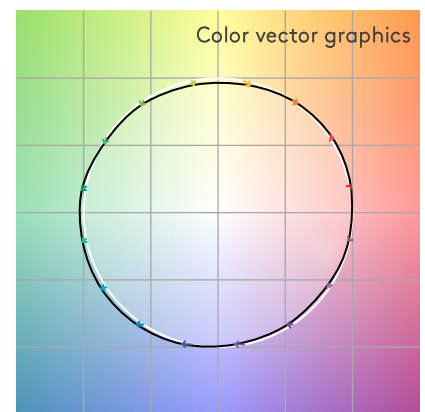
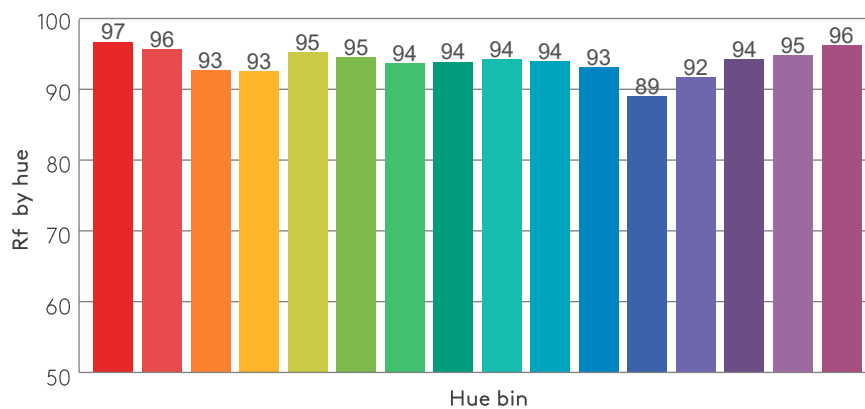
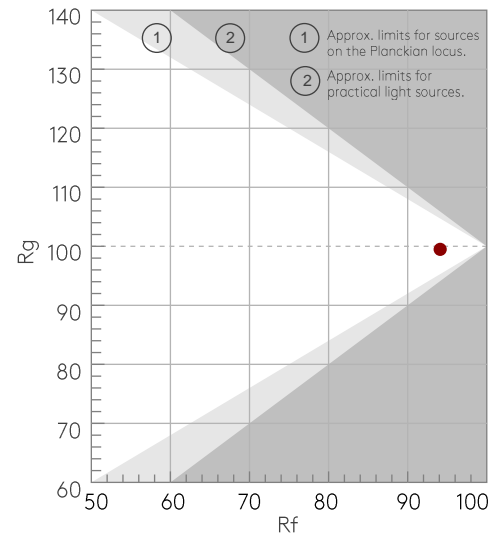
## COLOR PARAMETERS

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	$\Delta uv$
2702 K	94.7	95.3	94.1	99.5	92.8	0.460	0.410	0.263	0.352	-0.0001

