

# PHOTOMETRIC TEST REPORT

---

MINIMA PRO ROUND FIXED IP65  
- MATT WHITE - 4000259

astro

# MINIMA PRO ROUND FIXED IP65 - MATT

astro

## LIGHT EFFICIENCY:

71 Lumen/Watt

## LIGHT QUALITY:

CRI: 94.7

## COLOR TEMPERATURE:

2709 K

OUTPUT: 831 lm

PEAK: 2984 cd

POWER: 11.7 W

PF: 0.95



Tracking number: [n/a](#)

Product name:

Minima Pro Round Fixed IP65 - Matt White  
- 4000259

Item number:

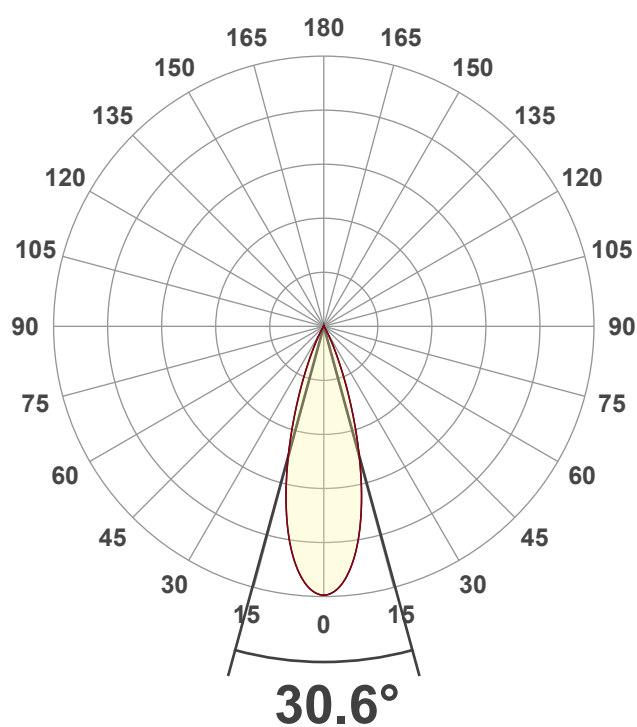
MRF-MW-HQ27G1-30G1-X-D1

Date and time:

17/01/2025 13:59:53

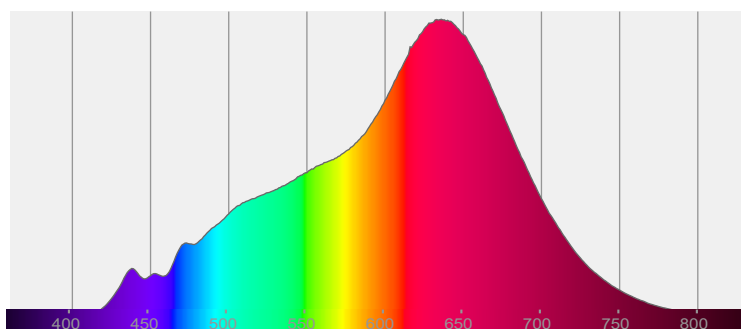
Description:

IP65 LED Downlight

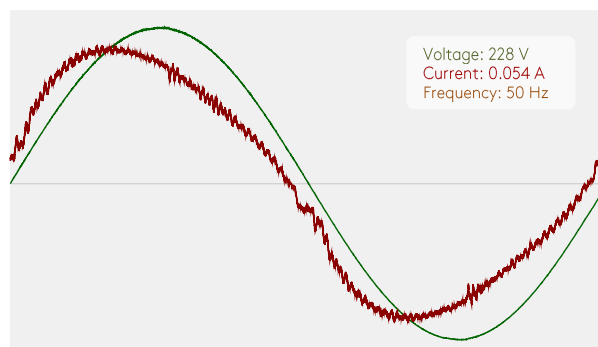


CIE 1931  
x: 0.459  
y: 0.410

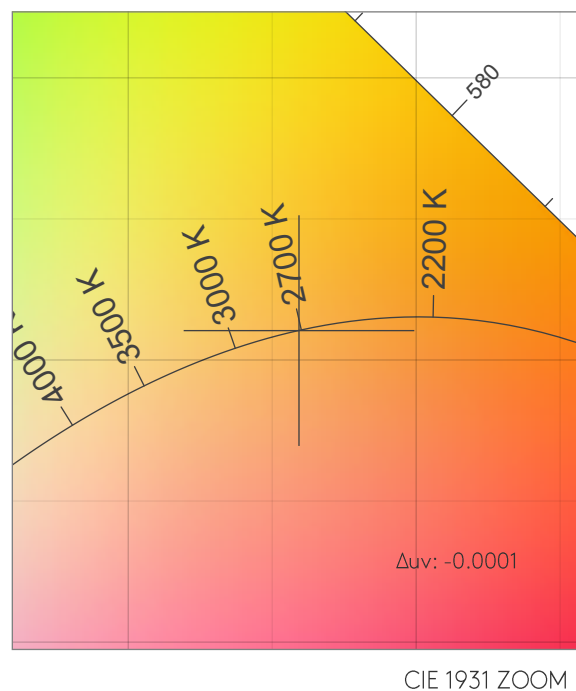
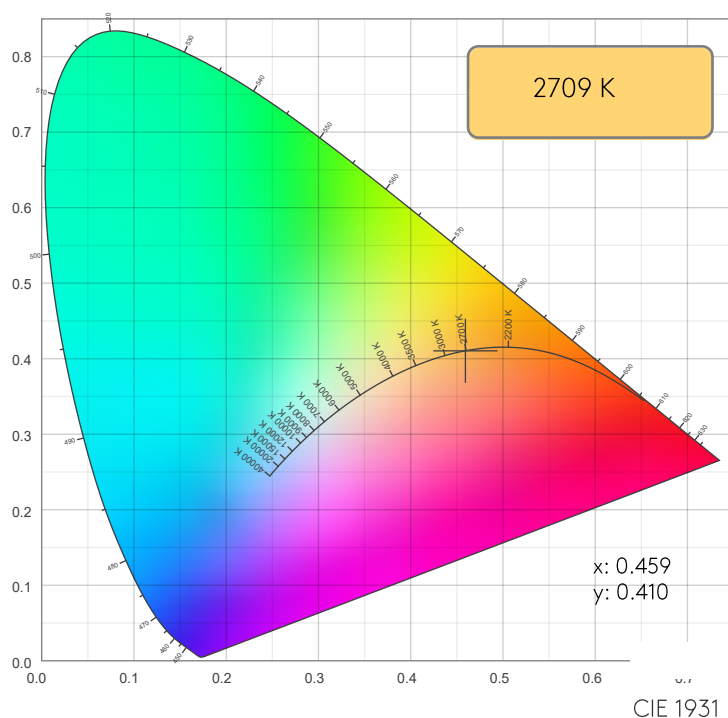
## SPECTRA



## POWER

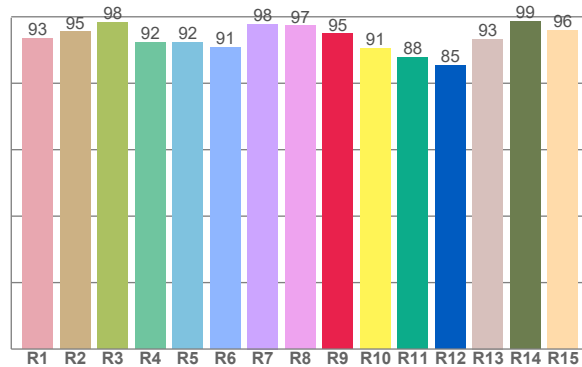
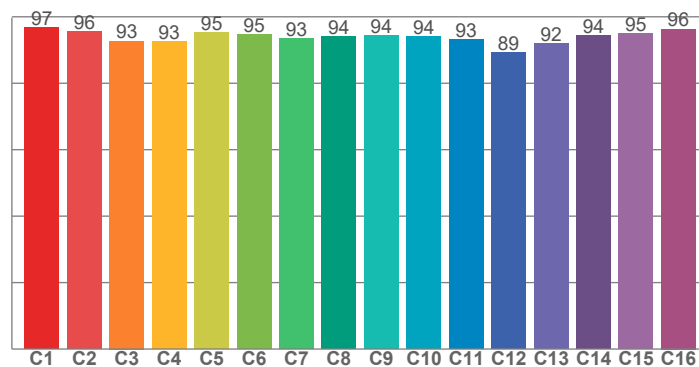


