

PHOTOMETRIC TEST REPORT

MINIMA PRO ROUND FIXED IP65
- MATT WHITE - 4000147

astro

MINIMA PRO ROUND FIXED IP65 - MATT

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LIGHT EFFICIENCY:

97 Lumen/Watt

LIGHT QUALITY:

CRI: 96.0

COLOR TEMPERATURE:

2769 K

OUTPUT: 1150 lm

PEAK: 5880 cd

POWER: 11.9 W

PF: 0.95



Tracking number: [n/a](#)

Product name:

Minima Pro Round Fixed IP65 - Matt White
- 4000147

Item number:

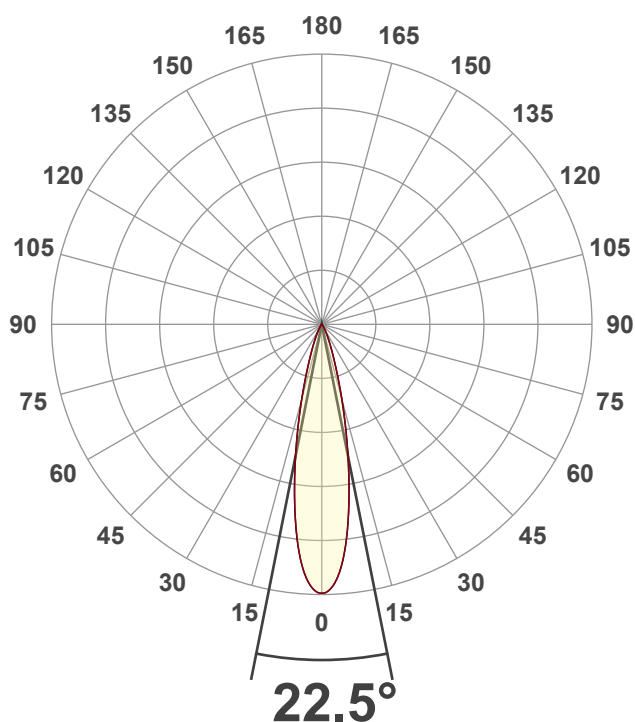
MRF-MW-HE27G1-15G1-X-D1

Date and time:

17/01/2025 10:34:43

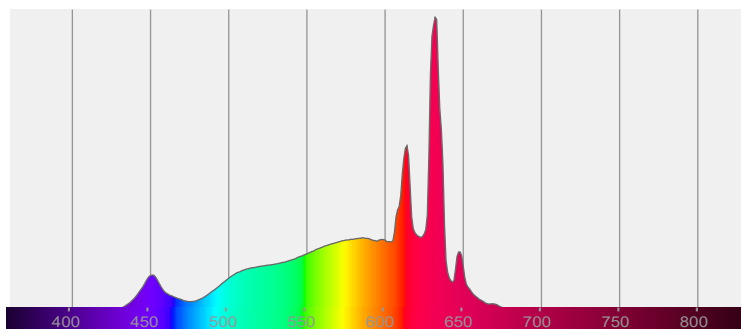
Description:

IP65 LED Downlight

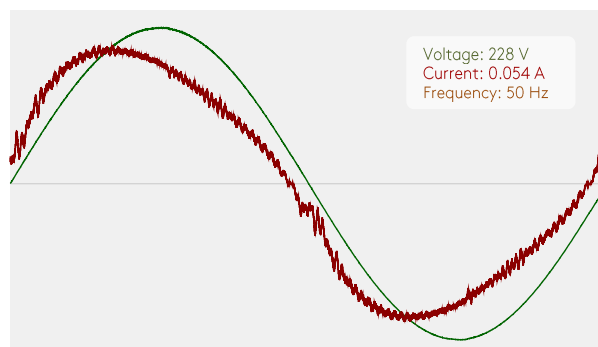


CIE 1931
x: 0.455
y: 0.411

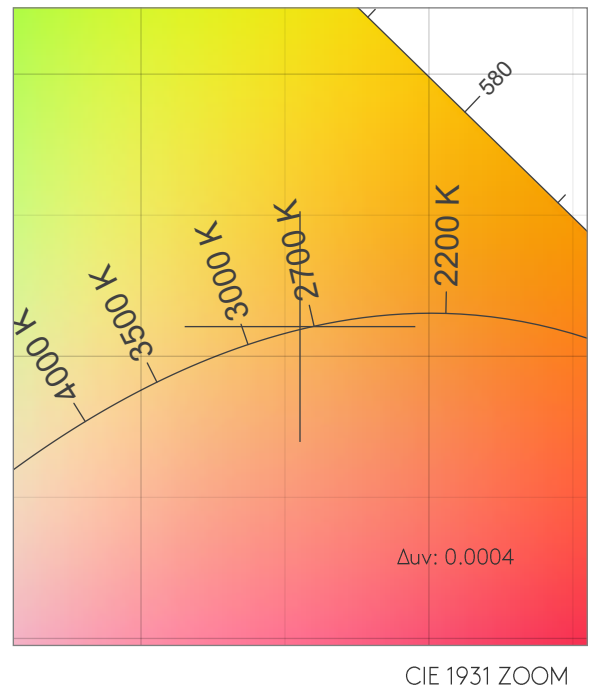
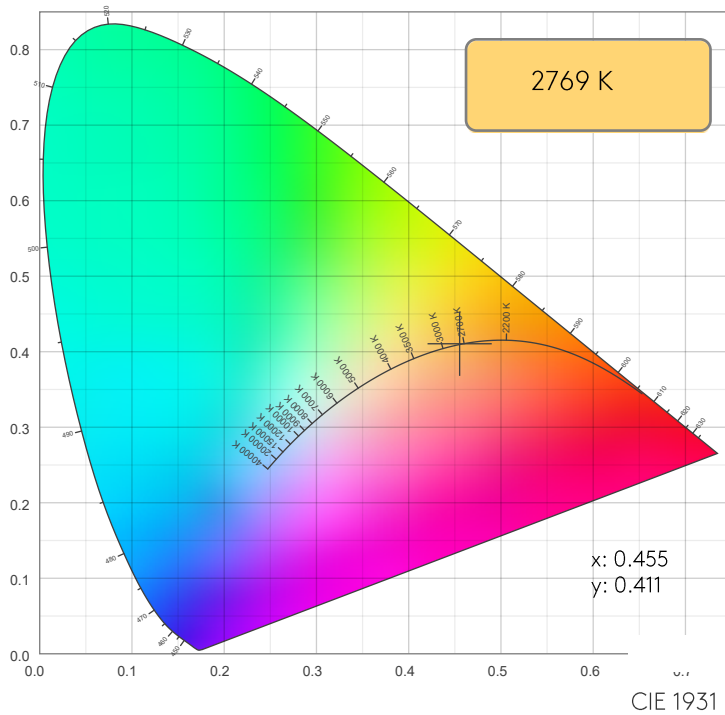
SPECTRA



POWER

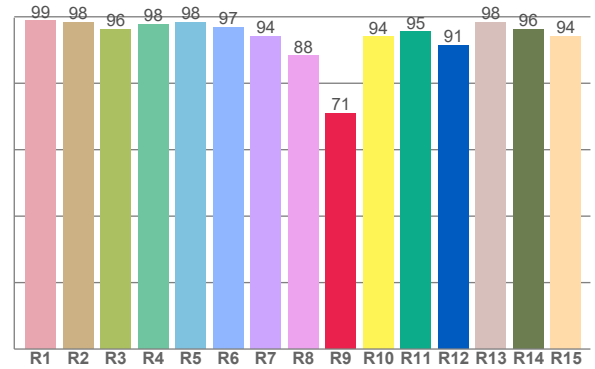
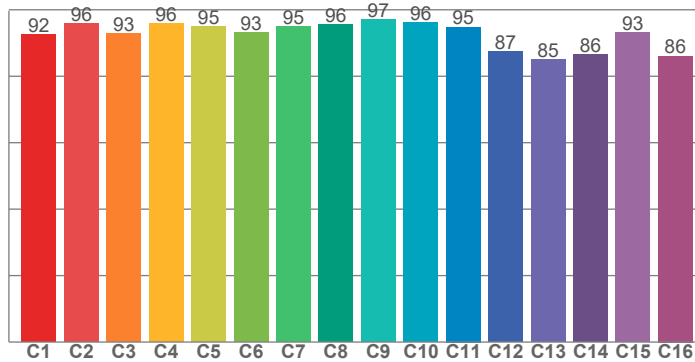