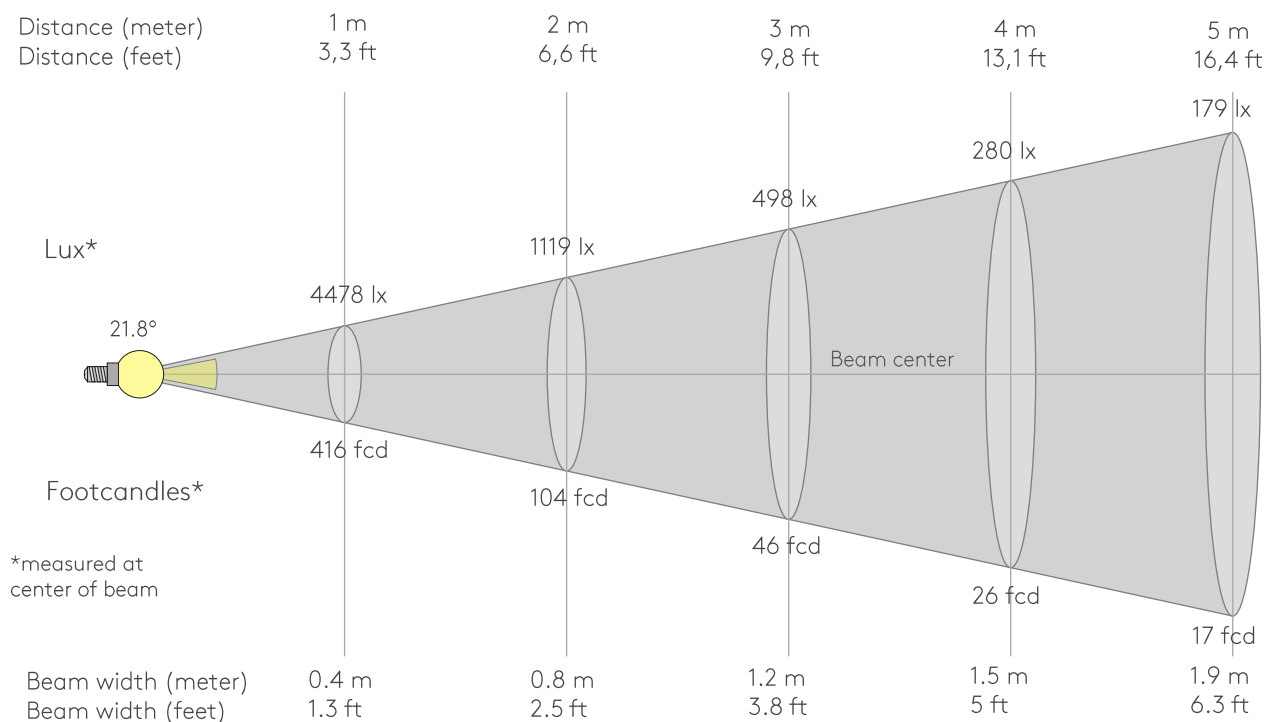
Rf 94.1  
Fidelity index Rf

Rg 99.5  
Gammut index Rg

Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	97	1%	1%
2	96	2%	-2%
3	93	0%	-4%
4	93	-3%	-5%
5	95	-3%	-1%
6	95	-2%	3%
7	94	-1%	4%
8	94	3%	3%
9	94	3%	2%
10	94	4%	-1%
11	93	3%	-4%
12	89	1%	-7%
13	92	-1%	-7%
14	94	-2%	-3%
15	95	-2%	1%
16	96	-1%	-1%



# 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
4478lx	1119lx	498lx	280lx	179lx	124lx	91lx	70lx	55lx	45lx	37lx	31lx	26lx	23lx	20lx	17lx	15lx	14lx	12lx	11lx
416fcd	104fcd	46.2fcd	26fcd	16.6fcd	11.6fcd	8.5fcd	6.5fcd	5.1fcd	4.2fcd	3.4fcd	2.9fcd	2.5fcd	2.1fcd	1.8fcd	1.6fcd	1.4fcd	1.3fcd	1.2fcd	1fcd

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°
4478	4402	4153	3714	3137	2513	1925	1411	986	682	478	342	247	180	133	100	76	61	46	37
100%	98%	93%	83%	70%	56%	43%	32%	22%	15%	11%	8%	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°
4478	4402	4153	3714	3137	2513	1925	1411	986	682	478	342	247	180	133	100	76	61	46	37
100%	98%	93%	83%	70%	56%	43%	32%	22%	15%	11%	8%	6%	4%	3%	2%	2%	1%	1%	1%

