

PHOTOMETRIC TEST REPORT

MINIMA PRO SQUARE
ADJUSTABLE - MATT WHITE -
4001331

astro

MINIMA PRO SQUARE ADJUSTABLE - MATT

astro

LIGHT EFFICIENCY:

104 Lumen/Watt

LIGHT QUALITY:

CRI: 96.2

COLOR TEMPERATURE:

2701 K

OUTPUT: 1215 lm

PEAK: 2228 cd

POWER: 11.7 W

PF: 0.95



Tracking number: [n/a](#)

Product name:

Minima Pro Square Adjustable - Matt
White - 4001331

Item number:

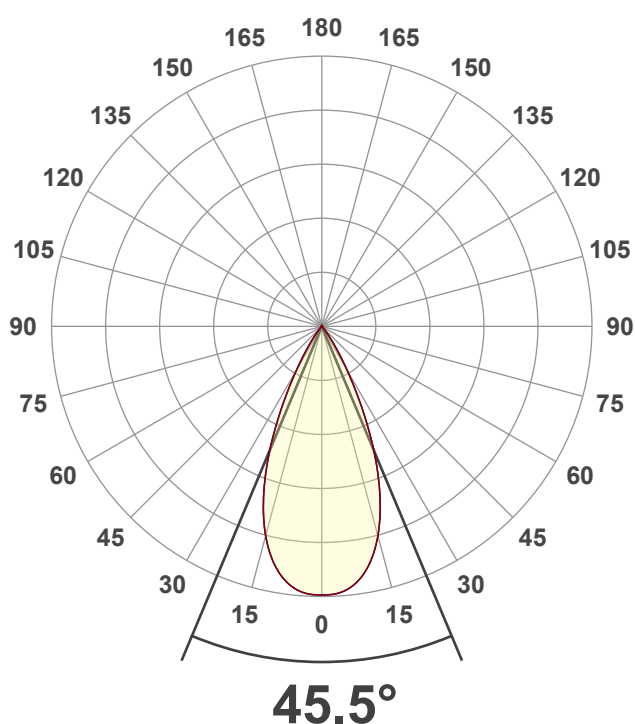
MSA-MW-HE27G1-50G1-X-D1

Date and time:

04/02/2025 14:11:23

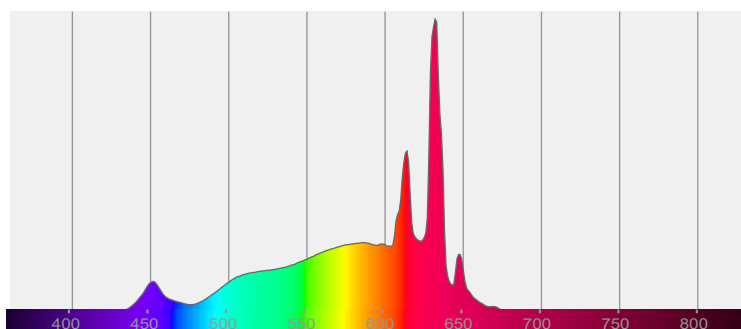
Description:

IP20 LED Downlight

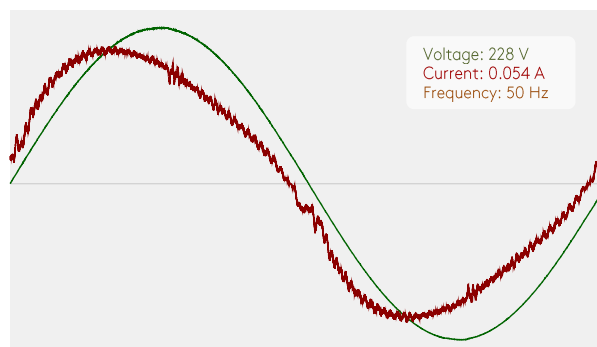


CIE 1931
x: 0.461
y: 0.413

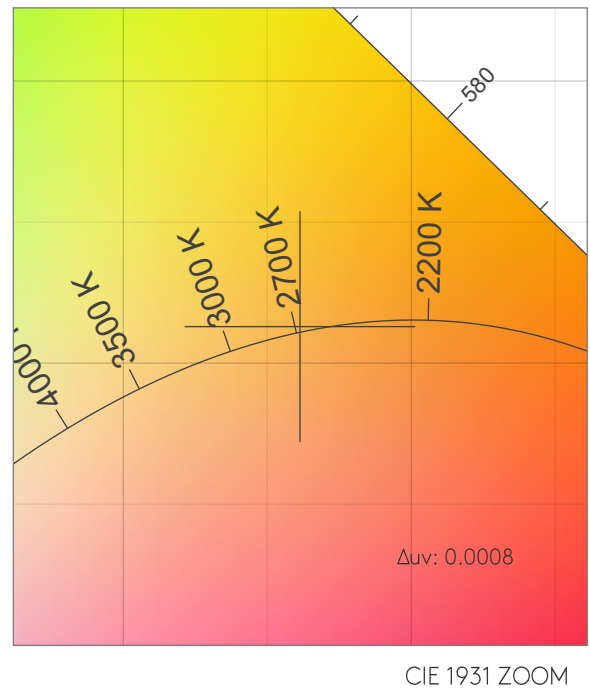
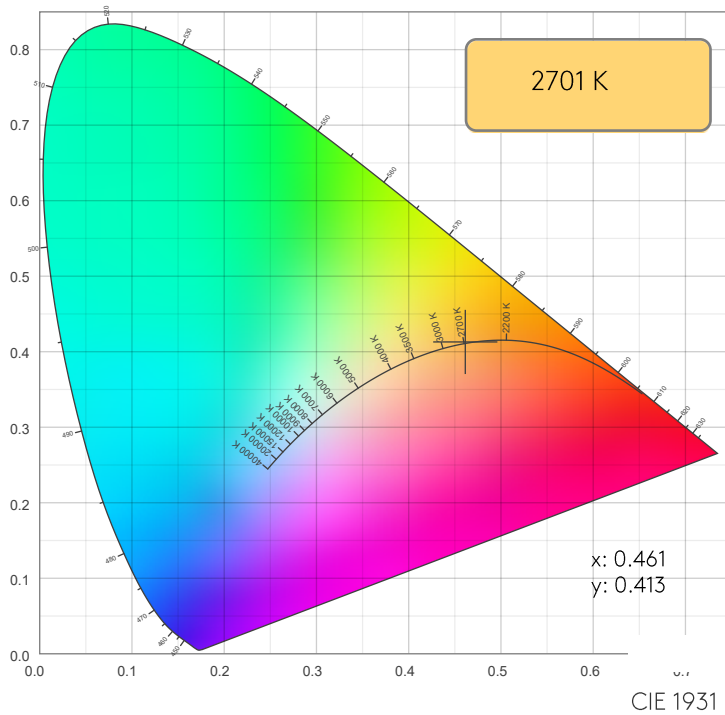
SPECTRA



POWER

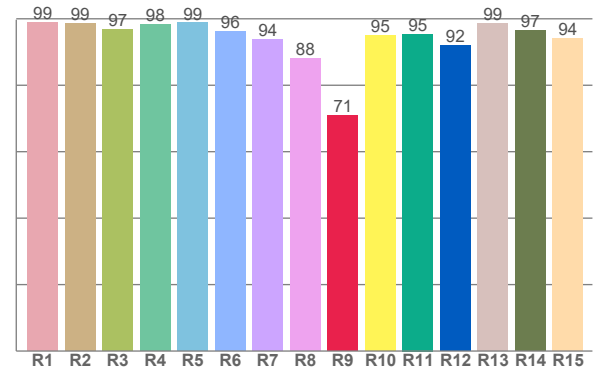
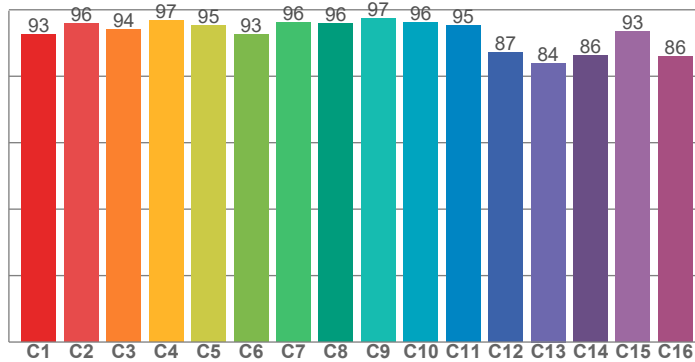


COLOR DETAILS



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	98.3	98.8	96.3	93.9	88.0	70.9	94.9	95.4	92.0	98.6	96.5	94.2

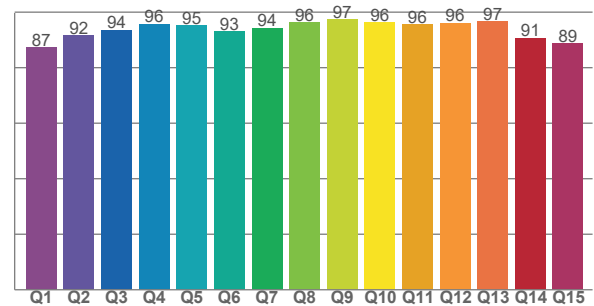
TM30 C values, 16 binned values out of total of 99 C values