## COLOR DETAILS



TM30: 94.2

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
93.4	95.5	98.3	92.3	92.3	90.8	97.8	97.3	94.8	90.5	87.8	85.3	93.3	98.6	96.0

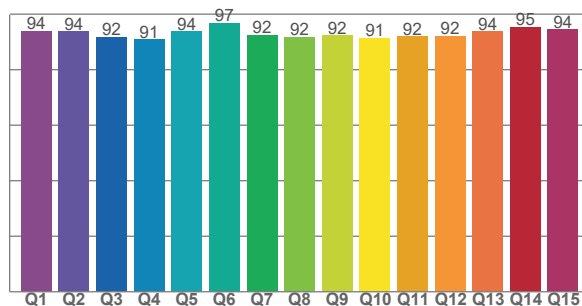
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
96.8	95.7	92.7	92.6	95.4	94.7	93.4	93.9	94.4	94.0	93.2	89.2	91.9	94.4	94.9	96.3

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
93.9	93.8	91.7	91.0	93.8	96.8	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	$\Delta uv$
2709 K	94.7	94.8	94.2	99.5	92.8	0.459	0.410	0.262	0.351	-0.0001

# MINIMA PRO ROUND FIXED IP65 - MATT

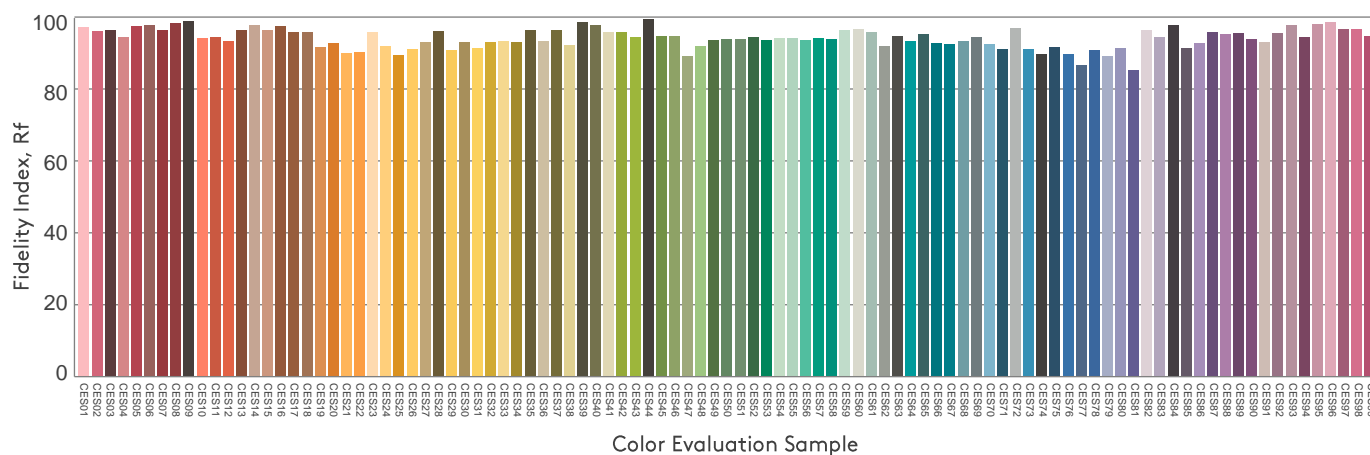
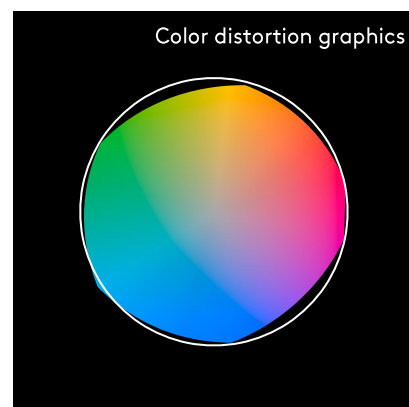
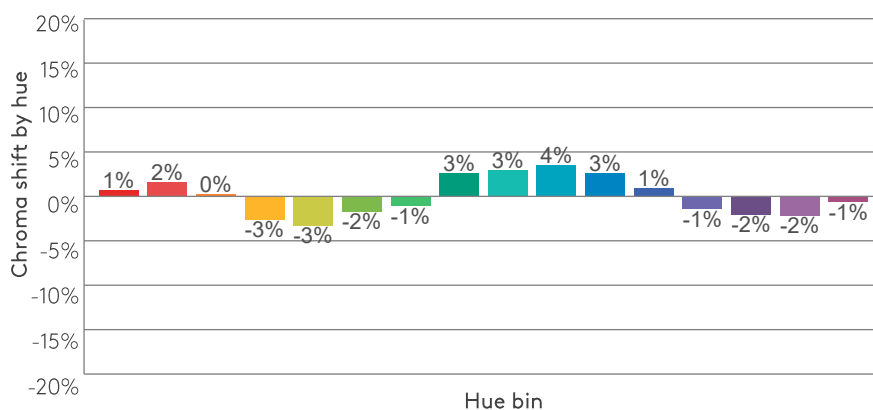
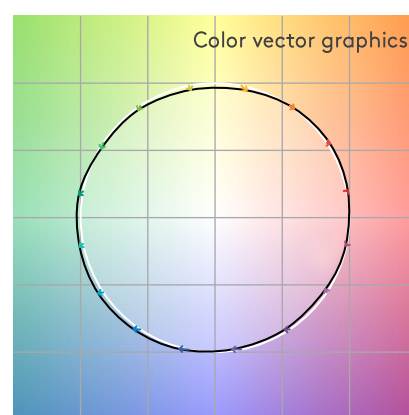
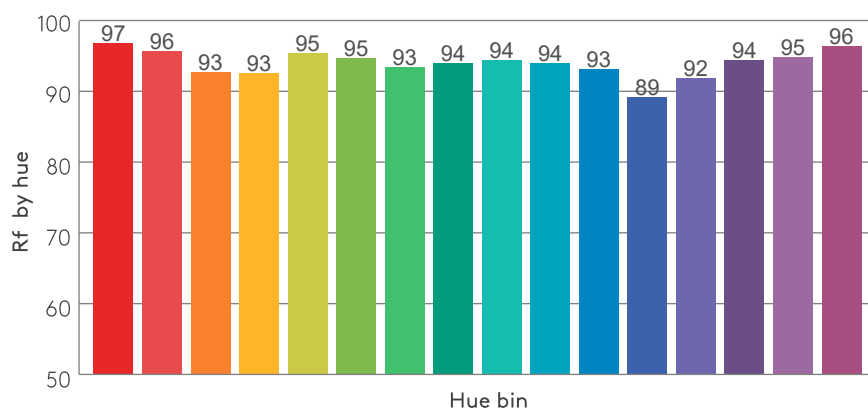
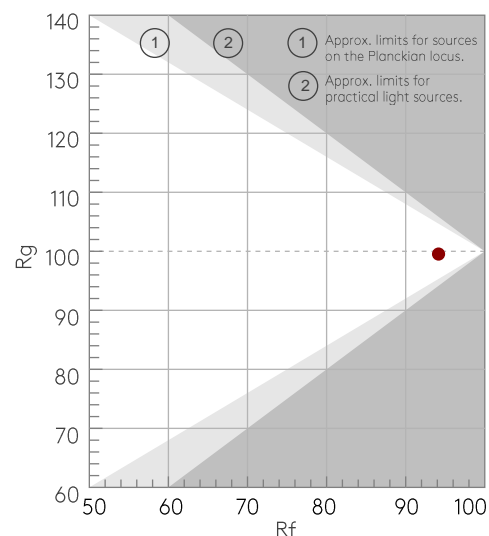
## TM30 DETAILS