Intensities in 180° c-plane

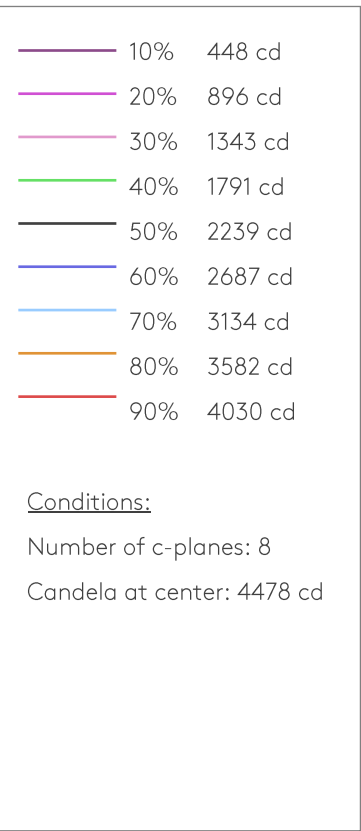
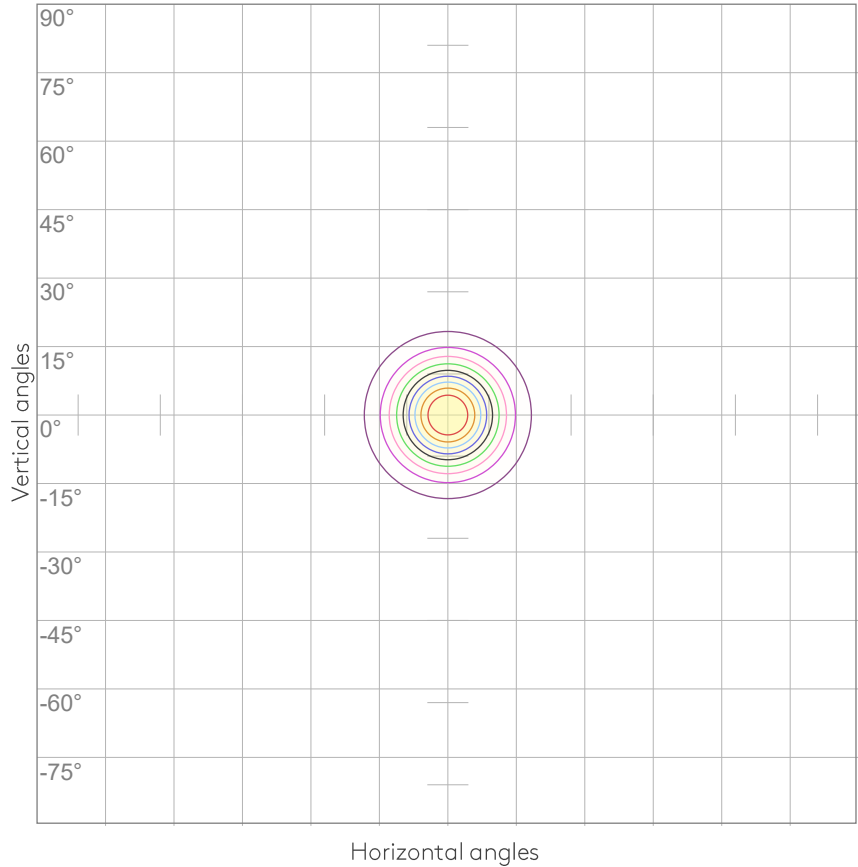
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
4478	4402	4153	3714	3137	2513	1925	1411	986	682	478	342	247	180	133	100	76	61	46	37
100%	98%	93%	83%	70%	56%	43%	32%	22%	15%	11%	8%	6%	4%	3%	2%	2%	1%	1%	1%

Intensities in 270° c-plane

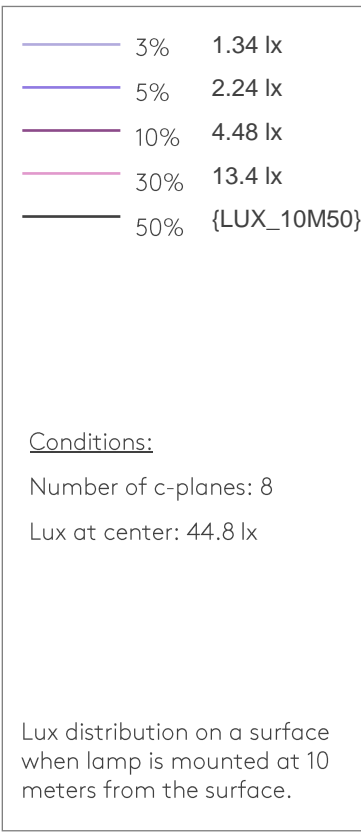
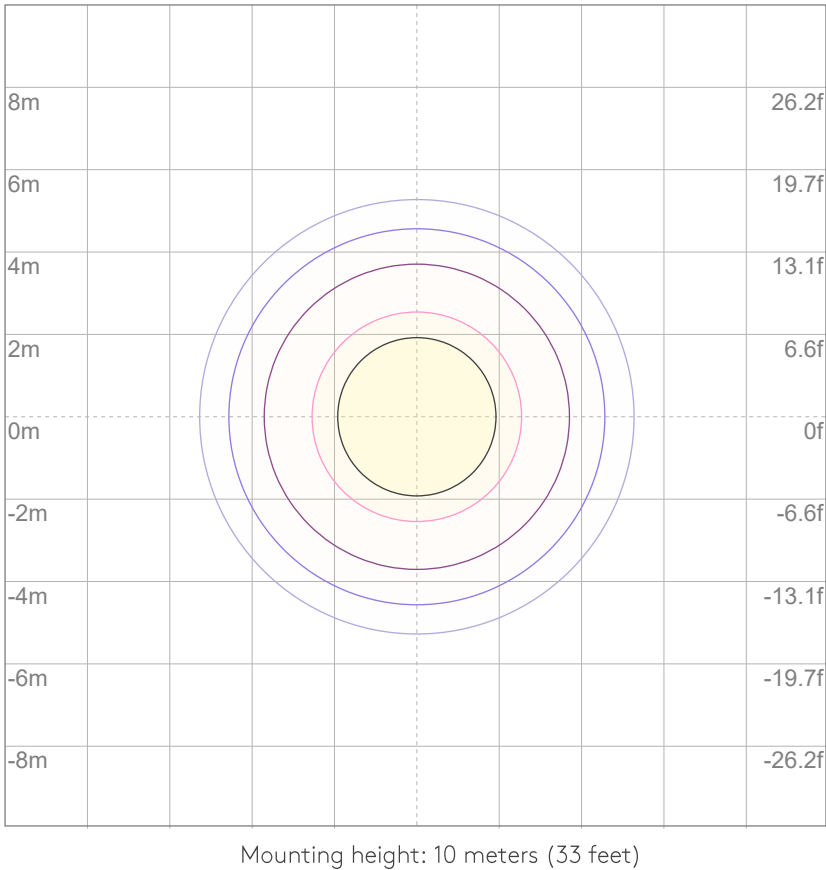
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
4478	4402	4153	3714	3137	2513	1925	1411	986	682	478	342	247	180	133	100	76	61	46	37
100%	98%	93%	83%	70%	56%	43%	32%	22%	15%	11%	8%	6%	4%	3%	2%	2%	1%	1%	1%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
21.8°	40.8°	58.4°	99.6%	98.7%