COLOR DETAILS



TM30: 93.0

CRI: 96.0 (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
98.8	98.3	96.3	97.6	98.3	96.8	94.0	88.2	71.0	94.0	95.5	91.3	98.3	96.3	94.2

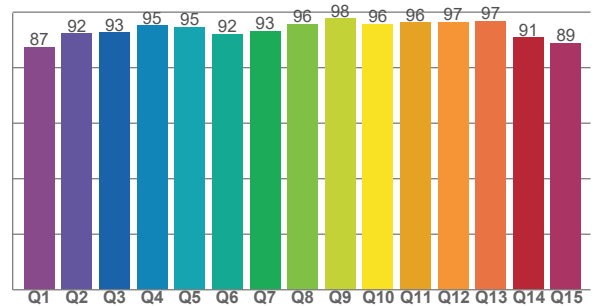
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
92.5	95.8	93.0	95.8	95.0	93.1	95.1	95.6	97.1	96.1	94.8	87.4	84.9	86.5	93.2	86.1

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
87.4	92.2	92.7	95.1	94.6	92.1	93.2	95.8	97.7	95.8	96.3	96.5	96.7	90.8	88.8

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
2769 K	96.0	71.0	93.0	100.9	92.8	0.455	0.411	0.260	0.351	0.0004

