

PHOTOMETRIC TEST REPORT

MINIMA PRO SQUARE FIXED IP65
- MATT WHITE - 4001043

astro

MINIMA PRO SQUARE FIXED IP65 - MATT

astro

LIGHT EFFICIENCY:

104 Lumen/Watt

LIGHT QUALITY:

CRI: 96.2

COLOR TEMPERATURE:

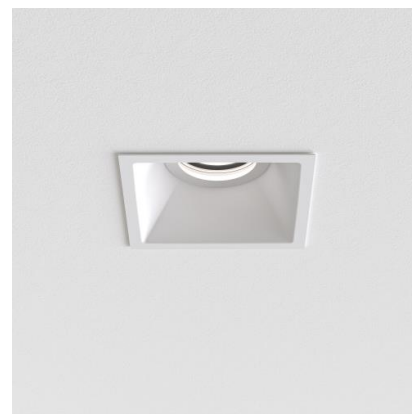
2699 K

OUTPUT: 1218 lm

PEAK: 2142 cd

POWER: 11.7 W

PF: 0.95



Tracking number: [n/a](#)

Product name:

Minima Pro Square Fixed IP65 - Matt White - 4001043

Item number:

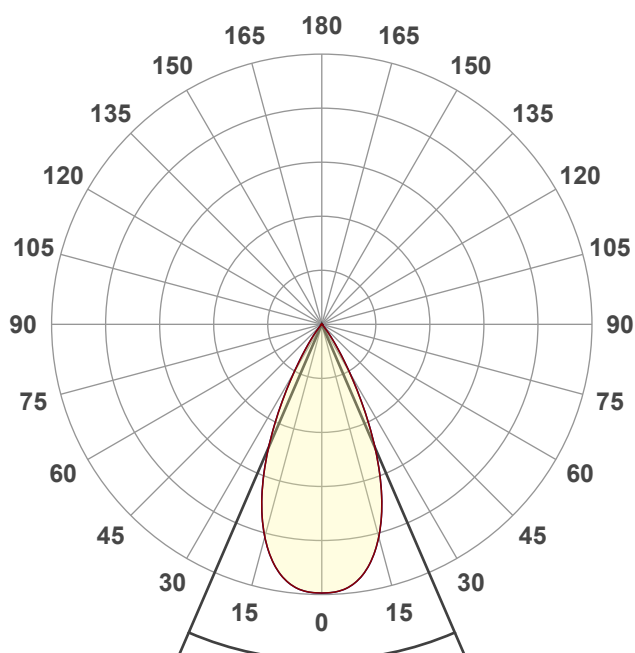
MSF-MW-HE27G1-50G1-X-D1

Date and time:

03/02/2025 12:50:30

Description:

IP65 LED Downlight

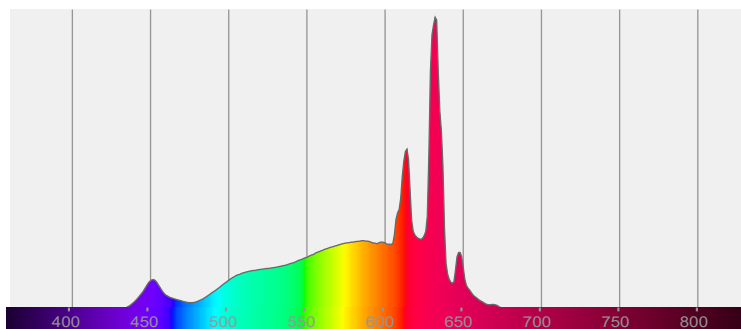


46.7°

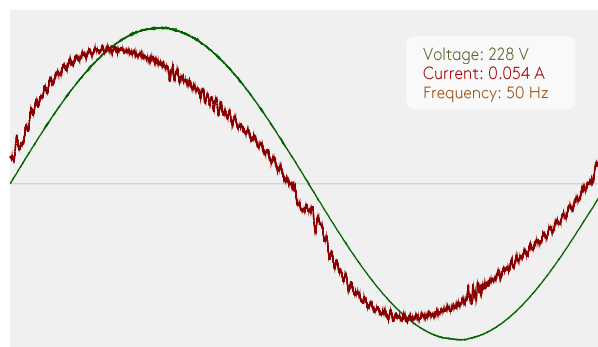


CIE 1931
x: 0.461
y: 0.413

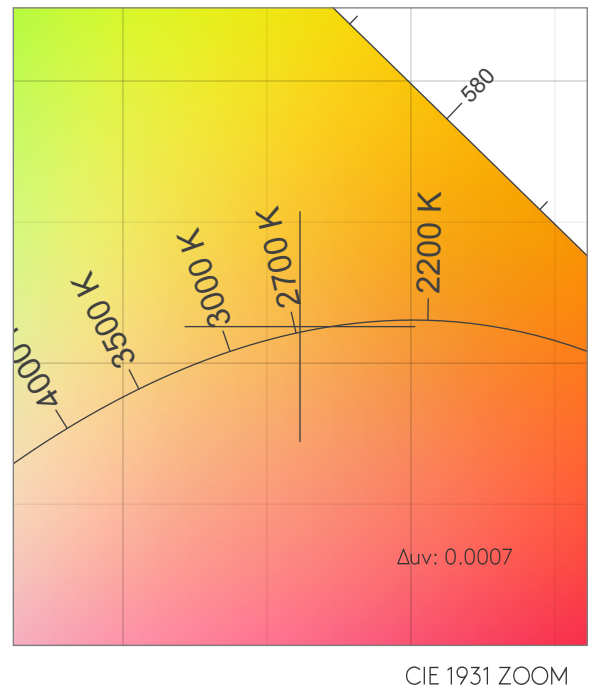
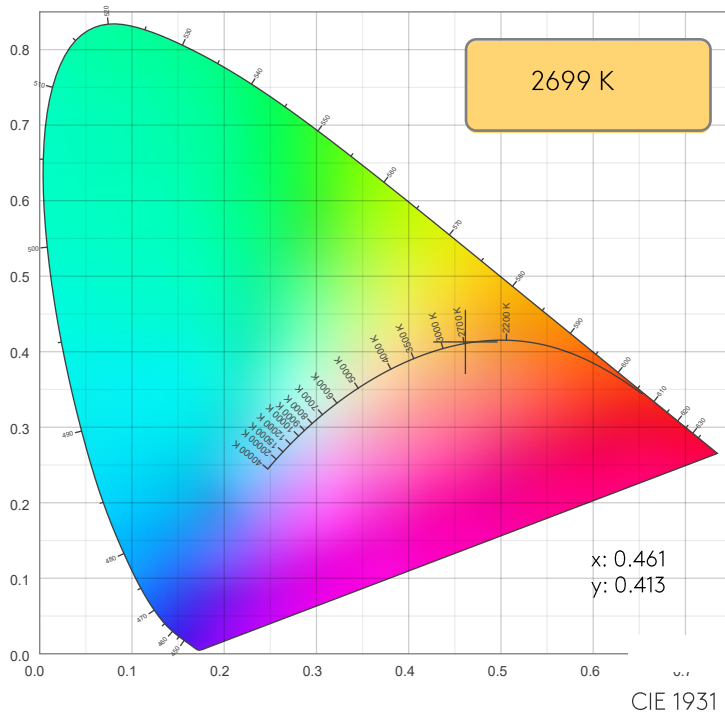
SPECTRA



POWER

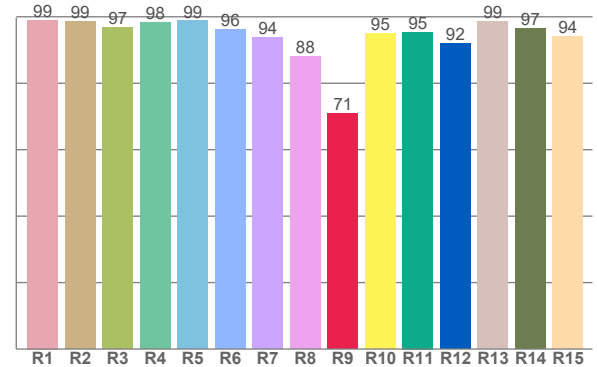
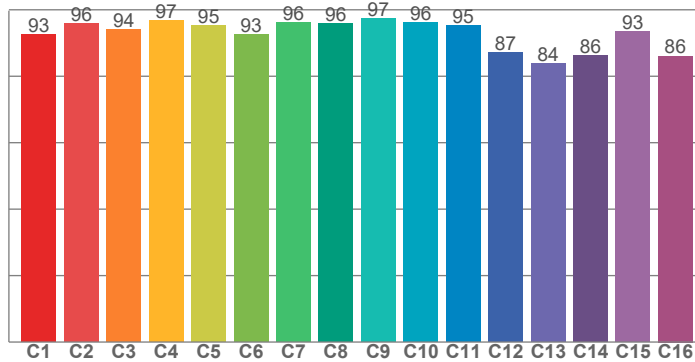


COLOR DETAILS



TM30: 93.4

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
99.0	98.7	96.9	98.2	98.8	96.2	93.9	88.1	71.0	94.9	95.4	92.0	98.6	96.5	94.2