ISO CANDELA DIAGRAM



ISO LUX DIAGRAM



## 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	12.5	12.9	12.6	13.1	13.3	12.5	12.9	12.6	13.1	13.3
	3H	12.3	12.8	12.6	13.0	13.2	12.3	12.8	12.6	13.0	13.2
	4H	12.2	12.7	12.6	12.9	13.2	12.2	12.7	12.6	12.9	13.2
	6H	12.2	12.6	12.5	12.9	13.3	12.2	12.6	12.5	12.9	13.3
	8H	12.1	12.5	12.4	12.9	13.3	12.1	12.5	12.4	12.9	13.3
	12H	12.1	12.5	12.4	12.8	13.3	12.1	12.5	12.4	12.8	13.3
4H	2H	12.2	12.7	12.6	13.0	13.2	12.2	12.7	12.6	13.0	13.2
	3H	12.1	12.5	12.5	12.9	13.3	12.1	12.5	12.5	12.9	13.3
	4H	12.0	12.4	12.4	12.8	13.3	12.0	12.4	12.4	12.8	13.3
	6H	11.9	12.4	12.4	12.7	13.0	11.9	12.4	12.4	12.7	13.0
	8H	11.8	12.3	12.4	12.6	13.0	11.8	12.3	12.4	12.6	13.0
	12H	11.8	12.1	12.3	12.5	13.0	11.8	12.1	12.3	12.5	13.0
8H	4H	11.8	12.3	12.4	12.6	13.0	11.8	12.3	12.4	12.6	13.0
	6H	11.8	12.0	12.3	12.5	13.0	11.8	12.0	12.3	12.5	13.0
	8H	11.8	12.0	12.3	12.5	13.1	11.8	12.0	12.3	12.5	13.1
	12H	11.7	11.9	12.3	12.4	13.0	11.7	11.9	12.3	12.4	13.0
12H	4H	11.8	12.1	12.3	12.5	13.0	11.8	12.1	12.3	12.5	13.0
	6H	11.8	12.0	12.3	12.5	13.1	11.8	12.0	12.3	12.5	13.1
	8H	11.7	11.9	12.3	12.4	13.0	11.7	11.9	12.3	12.4	13.0
Variation of the observer position for the luminaire distance S											
S = 1.0H		4.6 / -6.7					4.6 / -6.7				
S = 1.5H		7.1 / -9.3					7.1 / -9.3				
S = 2.0H		9.0 / -11.8					9.0 / -11.8				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 820 lm total luminous flux											

