

PHOTOMETRIC TEST REPORT

MINIMA PRO ROUND FIXED IP65
- MATT WHITE - 4000163

astro

MINIMA PRO ROUND FIXED IP65 - MATT

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LIGHT EFFICIENCY:

103 Lumen/Watt

LIGHT QUALITY:

CRI: 95.9

COLOR TEMPERATURE:

2788 K

OUTPUT: 1216 lm

PEAK: 4273 cd

POWER: 11.8 W

PF: 0.95



Tracking number: [n/a](#)

Product name:

Minima Pro Round Fixed IP65 - Matt White
- 4000163

Item number:

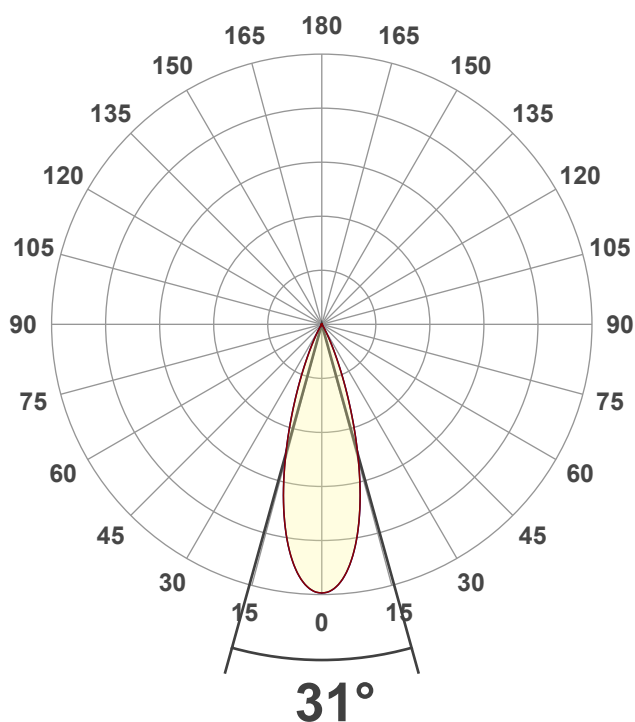
MRF-MW-HE27G1-30G1-X-D1

Date and time:

17/01/2025 11:32:33

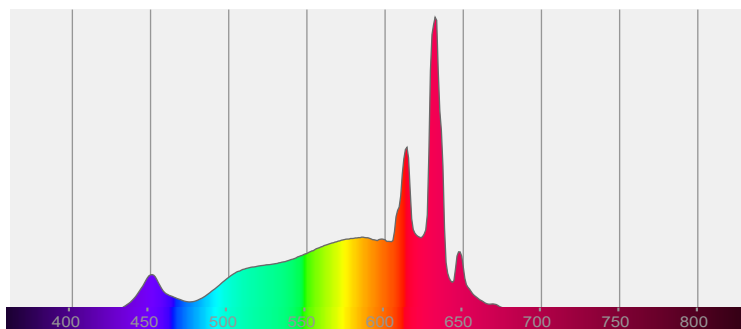
Description:

IP65 LED Downlight

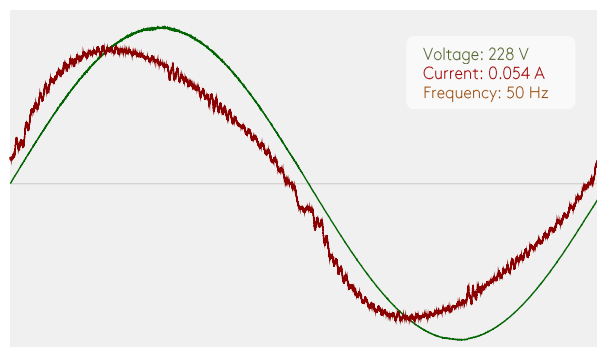


CIE 1931
x: 0.454
y: 0.412

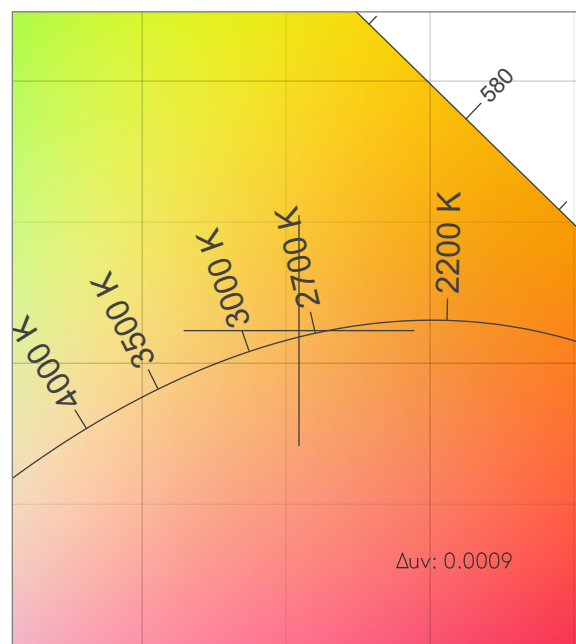
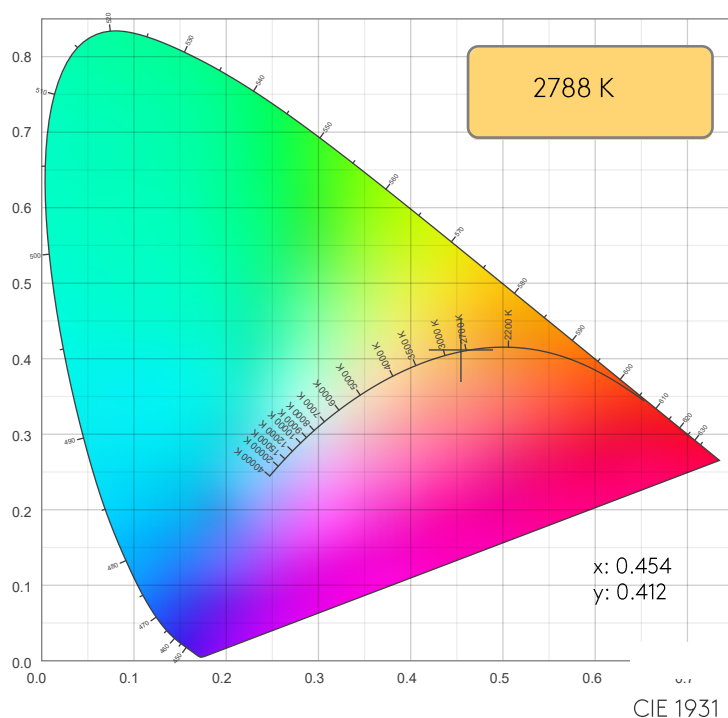
SPECTRA



POWER

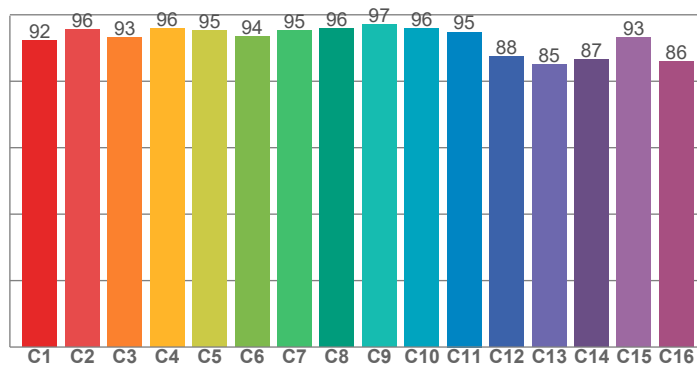


COLOR DETAILS

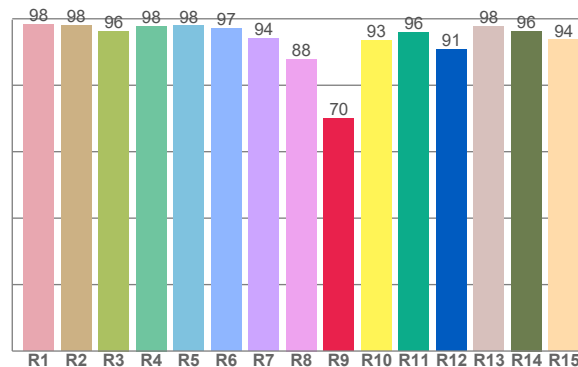


CIE 1931 ZOOM

TM30: 93.1



CRI: 95.9 (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
98.3	97.9	96.3	97.8	97.9	97.2	94.1	87.9	70.1	93.4	96.0	90.7	97.8	96.3	93.6