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	92.6	96.3	96.0	97.5	96.3	95.4	87.1	84.0	86.2	93.3	86.1

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
87.2	91.5	93.5	95.7	95.1	93.0	94.4	96.3	97.4	96.3	95.6	96.1	96.7	90.6	88.7

CQS: 92.8



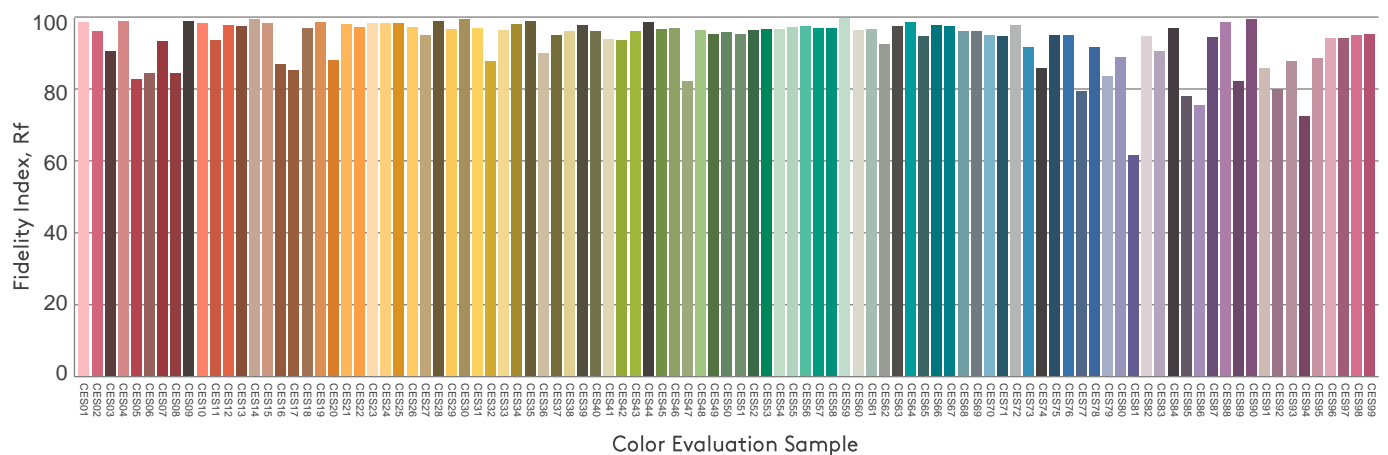
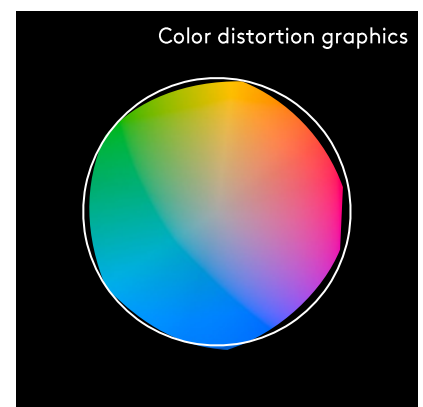
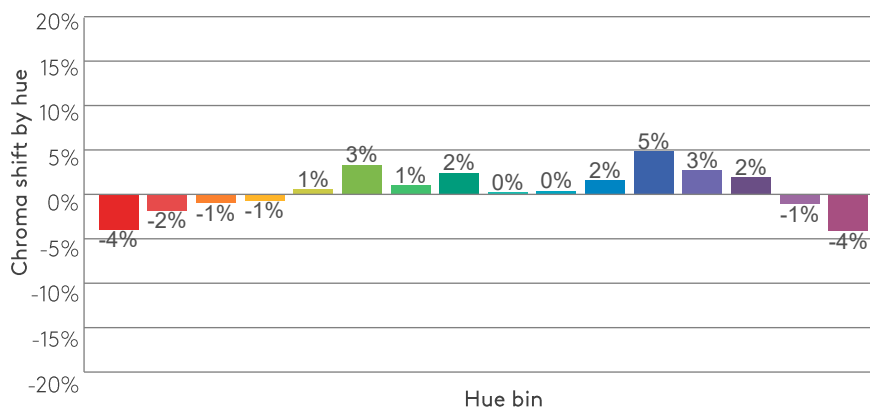
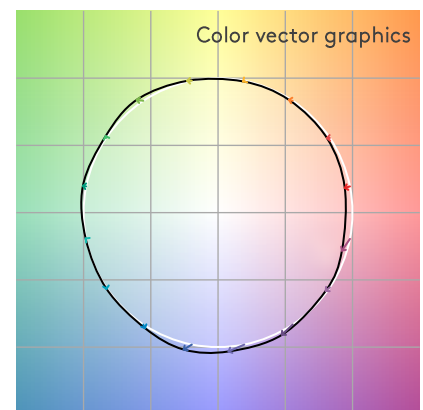
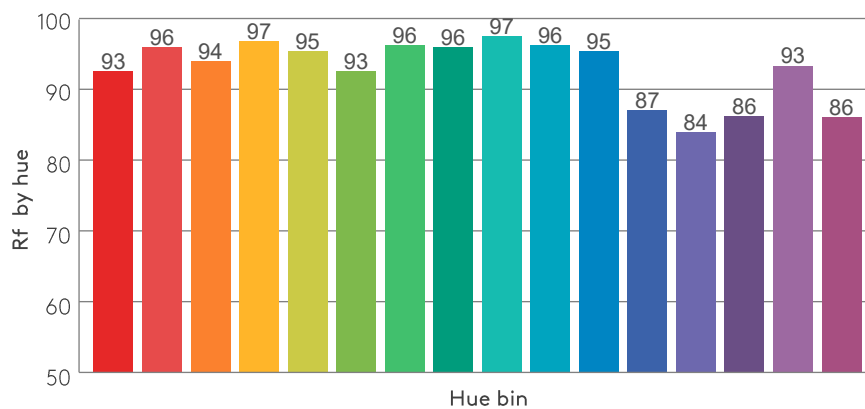
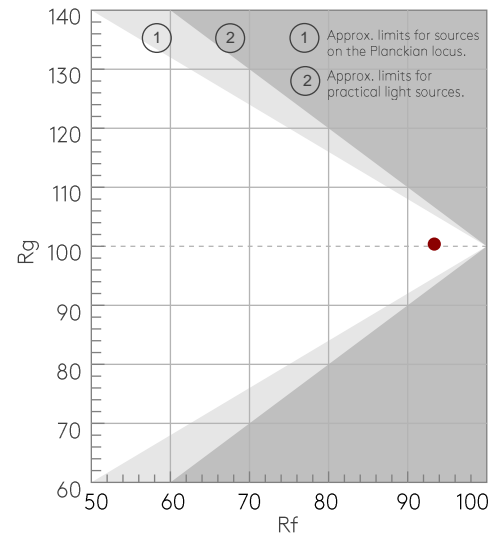
COLOR PARAMETERS