MINIMA PRO ROUND FIXED IP65 - MATT

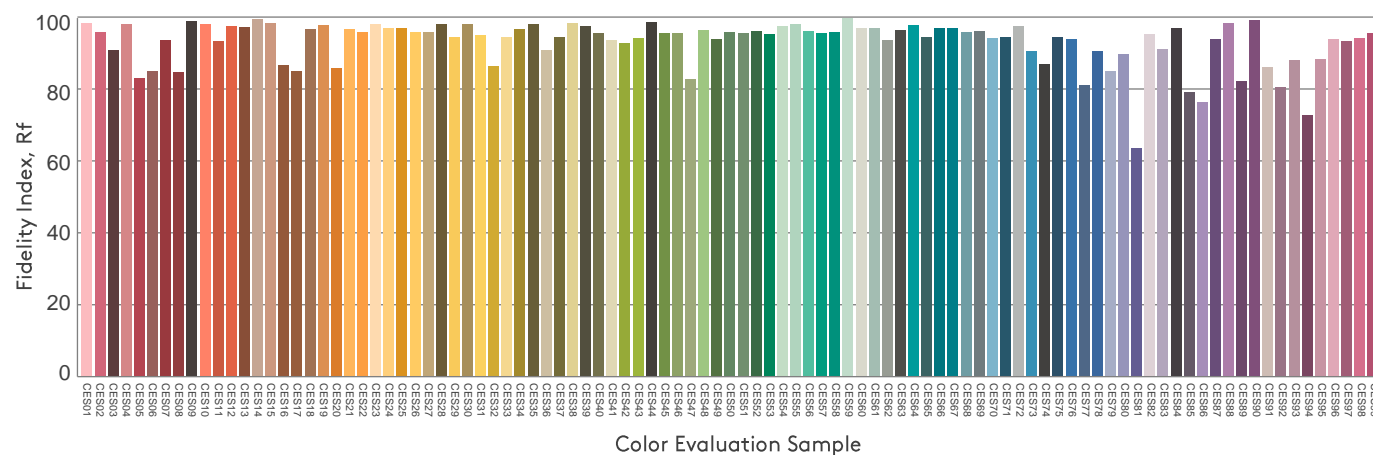
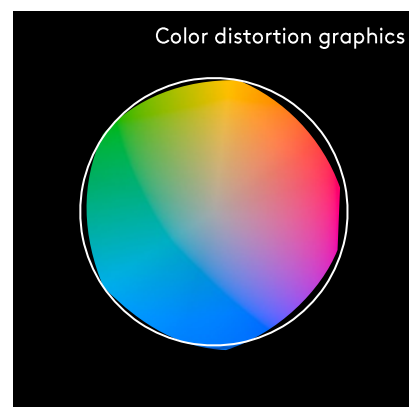
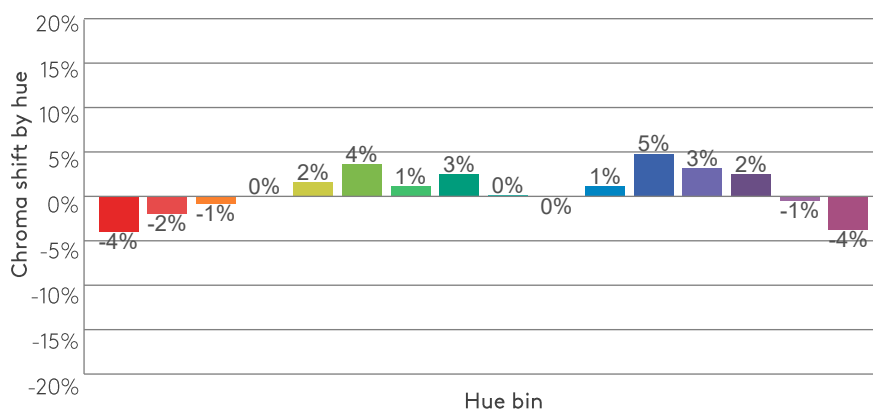
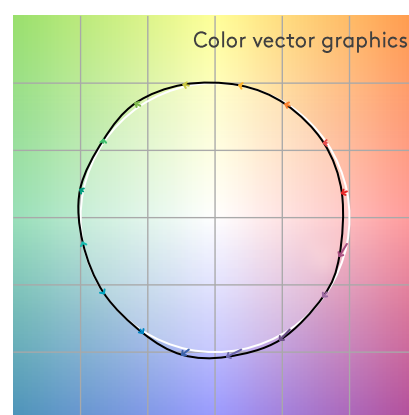
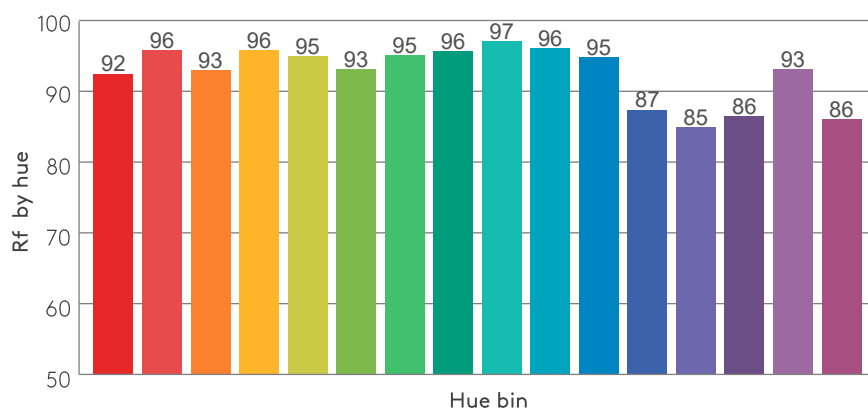
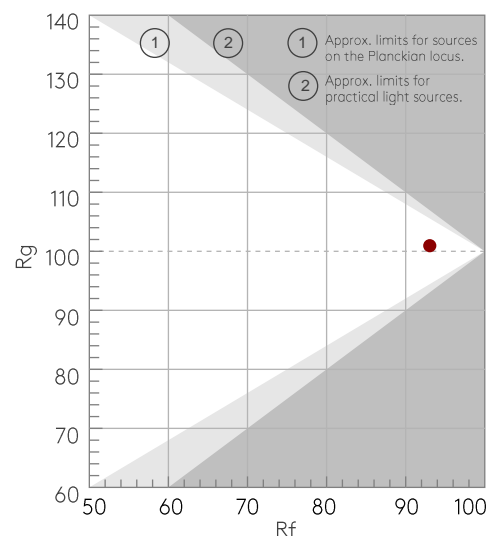
TM30 DETAILS