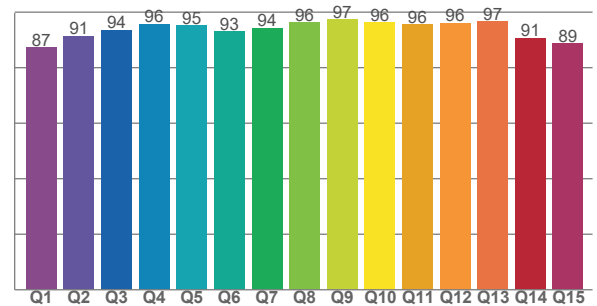
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
92.6	96.0	94.0	96.8	95.4	92.5	96.3	96.0	97.5	96.3	95.4	87.1	84.0	86.2	93.4	86.1

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
87.3	91.5	93.5	95.7	95.1	93.0	94.4	96.3	97.4	96.3	95.6	96.1	96.7	90.7	88.7

CQS: 92.8



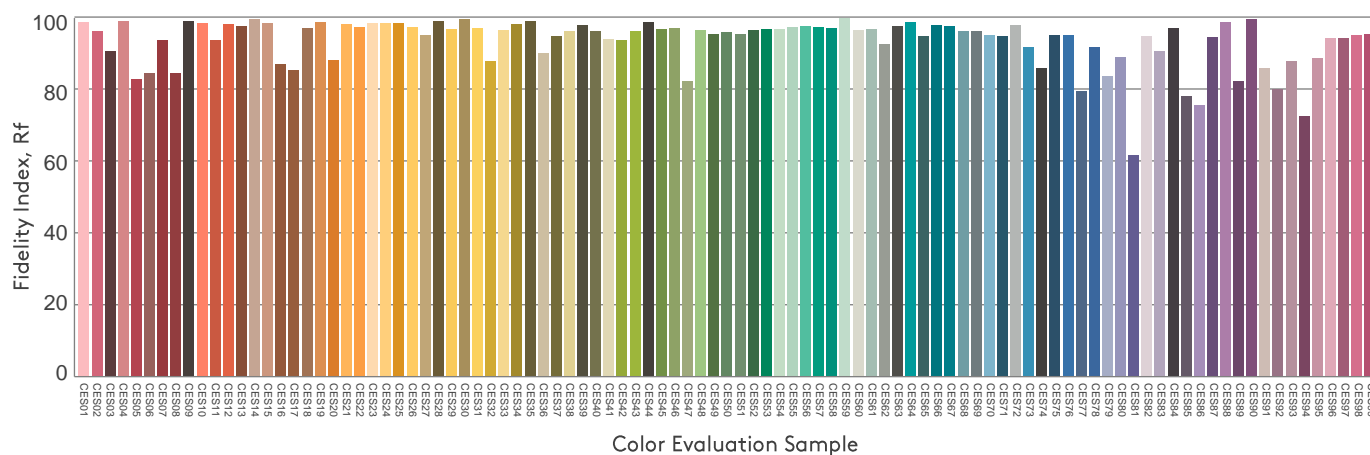
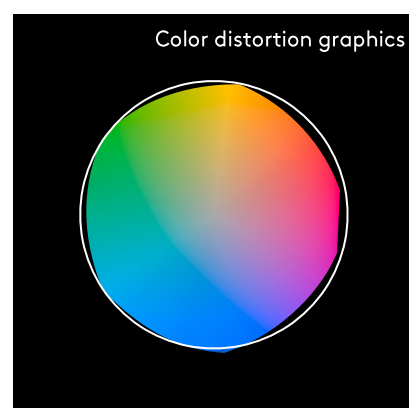
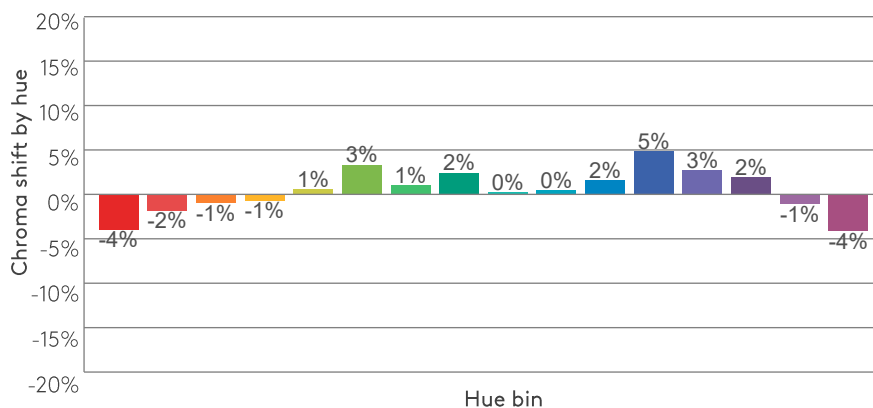
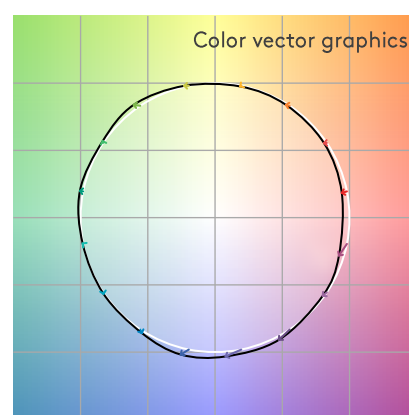
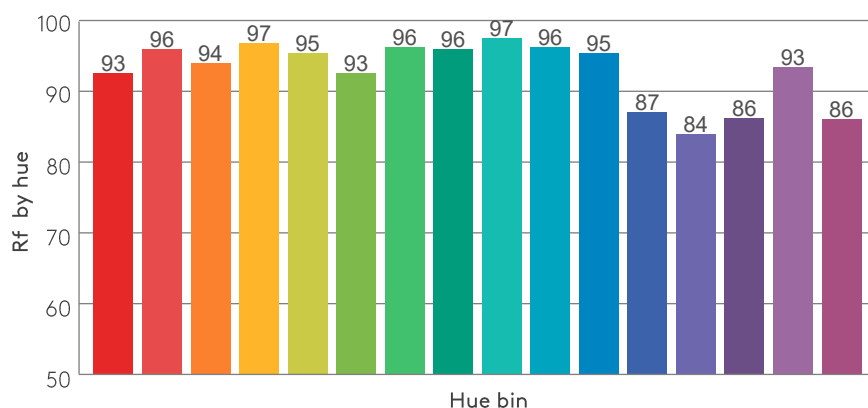
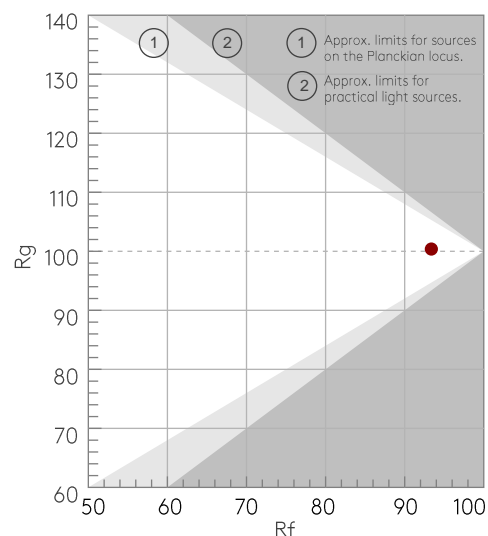
COLOR PARAMETERS