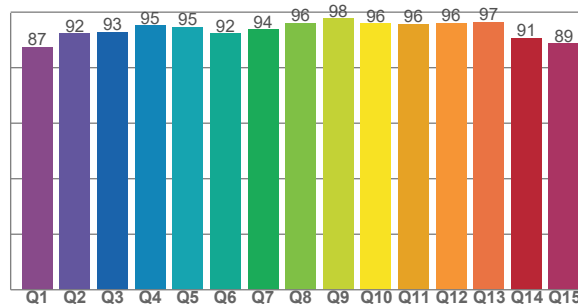
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
92.4	95.7	93.1	96.0	95.2	93.6	95.3	96.0	97.2	96.0	94.8	87.6	85.0	86.5	93.2	86.0

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
87.4	92.3	92.9	95.2	94.6	92.4	93.8	96.1	97.7	96.0	95.8	96.1	96.5	90.6	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
2788 K	95.9	70.1	93.1	100.6	92.8	0.454	0.412	0.259	0.351	0.0009

MINIMA PRO ROUND FIXED IP65 - MATT

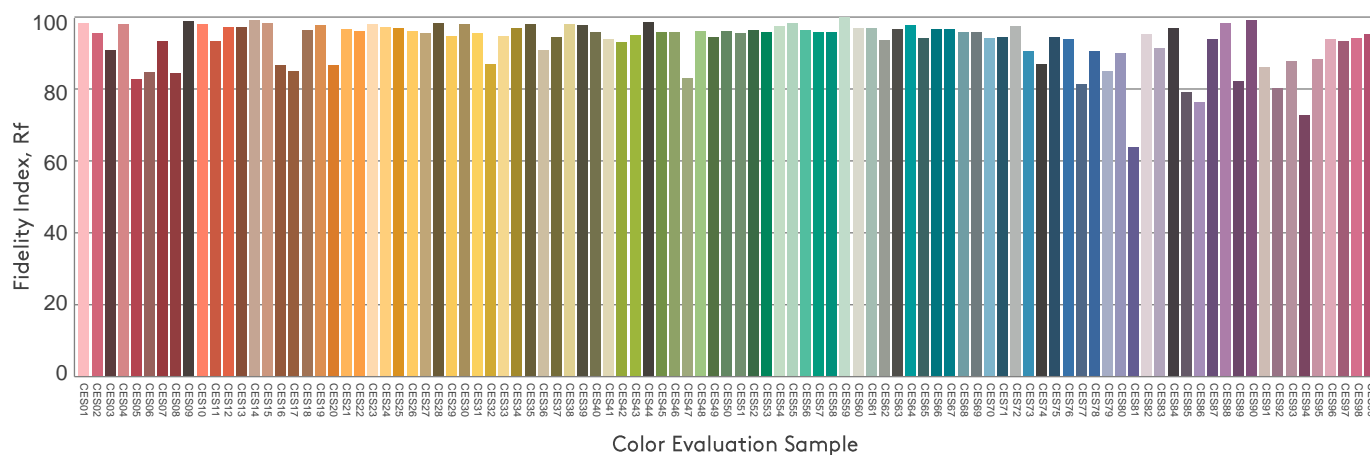
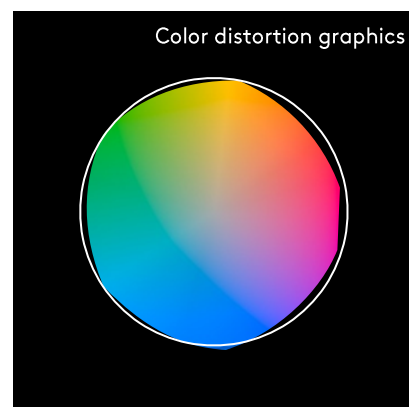
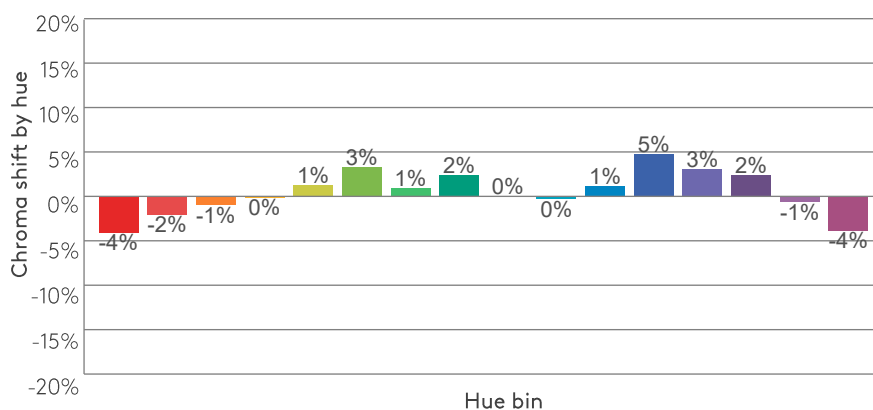
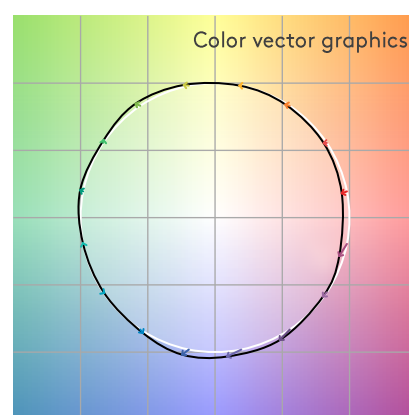
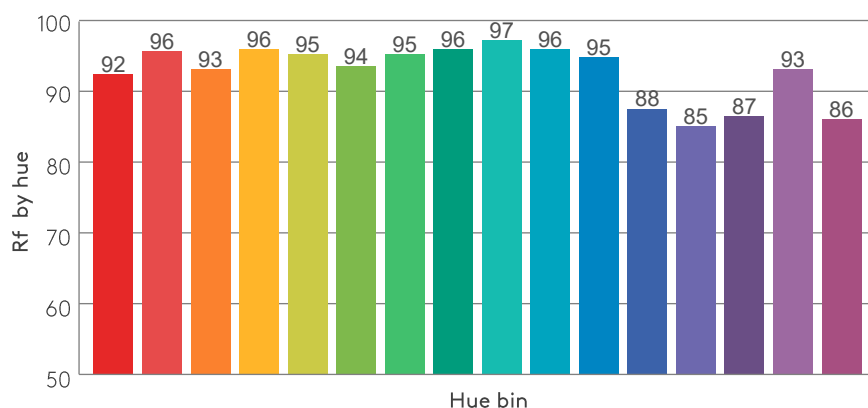
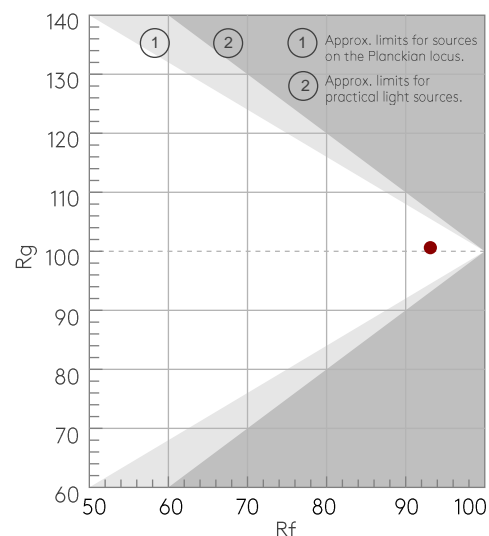
TM30 DETAILS