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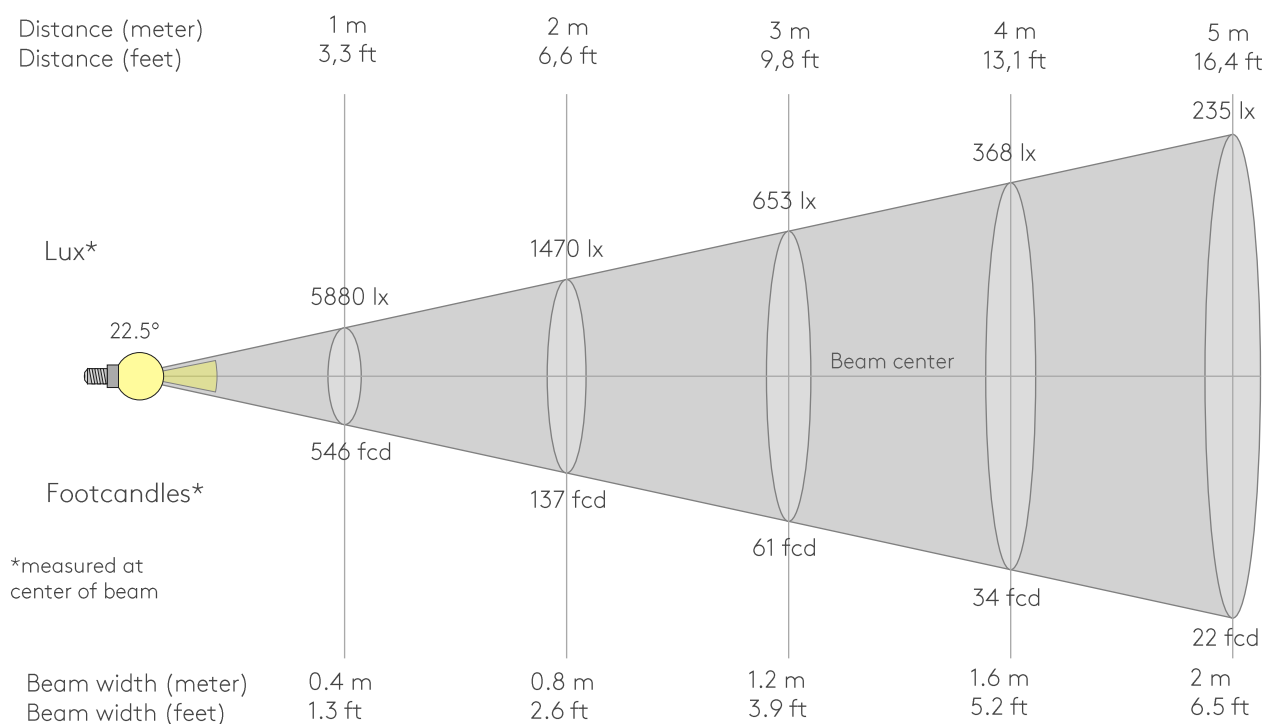
Rf 93.0
Fidelity index Rf

Rg 100.9
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%	2%
5	95	2%	4%
6	93	4%	2%
7	95	1%	-2%
8	96	3%	-1%
9	97	0%	-1%
10	96	0%	1%
11	95	1%	3%
12	87	5%	-4%
13	85	3%	-11%
14	86	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
5880lx	1470lx	653lx	368lx	235lx	163lx	120lx	92lx	73lx	59lx	49lx	41lx	35lx	30lx	26lx	23lx	20lx	18lx	16lx	15lx
546.3fcd	136.6fcd	60.7fcd	34.1fcd	21.9fcd	15.2fcd	11.1fcd	8.5fcd	6.7fcd	5.5fcd	4.5fcd	3.8fcd	3.2fcd	2.8fcd	2.4fcd	2.1fcd	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°
5880	5778	5453	4909	4197	3420	2667	1994	1430	1003	709	508	362	258	183	130	93	67	48	34
100%	98%	93%	83%	71%	58%	45%	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°
5880	5778	5453	4909	4197	3420	2667	1994	1430	1003	709	508	362	258	183	130	93	67	48	34
100%	98%	93%	83%	71%	58%	45%	34%	24%	17%	12%	9%	6%	4%	3%	2%	2%	1%	1%	1%