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
2699 K	96.2	71.0	93.4	100.4	92.8	0.461	0.413	0.262	0.352	0.0007

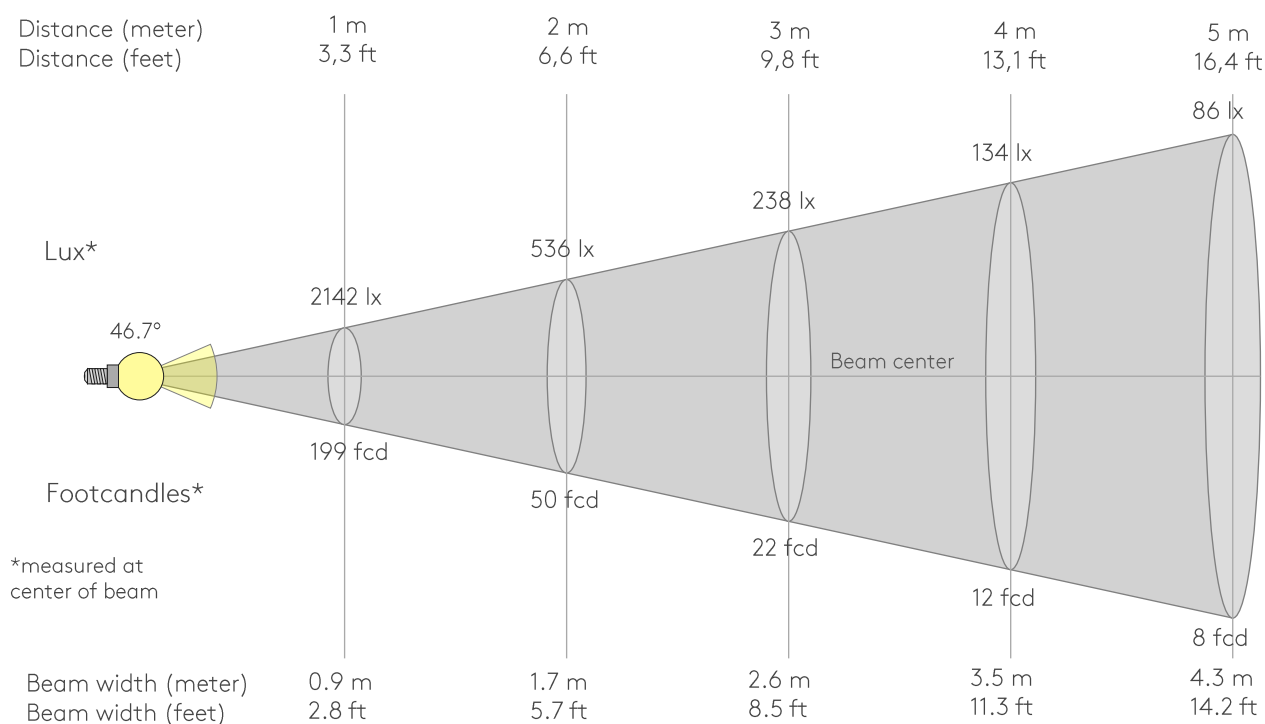
Rf 93.4
Fidelity index Rf

Rg 100.4
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	93	3%	4%
7	96	1%	-1%
8	96	2%	0%
9	97	0%	0%
10	96	0%	1%
11	95	2%	3%
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
2142lx	536lx	238lx	134lx	86lx	60lx	44lx	33lx	26lx	21lx	18lx	15lx	13lx	11lx	10lx	8lx	7lx	7lx	6lx	5lx
199fcd	49.8fcd	22.1fcd	12.4fcd	8fcd	5.5fcd	4.1fcd	3.1fcd	2.5fcd	2fcd	1.6fcd	1.4fcd	1.2fcd	1fcd	0.9fcd	0.8fcd	0.7fcd	0.6fcd	0.6fcd	0.5fcd

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°
2142	2140	2128	2103	2060	1998	1916	1813	1690	1546	1382	1200	1006	807	616	448	310	205	128	75
100%	100%	99%	98%	96%	93%	89%	85%	79%	72%	65%	56%	47%	38%	29%	21%	14%	10%	6%	3%

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°
2142	2140	2128	2103	2060	1998	1916	1813	1690	1546	1382	1200	1006	807	616	448	310	205	128	75
100%	100%	99%	98%	96%	93%	89%	85%	79%	72%	65%	56%	47%	38%	29%	21%	14%	10%	6%	3%

Intensities in 180° c-plane

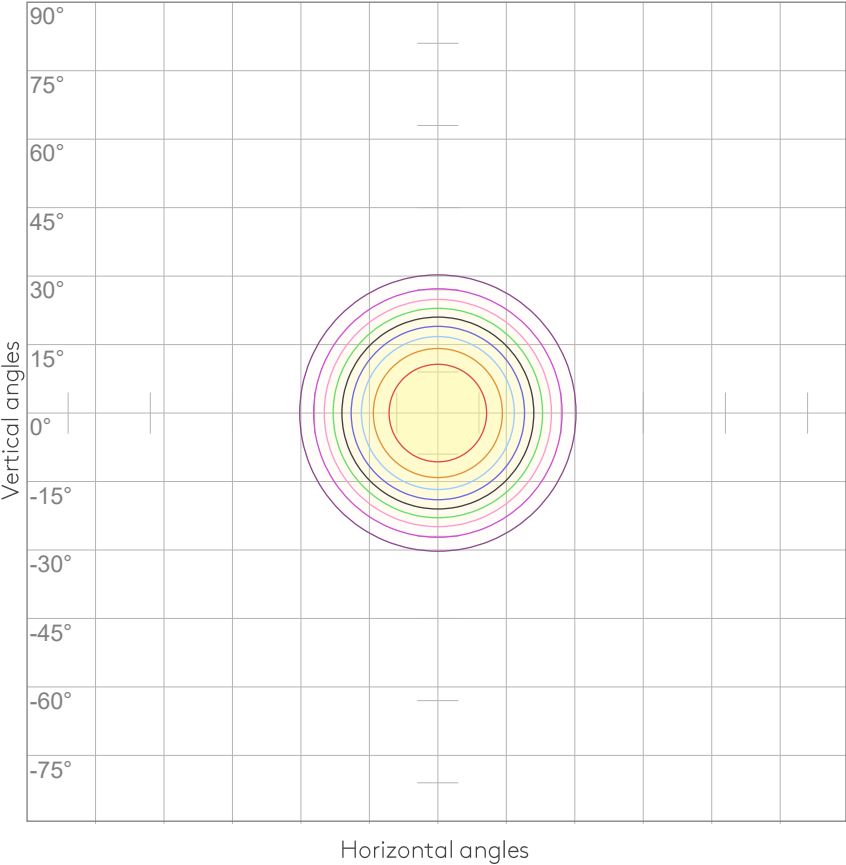
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
2142	2140	2128	2103	2060	1998	1916	1813	1690	1546	1382	1200	1006	807	616	448	310	205	128	75
100%	100%	99%	98%	96%	93%	89%	85%	79%	72%	65%	56%	47%	38%	29%	21%	14%	10%	6%	3%