astro

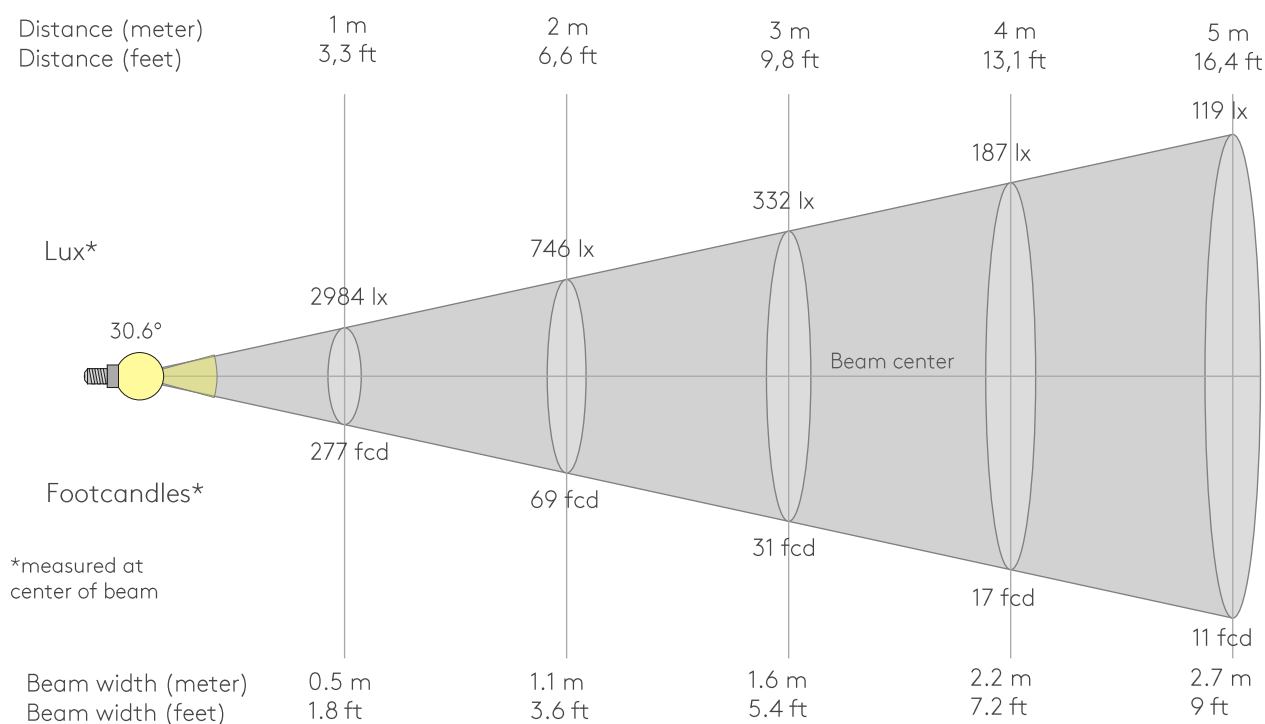
Rf 94.2  
Fidelity index Rf

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%	-4%
5	95	-3%	-1%
6	95	-2%	3%
7	93	-1%	4%
8	94	3%	3%
9	94	3%	2%
10	94	4%	-2%
11	93	3%	-4%
12	89	1%	-7%
13	92	-1%	-6%
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
2984lx	746lx	332lx	187lx	119lx	83lx	61lx	47lx	37lx	30lx	25lx	21lx	18lx	15lx	13lx	12lx	10lx	9lx	8lx	7lx
277.3fcd	69.3fcd	30.8fcd	17.3fcd	11.1fcd	7.7fcd	5.7fcd	4.3fcd	3.4fcd	2.8fcd	2.3fcd	1.9fcd	1.6fcd	1.4fcd	1.2fcd	1.1fcd	1fcd	0.9fcd	0.8fcd	0.7fcd

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°
2984	2955	2870	2728	2536	2295	2013	1703	1381	1070	786	546	357	221	128	70	39	23	15	10
100%	99%	96%	91%	85%	77%	67%	57%	46%	36%	26%	18%	12%	7%	4%	2%	1%	1%	0%	0%

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°
2984	2955	2870	2728	2536	2295	2013	1703	1381	1070	786	546	357	221	128	70	39	23	15	10
100%	99%	96%	91%	85%	77%	67%	57%	46%	36%	26%	18%	12%	7%	4%	2%	1%	1%	0%	0%

