

# PHOTOMETRIC TEST REPORT

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KOS ROUND 100 LED TEXTURED  
BLACK

astro

# KOS ROUND 100 LED TEXTURED BLACK

astro

## LIGHT EFFICIENCY:

51 Lumen/Watt

OUTPUT: 316 lm

## LIGHT QUALITY:

CRI: 93.0

PEAK: 675 cd

## COLOR TEMPERATURE:

2994 K

POWER: 6.2 W

PF: 0.98



Tracking number: [n/a](#)

Product name:

Kos Round 100 LED Textured Black

Item number:

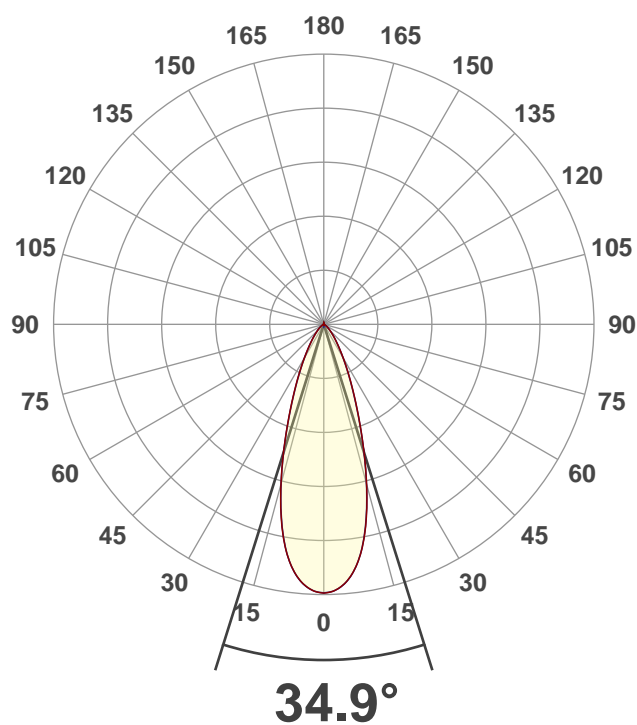
1326062

Date and time:

05/05/2021 10:19:57

Description:

IP65 LED Surface Mounted Downlight

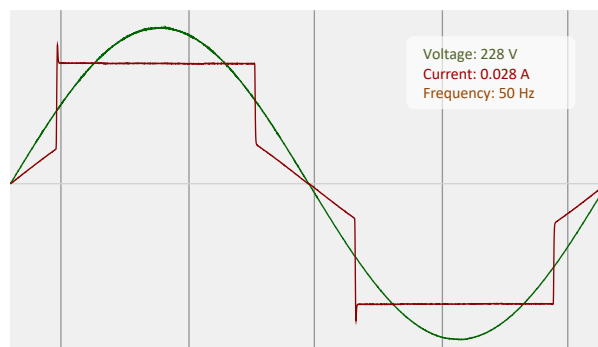


CIE 1931  
x: 0.435  
y: 0.400

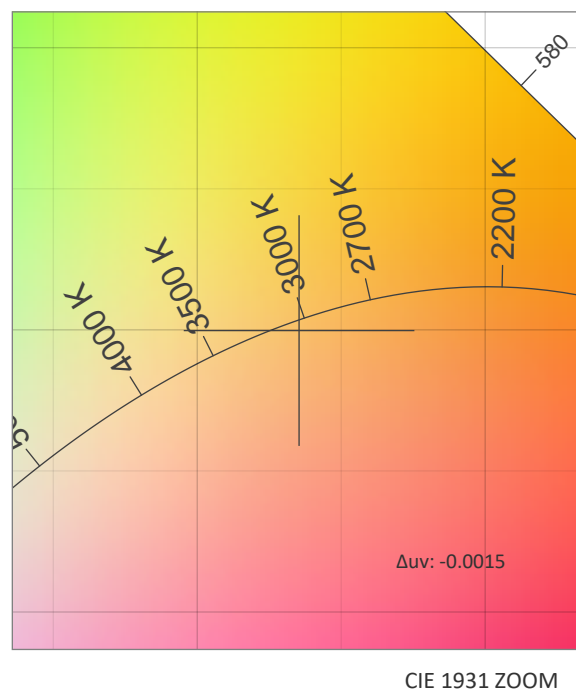
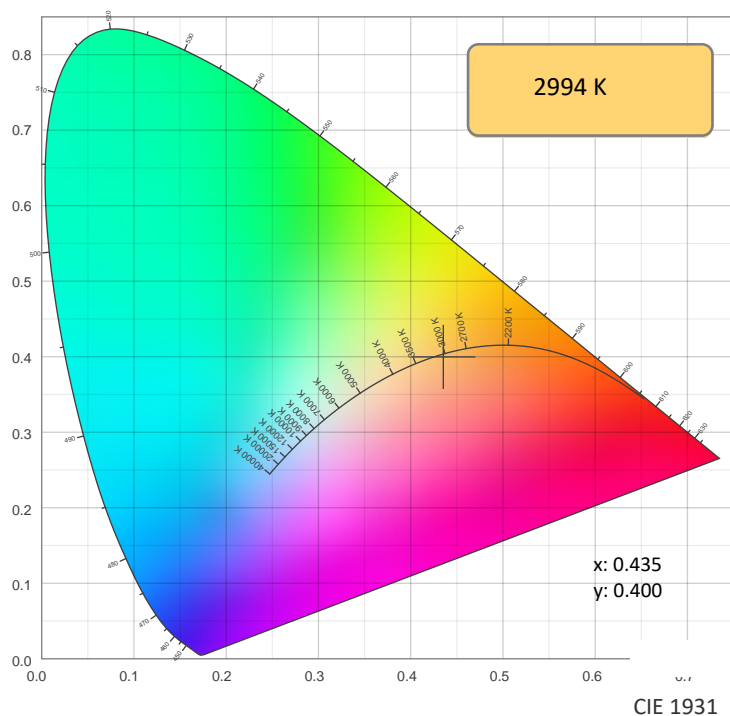
## SPECTRA