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°
2142	2140	2128	2103	2060	1998	1916	1813	1690	1546	1382	1200	1006	807	616	448	310	205	128	75
100%	100%	99%	98%	96%	93%	89%	85%	79%	72%	65%	56%	47%	38%	29%	21%	14%	10%	6%	3%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
46.7°	67.6°	78°	99.7%	99.1%

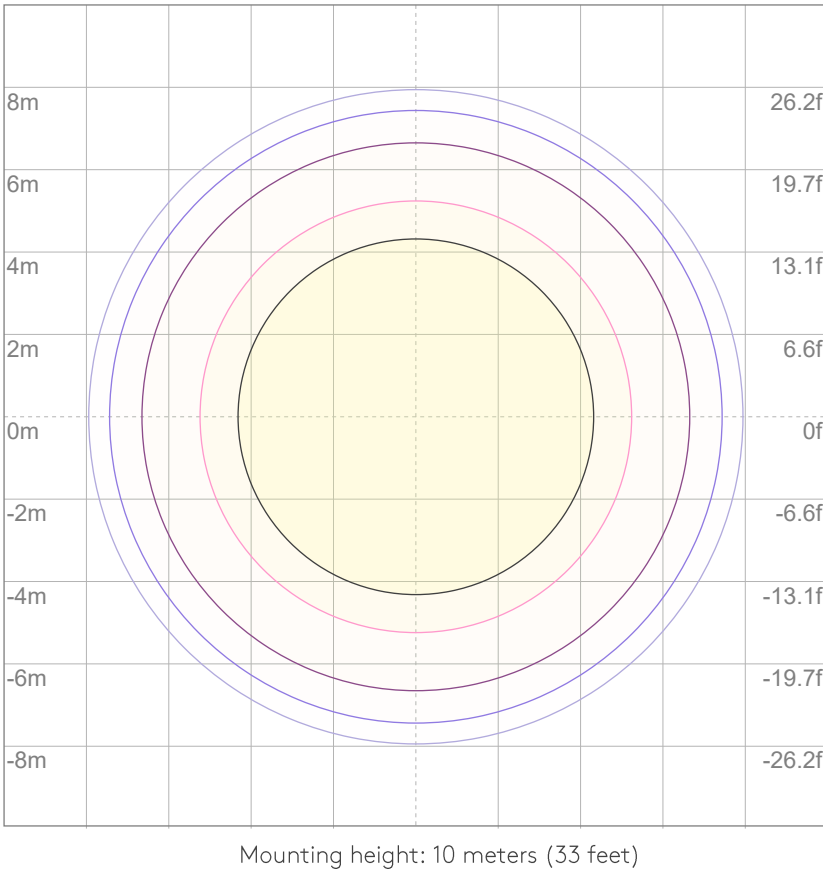
ISO CANDELA DIAGRAM



10%	214 cd
20%	428 cd
30%	643 cd
40%	857 cd
50%	1071 cd
60%	1285 cd
70%	1500 cd
80%	1714 cd
90%	1928 cd