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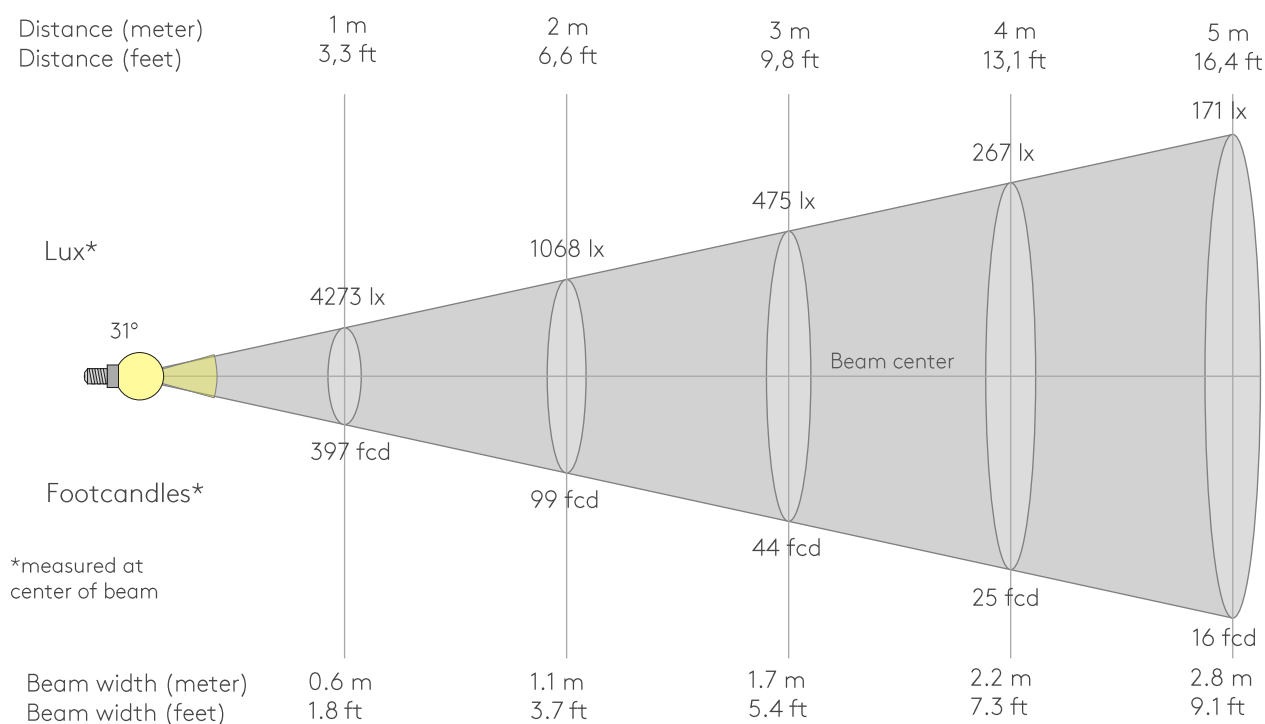
Rf 93.1
Fidelity index Rf

Rg 100.6
Gammut index Rg

Hue Bin	Rf	Graphic shifts (%)	
		Chroma	Hue
1	92	-4%	-1%
2	96	-2%	1%
3	93	-1%	3%
4	96	0%	1%
5	95	1%	4%
6	94	3%	2%
7	95	1%	-2%
8	96	2%	-1%
9	97	0%	0%
10	96	0%	1%
11	95	1%	3%
12	88	5%	-4%
13	85	3%	-11%
14	87	2%	-10%
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
4273lx	1068lx	475lx	267lx	171lx	119lx	87lx	67lx	53lx	43lx	35lx	30lx	25lx	22lx	19lx	17lx	15lx	13lx	12lx	11lx
397fcd	99.2fcd	44.1fcd	24.8fcd	15.9fcd	11fcd	8.1fcd	6.2fcd	4.9fcd	4fcd	3.3fcd	2.8fcd	2.3fcd	2fcd	1.8fcd	1.6fcd	1.4fcd	1.2fcd	1.1fcd	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°
4273	4237	4121	3927	3657	3319	2923	2484	2025	1578	1169	818	538	334	192	104	57	33	21	16
100%	99%	96%	92%	86%	78%	68%	58%	47%	37%	27%	19%	13%	8%	4%	2%	1%	1%	1%	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°
4273	4237	4121	3927	3657	3319	2923	2484	2025	1578	1169	818	538	334	192	104	57	33	21	16
100%	99%	96%	92%	86%	78%	68%	58%	47%	37%	27%	19%	13%	8%	4%	2%	1%	1%	1%	0%