## POWER

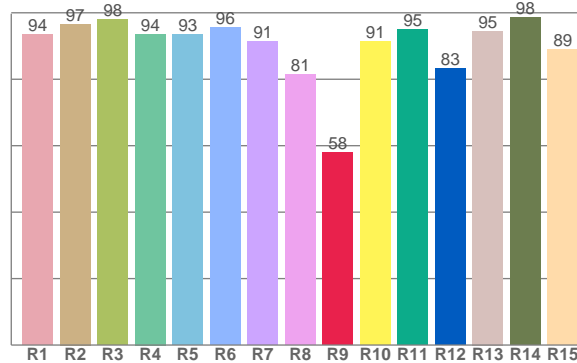
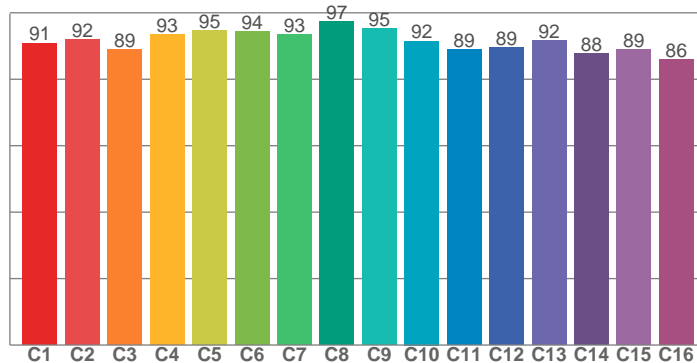


## COLOR DETAILS



TM30: 91.6

CRI: 93.0 (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
93.5	96.6	98.1	93.6	93.5	95.7	91.4	81.3	58.1	91.5	94.9	83.3	94.5	98.5	89.1

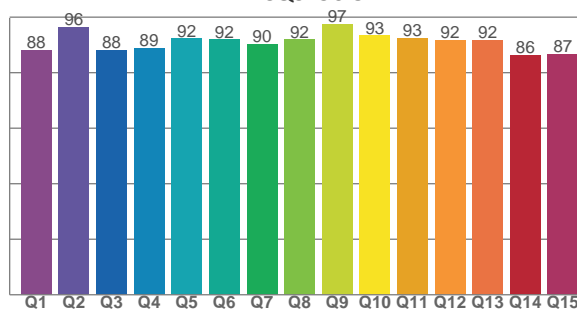
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
90.9	91.9	88.9	93.4	94.8	94.4	93.5	97.4	95.3	91.5	88.9	89.5	91.7	87.6	89.0	86.0

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
88.0	96.4	88.1	88.9	92.2	91.9	90.3	91.9	97.5	93.4	92.6	91.8	91.6	86.4	86.7

CQS: 90.5



## 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	$\Delta uv$
2994 K	93.0	58.1	91.6	100.4	90.5	0.435	0.400	0.251	0.346	-0.0015