Conditions:
Number of c-planes: 8
Candela at center: 2142 cd

ISO LUX DIAGRAM



3%	0.643 lx
5%	1.07 lx
10%	2.14 lx
30%	6.43 lx
50%	{LUX_10M50} lx

Conditions:
Number of c-planes: 8
Lux at center: 21.4 lx

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

UGR

GLARE EVALUATION ACCORDING TO UGR

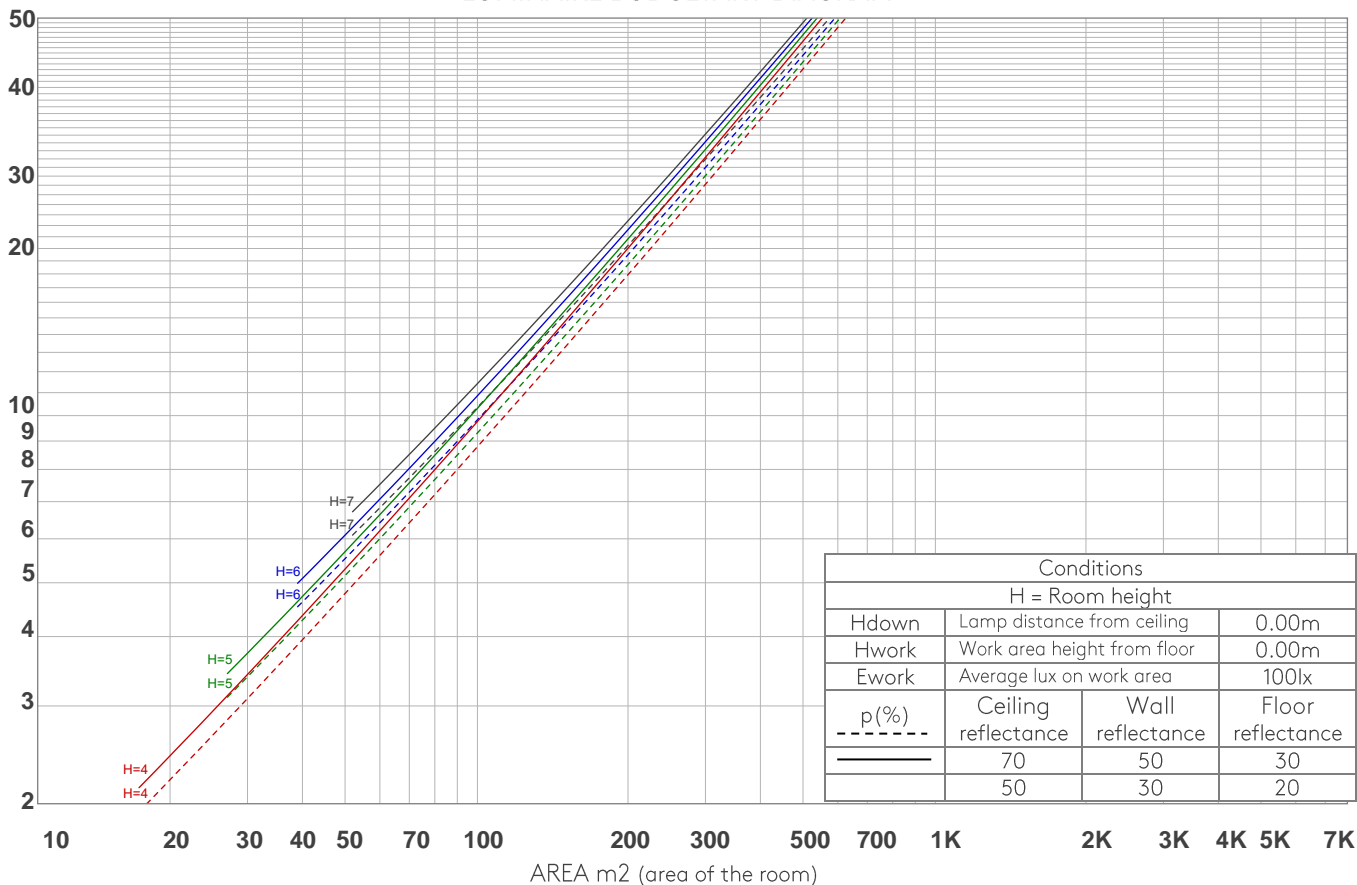
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	18.6	19.1	18.7	19.3	19.5	18.6	19.1	18.7	19.3	19.5
	3H	18.3	18.9	18.6	19.1	19.3	18.3	18.9	18.6	19.1	19.3
	4H	18.2	18.8	18.6	19.1	19.3	18.2	18.8	18.6	19.1	19.3
	6H	18.2	18.7	18.5	19.0	19.4	18.2	18.7	18.5	19.0	19.4
	8H	18.1	18.7	18.5	19.0	19.4	18.1	18.7	18.5	19.0	19.4
	12H	18.1	18.6	18.4	18.9	19.4	18.1	18.6	18.4	18.9	19.4
4H	2H	18.2	18.8	18.6	19.1	19.3	18.2	18.8	18.6	19.1	19.3
	3H	18.1	18.6	18.4	18.9	19.4	18.1	18.6	18.4	18.9	19.4
	4H	17.9	18.4	18.4	18.8	19.3	17.9	18.4	18.4	18.8	19.3
	6H	17.9	18.4	18.4	18.7	19.1	17.9	18.4	18.4	18.7	19.1
	8H	17.8	18.3	18.3	18.6	19.0	17.8	18.3	18.3	18.6	19.0
	12H	17.7	18.1	18.2	18.5	19.0	17.7	18.1	18.2	18.5	19.0
8H	4H	17.8	18.3	18.3	18.6	19.0	17.8	18.3	18.3	18.6	19.0
	6H	17.7	18.0	18.2	18.5	19.0	17.7	18.0	18.2	18.5	19.0