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
2701 K	96.2	70.9	93.4	100.4	92.8	0.461	0.413	0.262	0.352	0.0008

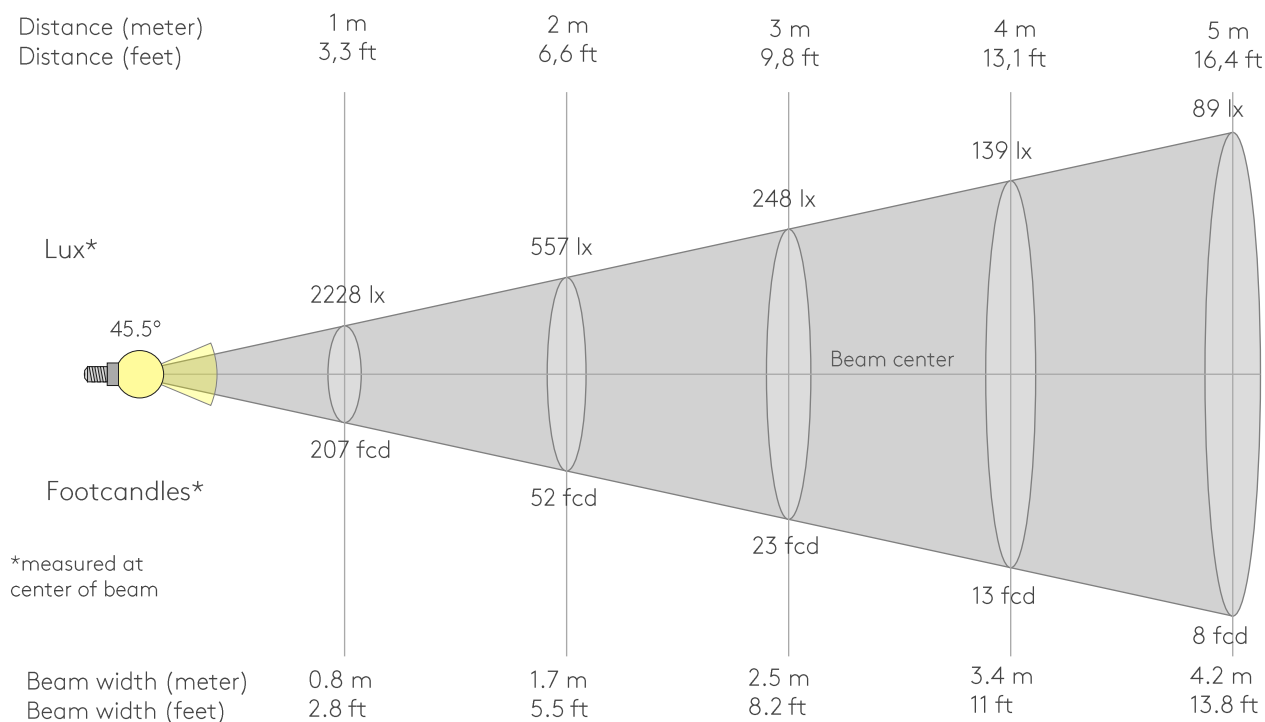
Rf 93.4
Fidelity index Rf

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
2228lx	557lx	248lx	139lx	89lx	62lx	45lx	35lx	28lx	22lx	18lx	15lx	13lx	11lx	10lx	9lx	8lx	7lx	6lx	6lx
207fcd	51.7fcd	23fcd	12.9fcd	8.3fcd	5.7fcd	4.2fcd	3.2fcd	2.6fcd	2.1fcd	1.7fcd	1.4fcd	1.2fcd	1.1fcd	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°
2228	2225	2212	2182	2134	2065	1974	1861	1725	1566	1387	1191	984	777	585	422	290	190	118	66
100%	100%	99%	98%	96%	93%	89%	84%	77%	70%	62%	53%	44%	35%	26%	19%	13%	9%	5%	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°
2228	2225	2212	2182	2134	2065	1974	1861	1725	1566	1387	1191	984	777	585	422	290	190	118	66
100%	100%	99%	98%	96%	93%	89%	84%	77%	70%	62%	53%	44%	35%	26%	19%	13%	9%	5%	3%

Intensities in 180° c-plane

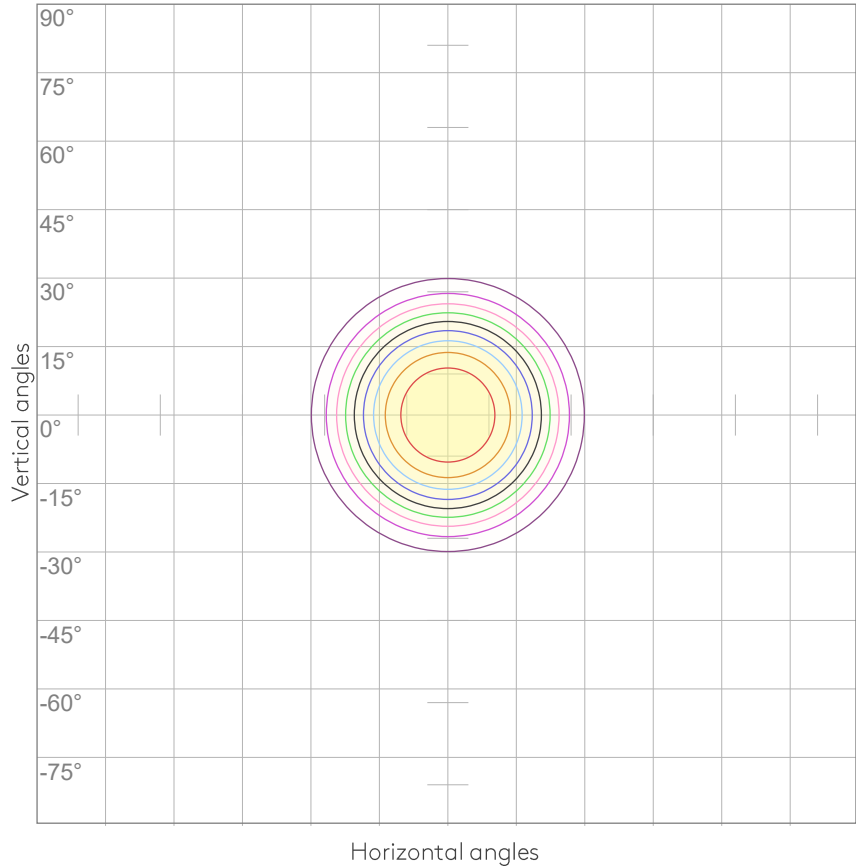
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
2228	2225	2212	2182	2134	2065	1974	1861	1725	1566	1387	1191	984	777	585	422	290	190	118	66
100%	100%	99%	98%	96%	93%	89%	84%	77%	70%	62%	53%	44%	35%	26%	19%	13%	9%	5%	3%