Intensities in 180° c-plane

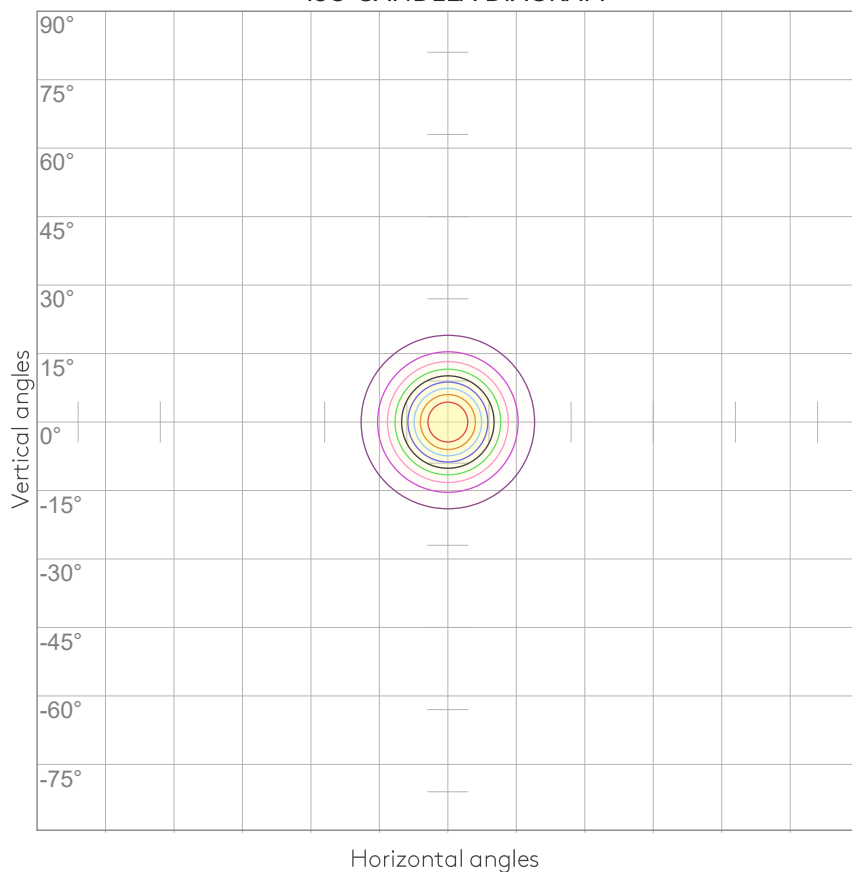
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
5880	5778	5453	4909	4197	3420	2667	1994	1430	1003	709	508	362	258	183	130	93	67	48	34
100%	98%	93%	83%	71%	58%	45%	34%	24%	17%	12%	9%	6%	4%	3%	2%	2%	1%	1%	1%

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°
5880	5778	5453	4909	4197	3420	2667	1994	1430	1003	709	508	362	258	183	130	93	67	48	34
100%	98%	93%	83%	71%	58%	45%	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
22.5°	42.2°	58.5°	97.1%	96.2%

ISO CANDELA DIAGRAM



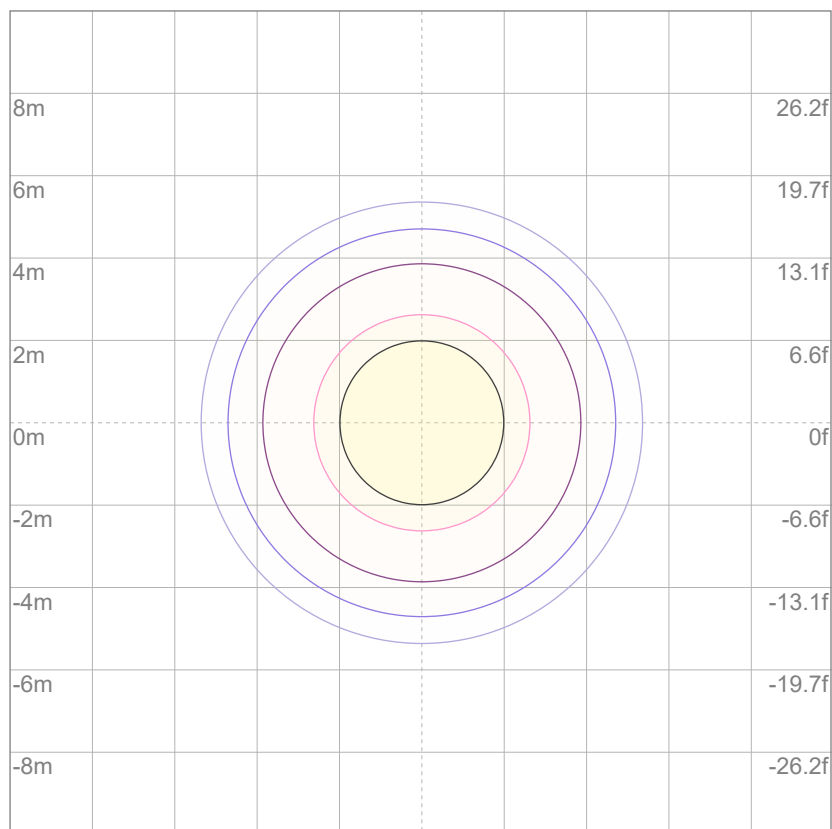
10%	588 cd
20%	1176 cd
30%	1764 cd
40%	2352 cd
50%	2940 cd
60%	3528 cd
70%	4116 cd
80%	4704 cd
90%	5292 cd