	8H	17.7	18.0	18.2	18.5	19.1	17.7	18.0	18.2	18.5	19.1
	12H	17.7	17.9	18.3	18.4	19.0	17.7	17.9	18.3	18.4	19.0
12H	4H	17.7	18.1	18.2	18.5	19.0	17.7	18.1	18.2	18.5	19.0
	6H	17.7	18.0	18.2	18.5	19.1	17.7	18.0	18.2	18.5	19.1
	8H	17.7	17.9	18.3	18.4	19.0	17.7	17.9	18.3	18.4	19.0
Variation of the observer position for the luminaire distance S											
S = 1.0H		6.4 / -14.0					6.4 / -14.0				
S = 1.5H		9.2 / -16.6					9.2 / -16.6				
S = 2.0H		11.2 / -18.5					11.2 / -18.5				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 1218 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	114	112	110	108	112	110	108	106	106	104	103	102	101	100	98	98	97	95
2	110	105	102	99	107	104	100	98	100	98	96	97	95	94	95	93	92	90
3	105	100	95	92	103	98	94	91	96	92	90	93	90	88	91	89	87	85
4	101	94	90	86	99	93	89	85	91	87	84	89	86	83	87	85	82	81
5	97	90	85	81	95	89	84	80	87	83	80	85	82	79	84	81	78	77
6	93	85	80	76	91	84	80	76	83	79	76	82	78	75	80	77	75	73
7	89	81	76	72	88	81	76	72	79	75	72	78	74	71	77	74	71	70
8	86	77	72	69	84	77	72	69	76	72	68	75	71	68	74	70	68	67
9	82	74	69	66	81	74	69	65	73	68	65	72	68	65	71	67	65	64
10	79	71	66	63	78	70	66	63	70	65	62	69	65	62	68	65	62	61