Intensities in 270° c-plane

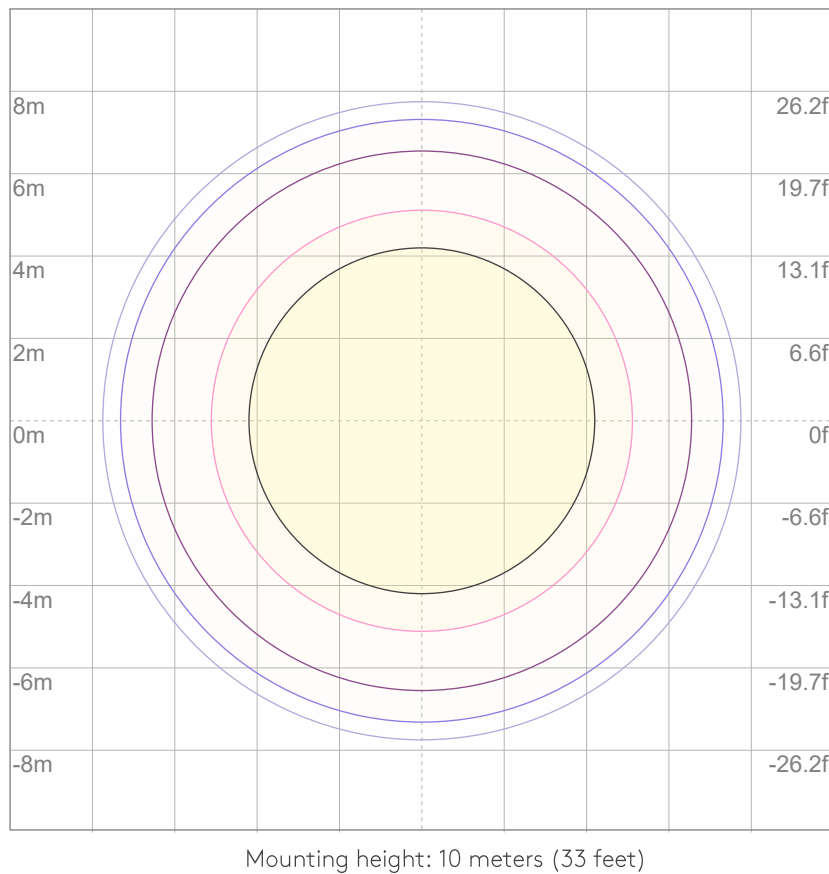
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
2228	2225	2212	2182	2134	2065	1974	1861	1725	1566	1387	1191	984	777	585	422	290	190	118	66
100%	100%	99%	98%	96%	93%	89%	84%	77%	70%	62%	53%	44%	35%	26%	19%	13%	9%	5%	3%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
45.5°	66.5°	77.1°	99.7%	99.2%