Conditions:

Number of c-planes: 8

Candela at center: 5880 cd

ISO LUX DIAGRAM



3%	1.76 lx
5%	2.94 lx
10%	5.88 lx
30%	17.6 lx
50%	{LUX_10M50} lx

Conditions:

Number of c-planes: 8

Lux at center: 58.8 lx

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

Mounting height: 10 meters (33 feet)

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	13.0	13.6	13.4	13.8	14.0	13.0	13.6	13.4	13.8	14.0
	4H	13.6	14.1	14.0	14.4	14.6	13.6	14.1	14.0	14.4	14.6
	6H	14.5	14.9	14.8	15.3	15.6	14.5	14.9	14.8	15.3	15.6
	8H	15.0	15.5	15.4	15.8	16.2	15.0	15.5	15.4	15.8	16.2
	12H	15.7	16.2	16.1	16.6	17.0	15.7	16.2	16.1	16.6	17.0
4H	2H	12.4	13.0	12.9	13.3	13.5	12.4	13.0	12.9	13.3	13.5
	3H	13.5	13.9	13.8	14.3	14.7	13.5	13.9	13.8	14.3	14.7
	4H	14.2	14.6	14.6	15.1	15.6	14.2	14.6	14.6	15.1	15.6
	6H	15.4	15.8	15.9	16.2	16.5	15.4	15.8	15.9	16.2	16.5
	8H	16.1	16.5	16.6	16.9	17.3	16.1	16.5	16.6	16.9	17.3
	12H	17.0	17.3	17.5	17.7	18.2	17.0	17.3	17.5	17.7	18.2
8H	4H	14.6	15.0	15.1	15.4	15.7	14.6	15.0	15.1	15.4	15.7
	6H	16.0	16.3	16.6	16.8	17.3	16.0	16.3	16.6	16.8	17.3
	8H	17.0	17.2	17.6	17.8	18.4	17.0	17.2	17.6	17.8	18.4
	12H	18.2	18.4	18.8	18.9	19.5	18.2	18.4	18.8	18.9	19.5
12H	4H	14.6	15.0	15.2	15.4	15.9	14.6	15.0	15.2	15.4	15.9
	6H	16.3	16.5	16.8	17.0	17.7	16.3	16.5	16.8	17.0	17.7
	8H	17.3	17.5	18.0	18.0	18.7	17.3	17.5	18.0	18.0	18.7
Variation of the observer position for the luminaire distance S											
S = 1.0H		0.9 / -0.3					0.9 / -0.3				
S = 1.5H		1.9 / -0.3					1.9 / -0.3				
S = 2.0H		2.9 / -0.5					2.9 / -0.5				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 1150 lm total luminous flux											