Intensities in 180° c-plane

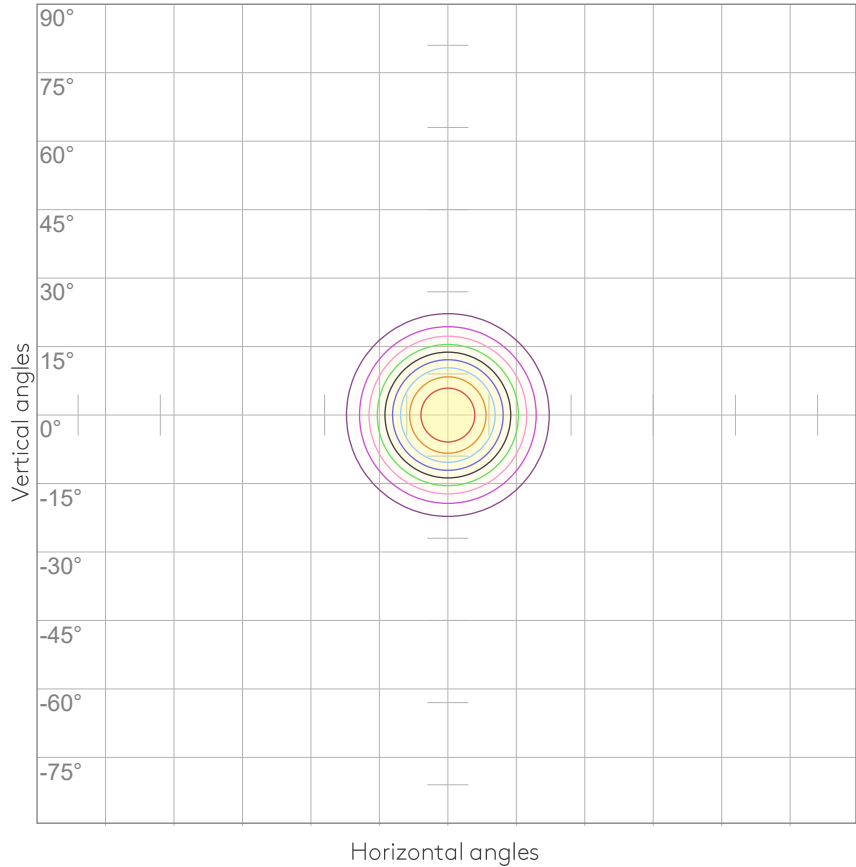
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
2984	2955	2870	2728	2536	2295	2013	1703	1381	1070	786	546	357	221	128	70	39	23	15	10
100%	99%	96%	91%	85%	77%	67%	57%	46%	36%	26%	18%	12%	7%	4%	2%	1%	1%	0%	0%

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°
2984	2955	2870	2728	2536	2295	2013	1703	1381	1070	786	546	357	221	128	70	39	23	15	10
100%	99%	96%	91%	85%	77%	67%	57%	46%	36%	26%	18%	12%	7%	4%	2%	1%	1%	0%	0%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
30.6°	49.5°	59.6°	99.6%	99.2%

ISO CANDELA DIAGRAM



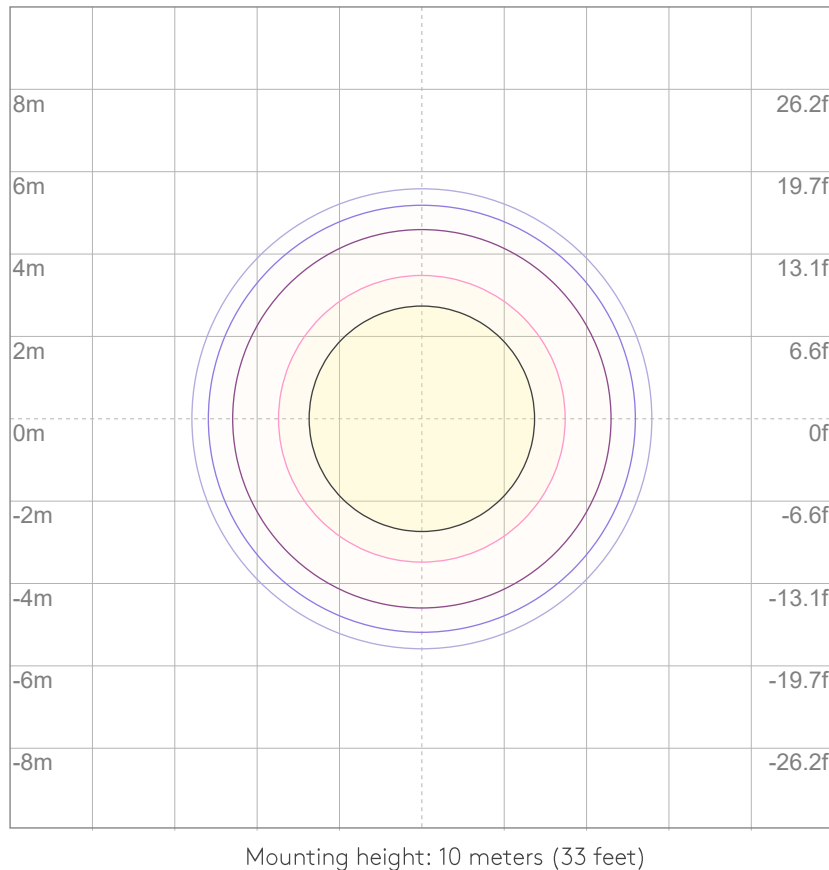
10%	298 cd
20%	597 cd
30%	895 cd
40%	1194 cd
50%	1492 cd
60%	1791 cd
70%	2089 cd
80%	2388 cd
90%	2686 cd