ISO CANDELA DIAGRAM



ISO LUX DIAGRAM



UGR

GLARE EVALUATION ACCORDING TO UGR

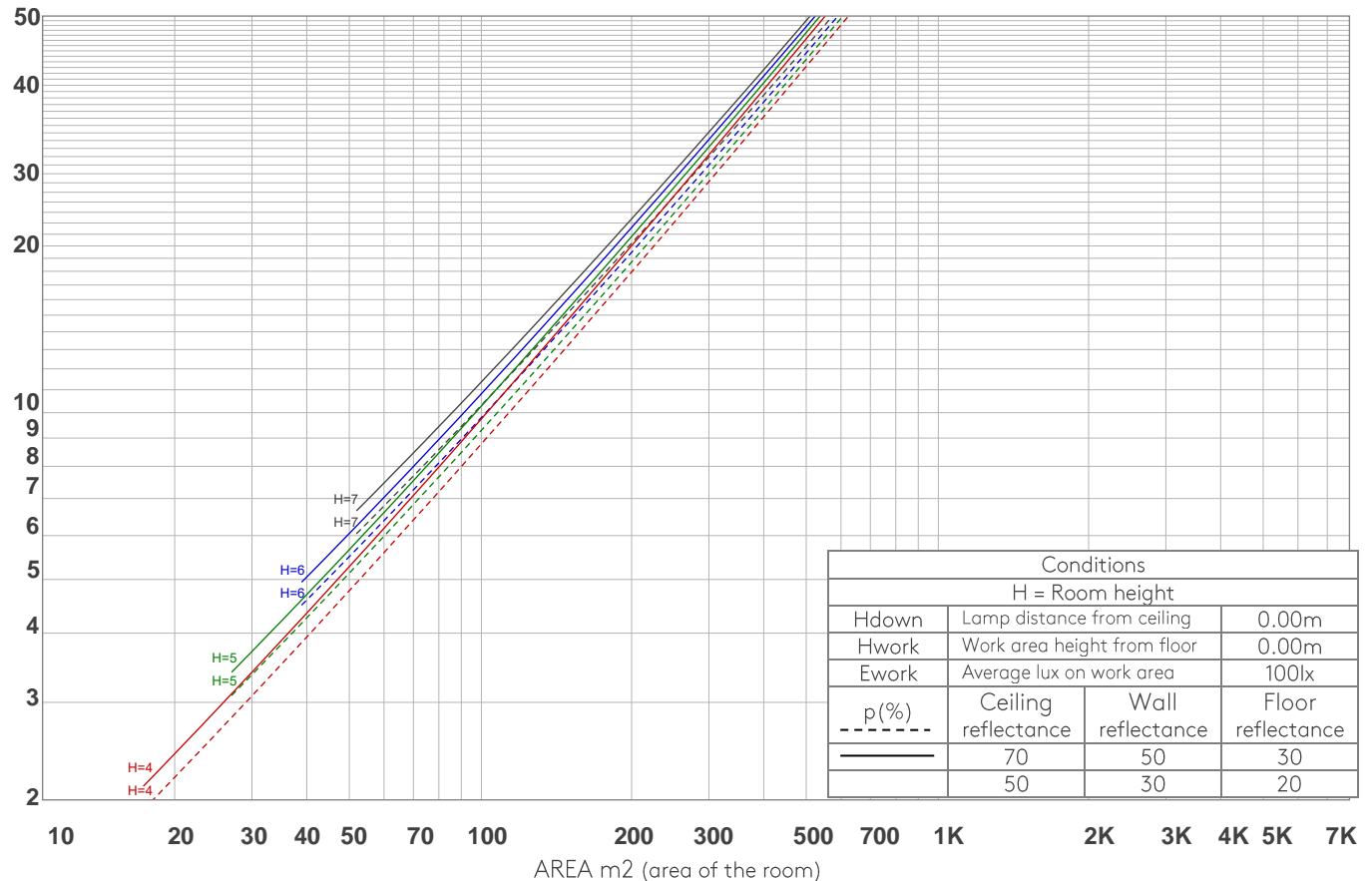
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	18.1	18.6	18.1	18.8	19.0	18.1	18.6	18.1	18.8	19.0
	3H	17.8	18.4	18.1	18.6	18.8	17.8	18.4	18.1	18.6	18.8
	4H	17.7	18.3	18.1	18.5	18.8	17.7	18.3	18.1	18.5	18.8
	6H	17.7	18.2	18.0	18.5	18.8	17.7	18.2	18.0	18.5	18.8
	8H	17.6	18.1	17.9	18.5	18.8	17.6	18.1	17.9	18.5	18.8
	12H	17.6	18.1	17.9	18.4	18.8	17.6	18.1	17.9	18.4	18.8
4H	2H	17.7	18.3	18.1	18.5	18.8	17.7	18.3	18.1	18.5	18.8
	3H	17.6	18.1	17.9	18.4	18.8	17.6	18.1	17.9	18.4	18.8
	4H	17.4	17.9	17.8	18.3	18.8	17.4	17.9	17.8	18.3	18.8
	6H	17.3	17.8	17.8	18.2	18.5	17.3	17.8	17.8	18.2	18.5
	8H	17.3	17.7	17.8	18.1	18.5	17.3	17.7	17.8	18.1	18.5
	12H	17.2	17.6	17.7	18.0	18.4	17.2	17.6	17.7	18.0	18.4
8H	4H	17.3	17.7	17.8	18.1	18.5	17.3	17.7	17.8	18.1	18.5
	6H	17.2	17.5	17.7	18.0	18.5	17.2	17.5	17.7	18.0	18.5
	8H	17.2	17.4	17.7	18.0	18.6	17.2	17.4	17.7	18.0	18.6
	12H	17.1	17.3	17.7	17.8	18.4	17.1	17.3	17.7	17.8	18.4