MINIMA PRO ROUND FIXED IP65 - MATT

LIGHT PLANNING

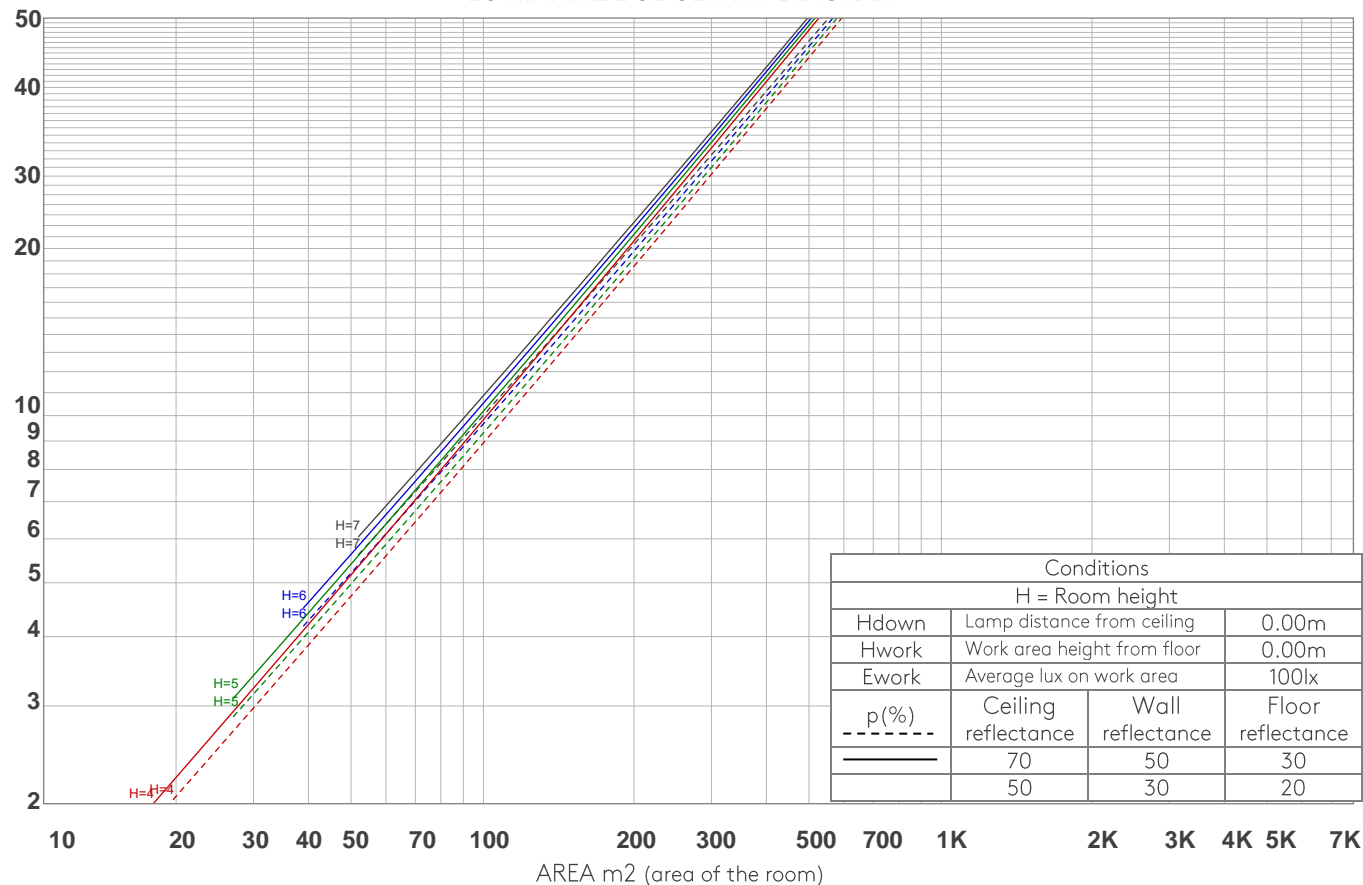
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COEFFICIENTS OF UTILIZATION

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	110	110	110	105	105	105	100	100	100	98
1	114	112	110	108	112	110	108	106	106	104	103	102	100	100	98	97	96	95
2	110	107	104	101	108	105	102	100	102	99	97	98	97	95	95	94	93	91
3	107	102	98	96	105	101	97	95	98	95	93	95	93	91	93	91	90	88
4	104	98	94	91	102	97	93	90	95	92	89	93	90	88	91	89	87	86
5	101	95	90	87	99	94	90	87	92	89	86	90	87	85	89	86	84	83
6	98	91	87	84	96	91	87	84	89	86	83	88	85	83	86	84	82	81
7	95	89	84	81	94	88	84	81	87	83	81	85	82	80	84	82	80	79
8	93	86	82	79	91	85	81	79	84	81	78	83	80	78	82	80	78	77
9	90	84	79	77	89	83	79	77	82	79	76	81	78	76	80	78	76	75
10	88	81	77	75	87	81	77	75	80	77	74	79	76	74	79	76	74	73

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°
438 lm	474 lm	150 lm	38.7 lm	9.77 lm	6.07 lm	4.70 lm	3.95 lm	3.51 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
3.33 lm	3.21 lm	3.05 lm	2.81 lm	2.66 lm	2.47 lm	2.11 lm	1.38 lm	0.401 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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