LAMPS (number of lamps)

LUMINAIRE BUDGETARY DIAGRAM



ZONAL LUMEN SUMMARY

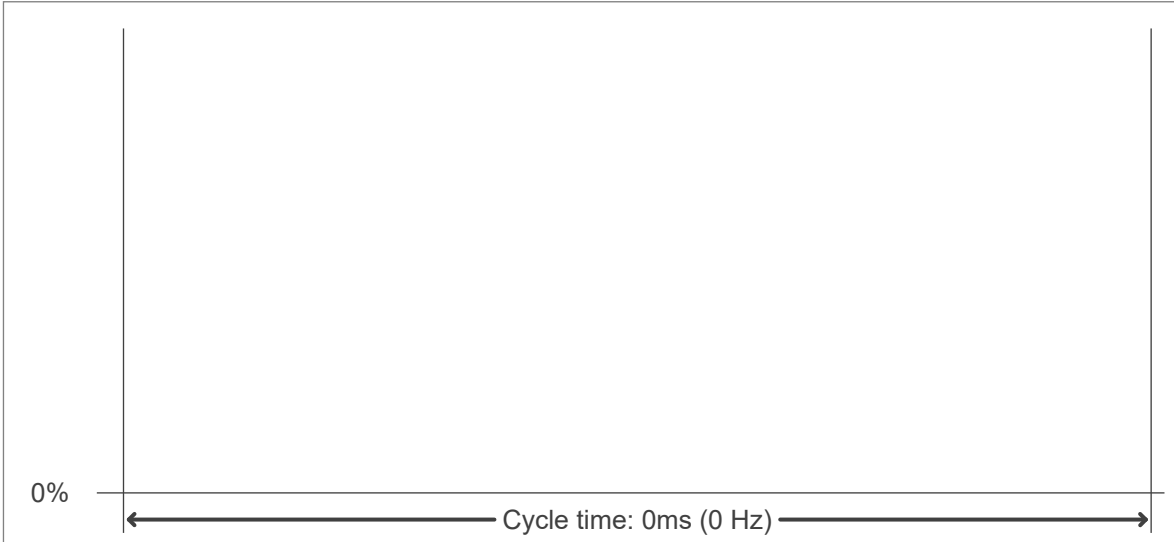
0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
199 lm	482 lm	407 lm	113 lm	11.0 lm	3.60 lm	1.13 lm	0.333 lm	0.095 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0.058 lm	0.048 lm	0.061 lm	0.116 lm	0.270 lm	0.480 lm	0.538 lm	0.367 lm	0.110 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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