12H	4H	17.2	17.6	17.7	18.0	18.4	17.2	17.6	17.7	18.0	18.4
	6H	17.2	17.4	17.7	18.0	18.6	17.2	17.4	17.7	18.0	18.6
	8H	17.1	17.3	17.7	17.8	18.4	17.1	17.3	17.7	17.8	18.4
Variation of the observer position for the luminaire distance S											
S = 1.0H		6.4 / -15.0					6.4 / -15.0				
S = 1.5H		9.2 / -17.1					9.2 / -17.1				
S = 2.0H		11.2 / -19.4					11.2 / -19.4				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 1215 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	99	98	97	95
2	110	105	102	99	108	104	101	98	101	98	96	98	96	94	95	93	92	90
3	105	100	96	92	103	98	95	91	96	93	90	93	91	89	91	89	87	86
4	101	95	90	86	99	93	89	86	91	88	85	89	86	84	88	85	83	82
5	97	90	85	81	95	89	84	81	87	83	80	86	82	80	84	81	79	78
6	93	86	81	77	92	85	80	77	83	79	76	82	78	76	81	78	75	74
7	89	82	77	73	88	81	76	73	80	76	72	79	75	72	78	74	72	71
8	86	78	73	70	85	77	73	69	76	72	69	76	72	69	75	71	69	67
9	83	75	70	66	82	74	69	66	73	69	66	72	69	66	72	68	66	64
10	80	72	67	63	79	71	66	63	70	66	63	70	66	63	69	65	63	62