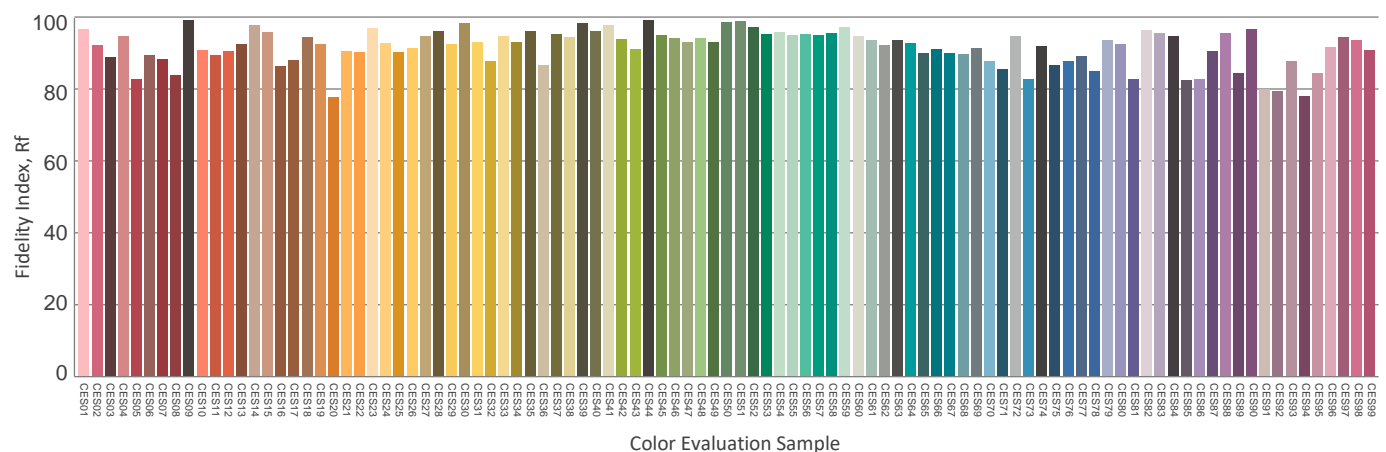
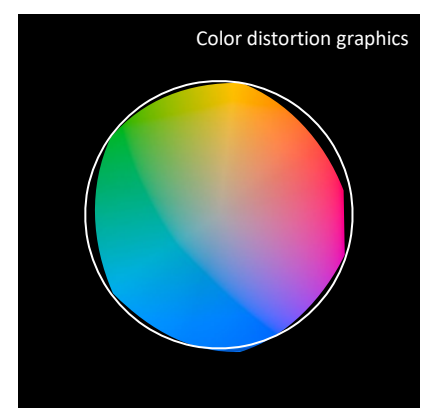
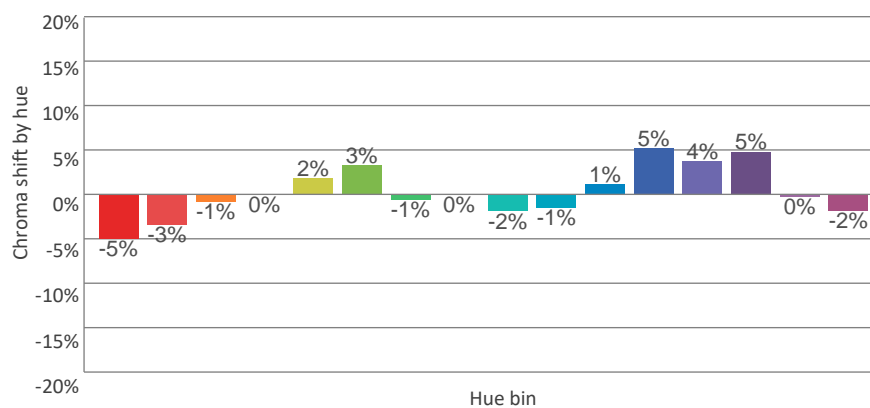
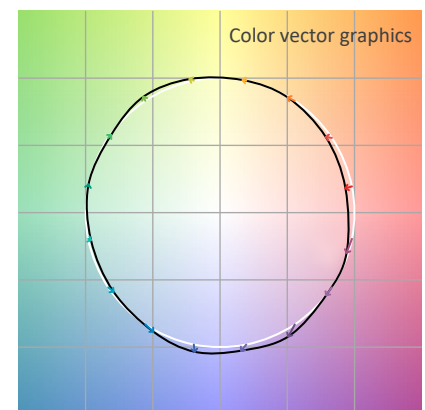
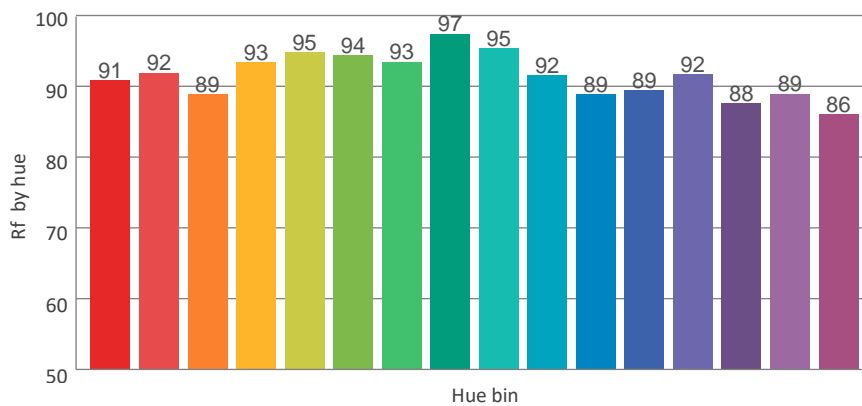
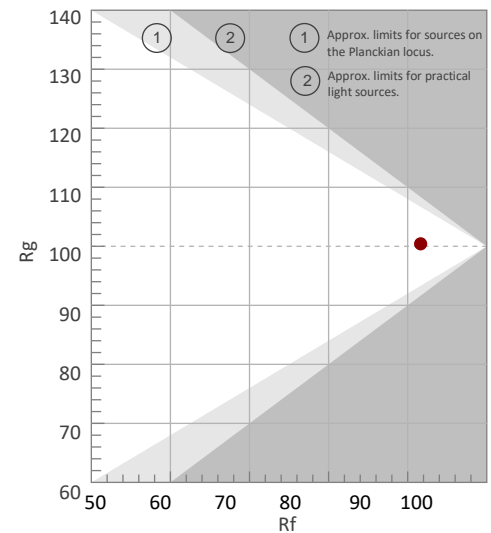
Rf 91.6