Intensities in 180° c-plane

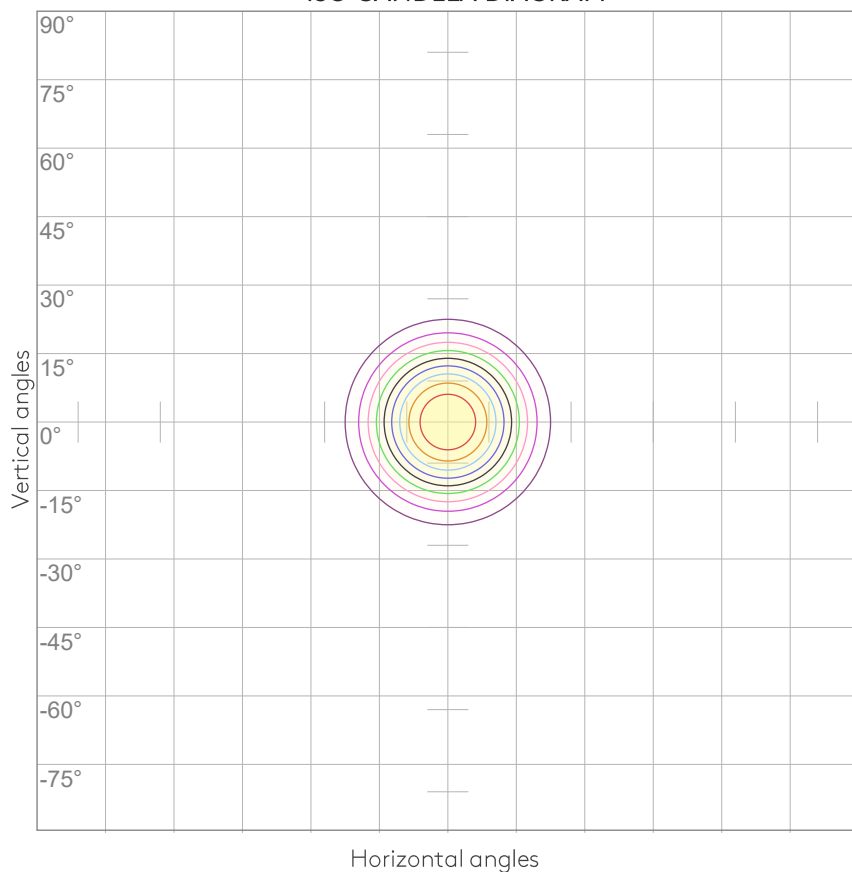
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
4273	4237	4121	3927	3657	3319	2923	2484	2025	1578	1169	818	538	334	192	104	57	33	21	16
100%	99%	96%	92%	86%	78%	68%	58%	47%	37%	27%	19%	13%	8%	4%	2%	1%	1%	1%	0%

Intensities in 270° c-plane

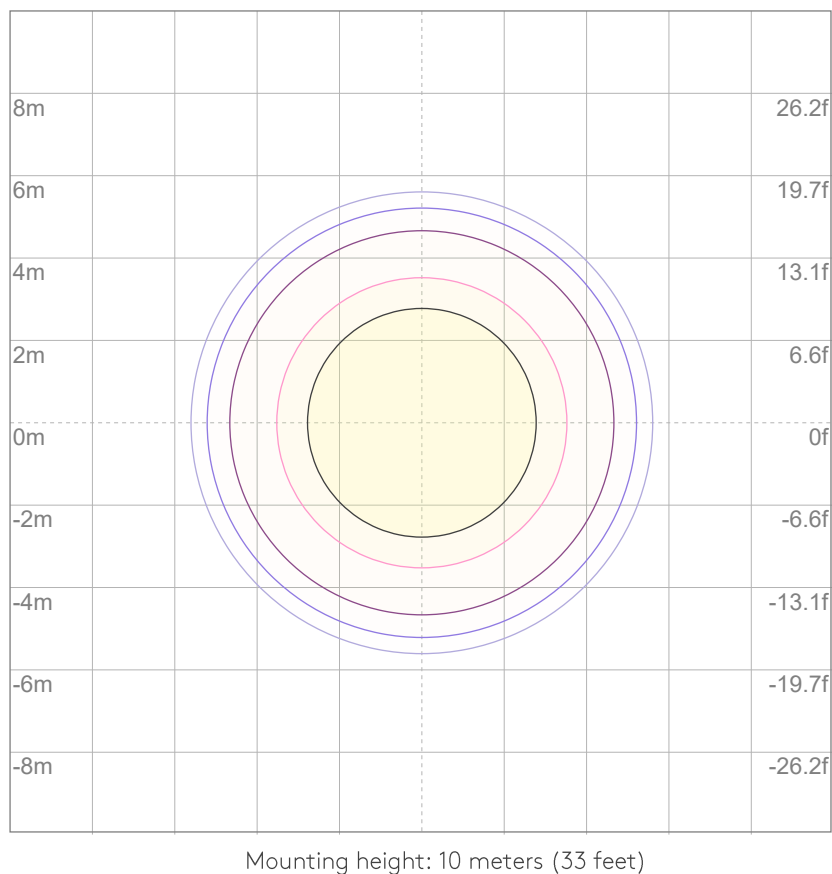
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
4273	4237	4121	3927	3657	3319	2923	2484	2025	1578	1169	818	538	334	192	104	57	33	21	16
100%	99%	96%	92%	86%	78%	68%	58%	47%	37%	27%	19%	13%	8%	4%	2%	1%	1%	1%	0%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
31°	50°	59.9°	99.6%	99.3%