LAMPS (number of lamps)

LUMINAIRE BUDGETARY DIAGRAM



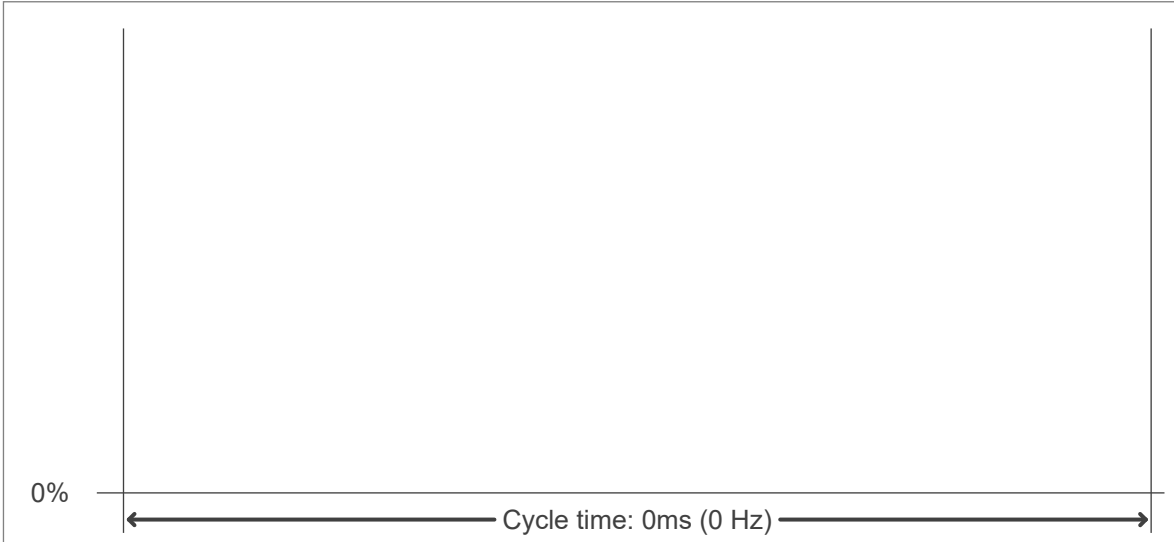
ZONAL LUMEN SUMMARY

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
206 lm	493 lm	396 lm	105 lm	9.28 lm	3.03 lm	0.963 lm	0.221 lm	0.104 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0.079 lm	0.094 lm	0.096 lm	0.140 lm	0.254 lm	0.447 lm	0.482 lm	0.320 lm	0.089 lm

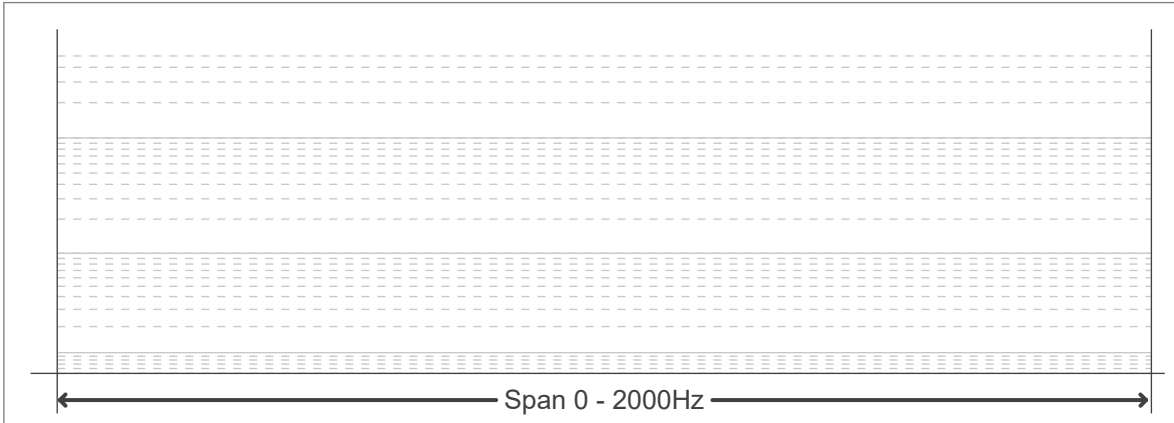
FLICKER CURVE (COMPLETE SAMPLED)



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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