Conditions:

Number of c-planes: 8

Candela at center: 2984 cd

ISO LUX DIAGRAM



3%	0.895 lx
5%	1.49 lx
10%	2.98 lx
30%	8.95 lx
50%	{LUX_10M50} lx

Conditions:

Number of c-planes: 8

Lux at center: 29.8 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	6.0	6.4	6.1	6.6	6.8	6.0	6.4	6.1	6.6	6.8
	3H	5.8	6.4	6.2	6.6	6.7	5.8	6.4	6.2	6.6	6.7
	4H	5.8	6.3	6.2	6.6	6.8	5.8	6.3	6.2	6.6	6.8
	6H	5.9	6.3	6.2	6.6	7.0	5.9	6.3	6.2	6.6	7.0
	8H	5.8	6.3	6.2	6.6	7.0	5.8	6.3	6.2	6.6	7.0
	12H	5.8	6.2	6.2	6.6	7.0	5.8	6.2	6.2	6.6	7.0
4H	2H	5.7	6.3	6.1	6.5	6.7	5.7	6.3	6.1	6.5	6.7
	3H	5.7	6.2	6.1	6.5	6.9	5.7	6.2	6.1	6.5	6.9
	4H	5.7	6.1	6.1	6.5	7.0	5.7	6.1	6.1	6.5	7.0
	6H	5.7	6.2	6.2	6.5	6.9	5.7	6.2	6.2	6.5	6.9
	8H	5.7	6.1	6.2	6.5	6.8	5.7	6.1	6.2	6.5	6.8
	12H	5.7	6.0	6.2	6.4	6.9	5.7	6.0	6.2	6.4	6.9
8H	4H	5.6	6.0	6.1	6.4	6.7	5.6	6.0	6.1	6.4	6.7
	6H	5.7	6.0	6.2	6.4	6.9	5.7	6.0	6.2	6.4	6.9
	8H	5.8	6.0	6.3	6.5	7.1	5.8	6.0	6.3	6.5	7.1
	12H	5.8	6.0	6.4	6.5	7.1	5.8	6.0	6.4	6.5	7.1
12H	4H	5.6	5.9	6.1	6.3	6.7	5.6	5.9	6.1	6.3	6.7
	6H	5.7	5.9	6.2	6.4	7.1	5.7	5.9	6.2	6.4	7.1
	8H	5.7	5.9	6.3	6.4	7.0	5.7	5.9	6.3	6.4	7.0
Variation of the observer position for the luminaire distance S											
S = 1.0H		5.1 / -4.1					5.1 / -4.1				
S = 1.5H		7.7 / -4.8					7.7 / -4.8				
S = 2.0H		9.6 / -5.4					9.6 / -5.4				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 831 lm total luminous flux											