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	7.5	7.9	7.6	8.1	8.3	7.5	7.9	7.6	8.1	8.3
	3H	7.3	7.9	7.7	8.1	8.2	7.3	7.9	7.7	8.1	8.2
	4H	7.3	7.8	7.7	8.1	8.3	7.3	7.8	7.7	8.1	8.3
	6H	7.3	7.8	7.6	8.1	8.4	7.3	7.8	7.6	8.1	8.4
	8H	7.3	7.8	7.6	8.1	8.5	7.3	7.8	7.6	8.1	8.5
	12H	7.3	7.7	7.6	8.1	8.5	7.3	7.7	7.6	8.1	8.5
4H	2H	7.2	7.8	7.6	8.0	8.2	7.2	7.8	7.6	8.0	8.2
	3H	7.2	7.7	7.6	8.0	8.4	7.2	7.7	7.6	8.0	8.4
	4H	7.2	7.6	7.6	8.0	8.5	7.2	7.6	7.6	8.0	8.5
	6H	7.2	7.7	7.7	8.0	8.3	7.2	7.7	7.7	8.0	8.3
	8H	7.2	7.6	7.7	8.0	8.3	7.2	7.6	7.7	8.0	8.3
	12H	7.2	7.5	7.7	7.9	8.4	7.2	7.5	7.7	7.9	8.4
8H	4H	7.1	7.5	7.6	7.8	8.2	7.1	7.5	7.6	7.8	8.2
	6H	7.2	7.4	7.7	7.9	8.4	7.2	7.4	7.7	7.9	8.4
	8H	7.3	7.4	7.8	8.0	8.6	7.3	7.4	7.8	8.0	8.6
	12H	7.3	7.4	7.9	8.0	8.6	7.3	7.4	7.9	8.0	8.6
12H	4H	7.0	7.3	7.5	7.8	8.2	7.0	7.3	7.5	7.8	8.2
	6H	7.2	7.4	7.7	7.9	8.5	7.2	7.4	7.7	7.9	8.5
	8H	7.2	7.4	7.8	7.9	8.5	7.2	7.4	7.8	7.9	8.5
Variation of the observer position for the luminaire distance S											
S = 1.0H		5.0 / -4.0					5.0 / -4.0				
S = 1.5H		7.6 / -4.8					7.6 / -4.8				
S = 2.0H		9.5 / -5.5					9.5 / -5.5				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 1216 lm total luminous flux											