# MINIMA PRO SQUARE ADJUSTABLE - MATT

## LIGHT PLANNING

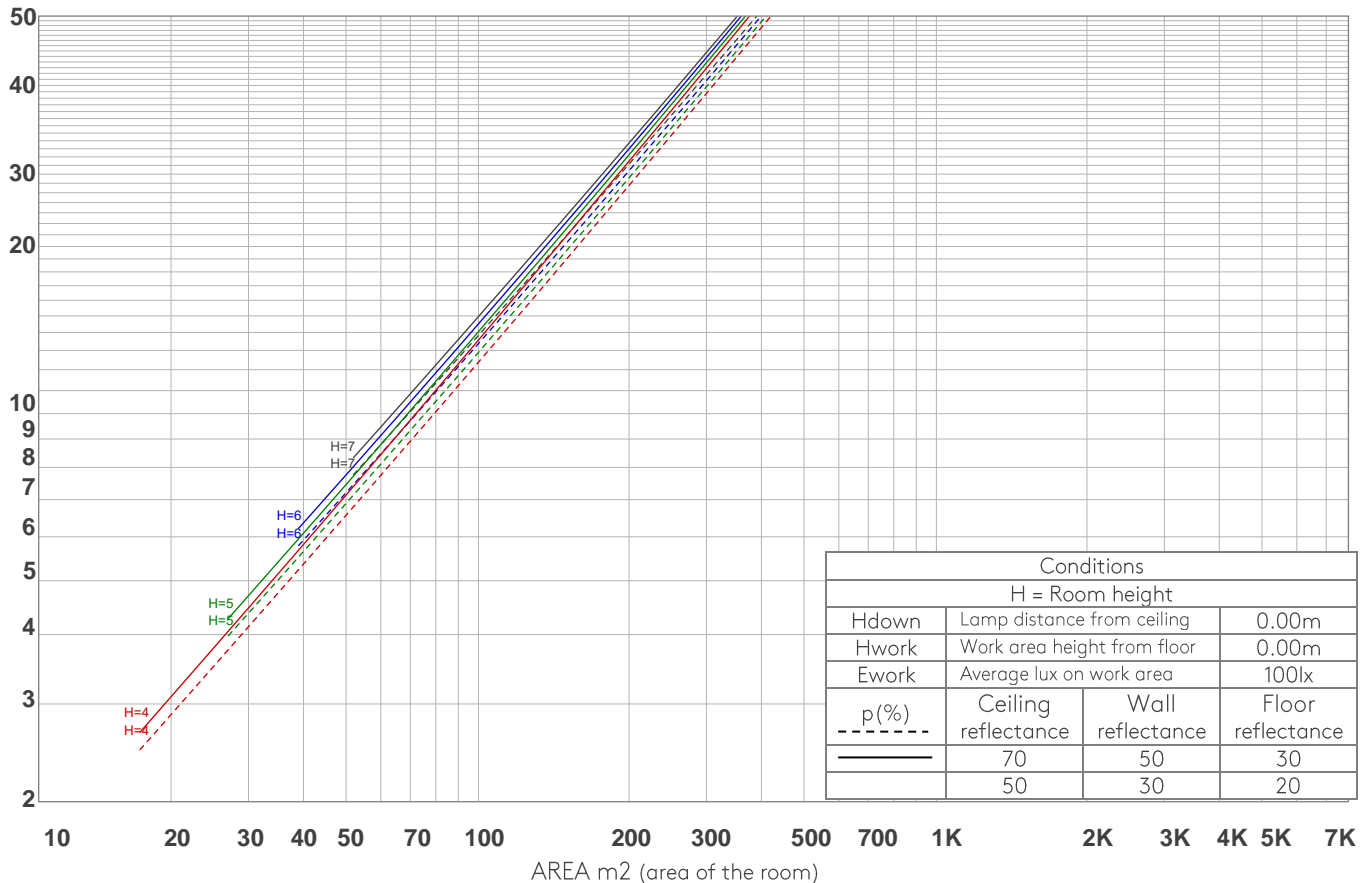
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### COEFFICIENTS OF UTILIZATION

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	103	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	93	90	88	92	89	87	91	88	86	85
6	99	93	89	86	98	92	88	86	91	87	85	90	87	84	88	86	84	83
7	96	90	86	83	95	89	86	83	88	85	82	87	84	82	86	84	82	81
8	94	87	83	81	93	87	83	80	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	88	82	79	76	82	78	76	81	78	76	81	78	76	75