# MINIMA PRO ROUND FIXED IP65 - MATT

## LIGHT PLANNING

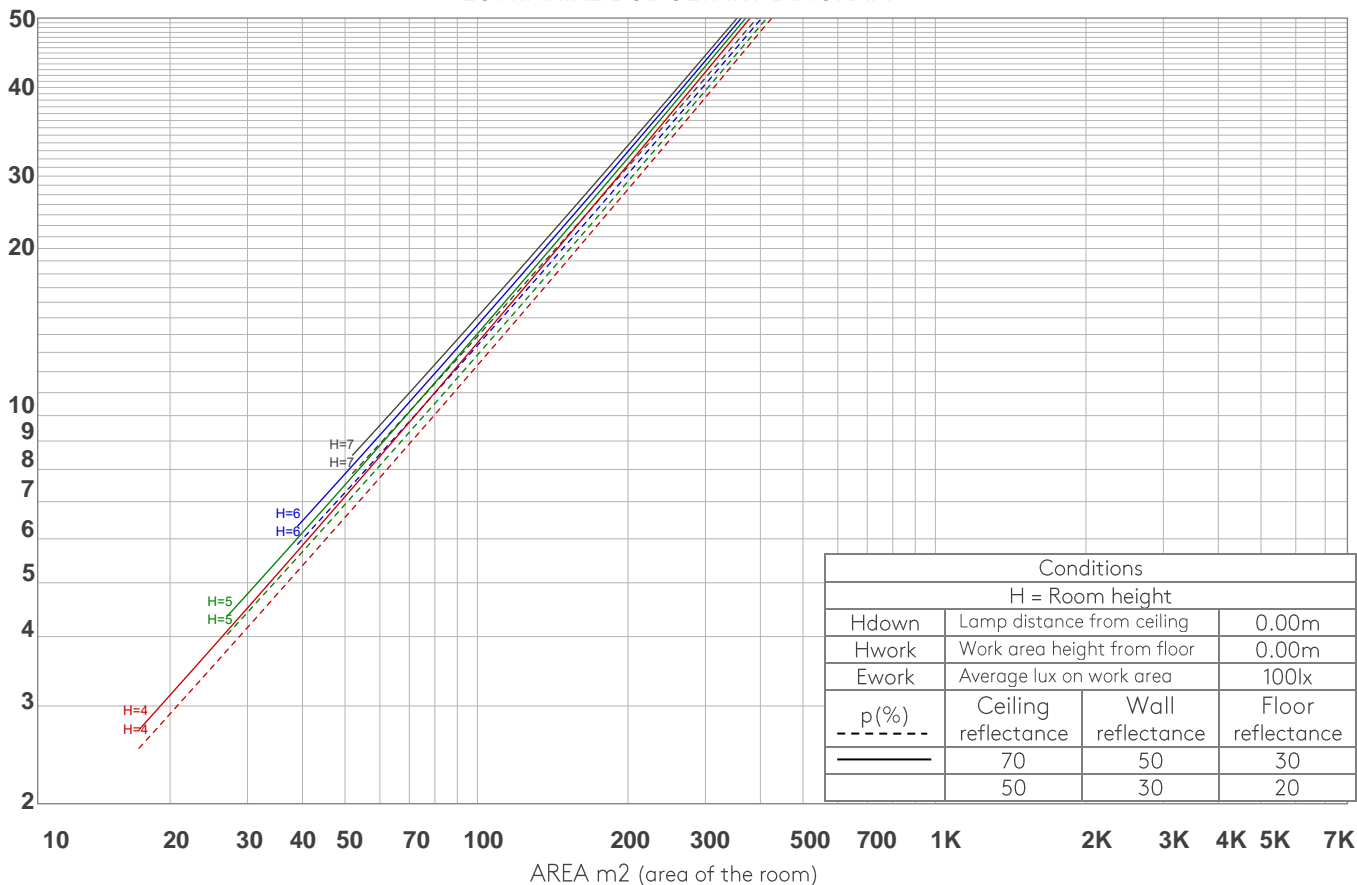
astro

### 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	112	111	109	107	107	105	104	103	102	101	99	99	98	96
2	111	107	104	102	109	106	103	101	103	100	99	100	98	96	97	96	94	93
3	107	103	99	96	106	101	98	95	99	96	94	97	94	93	94	93	91	90
4	104	99	95	92	103	98	94	91	96	93	90	94	91	89	92	90	88	87
5	101	95	91	88	100	94	90	87	92	89	87	91	88	86	90	87	85	84
6	98	92	87	84	97	91	87	84	90	86	84	88	85	83	87	85	82	81
7	95	89	84	81	94	88	84	81	87	83	81	86	83	80	85	82	80	79
8	92	86	82	79	91	85	81	78	84	81	78	83	80	78	83	80	78	77
9	90	83	79	76	89	83	79	76	82	78	76	81	78	76	80	77	75	74
10	87	81	77	74	87	80	76	74	80	76	74	79	76	73	78	75	73	72

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°
252 lm	413 lm	143 lm	14.4 lm	3.38 lm	1.43 lm	0.605 lm	0.338 lm	0.150 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0.109 lm	0.116 lm	0.136 lm	0.183 lm	0.315 lm	0.488 lm	0.573 lm	0.382 lm	0.094 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
--------------	--------------------