MINIMA PRO ROUND FIXED IP65 - MATT

LIGHT PLANNING

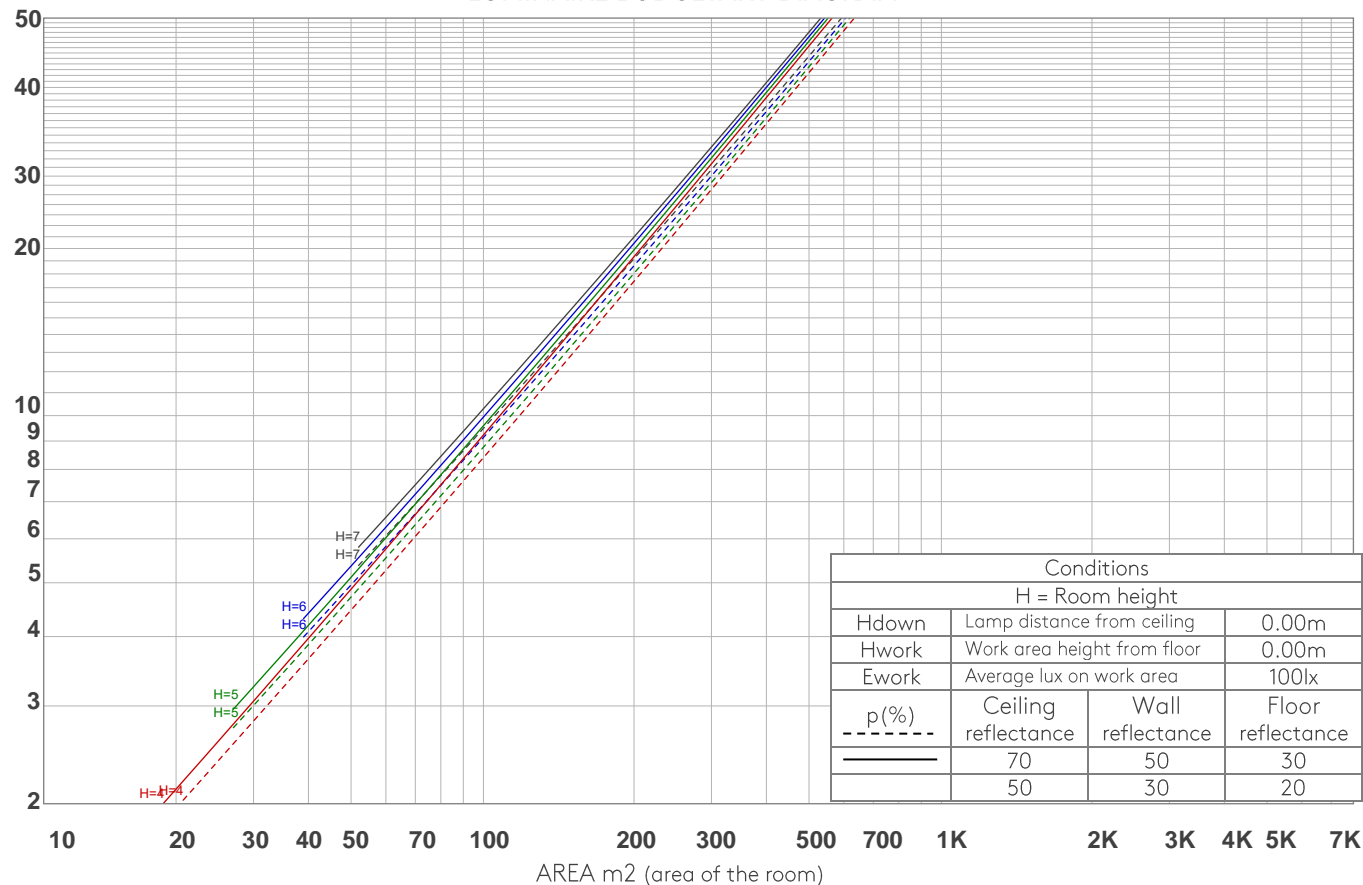
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COEFFICIENTS OF UTILIZATION

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	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	98	100	98	96	97	96	94	93
3	107	103	99	96	106	101	98	95	99	96	94	97	94	92	94	93	91	90
4	104	99	95	92	102	97	94	91	95	92	90	94	91	89	92	90	88	87
5	101	95	91	88	99	94	90	87	92	89	86	91	88	86	89	87	85	84
6	98	91	87	84	97	91	87	84	89	86	83	88	85	83	87	84	82	81
7	95	88	84	81	94	88	84	81	87	83	81	86	82	80	85	82	80	79
8	92	85	81	78	91	85	81	78	84	80	78	83	80	78	82	79	77	76
9	90	83	79	76	89	82	78	76	82	78	76	81	78	75	80	77	75	74
10	87	80	76	74	86	80	76	73	79	76	73	79	75	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°
362 lm	604 lm	216 lm	21.7 lm	5.40 lm	2.20 lm	0.952 lm	0.475 lm	0.218 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0.156 lm	0.161 lm	0.161 lm	0.217 lm	0.391 lm	0.635 lm	0.764 lm	0.526 lm	0.128 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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