LAMPS (number of lamps)

### LUMINAIRE BUDGETARY DIAGRAM



### ZONAL LUMEN SUMMARY

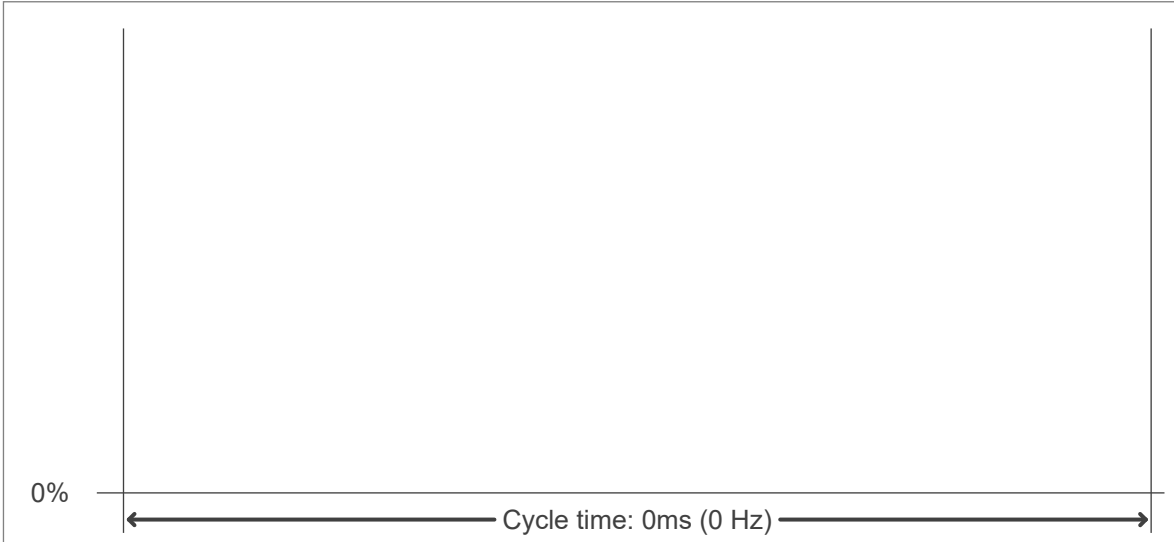
0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
329 lm	335 lm	104 lm	34.5 lm	11.1 lm	3.62 lm	1.19 lm	0.228 lm	0.082 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0.052 lm	0.052 lm	0.053 lm	0.068 lm	0.122 lm	0.269 lm	0.403 lm	0.309 lm	0.063 lm



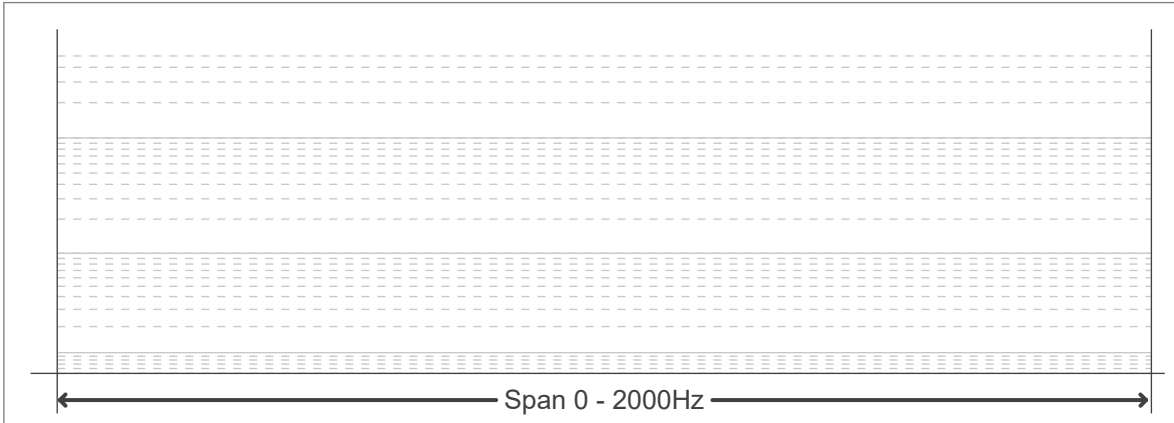
FLICKER CURVE (COMPLETE SAMPLED)



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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