Fidelity index Rf

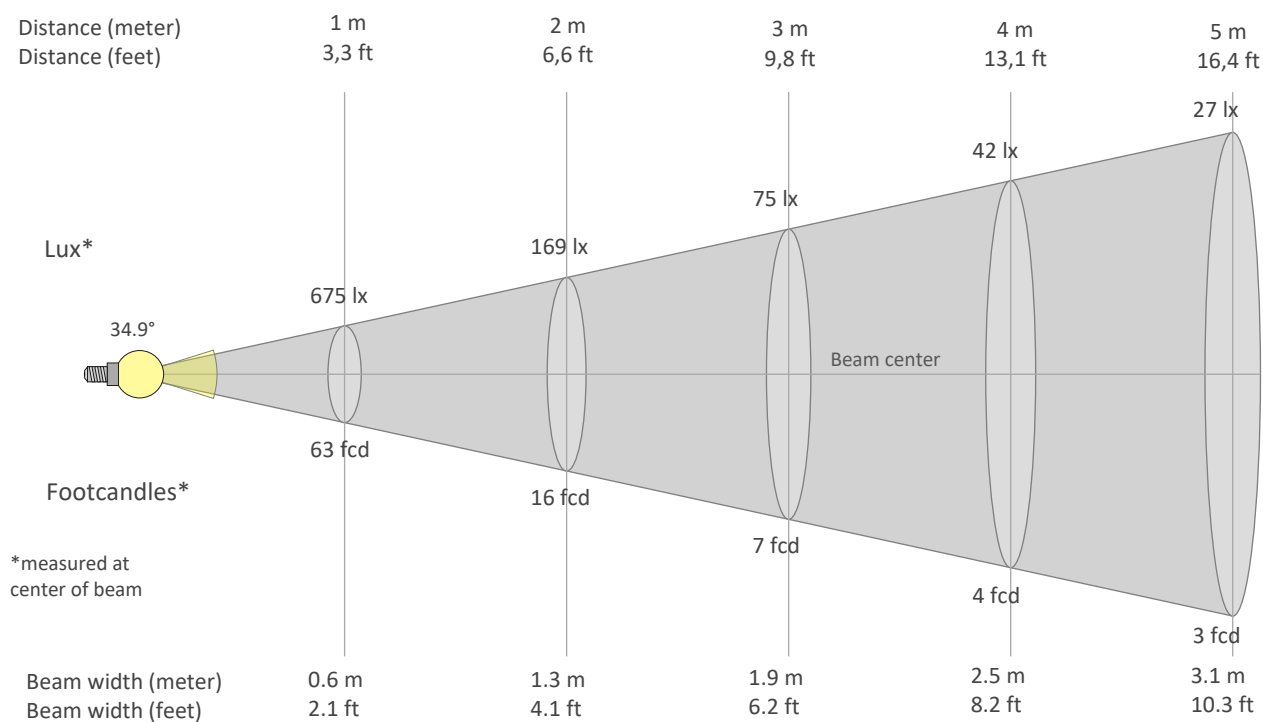
Rg 100.4

Gammut index Rg

Hue Bin	Rf	Graphic shifts (%)	
		Chroma	Hue
1	91	-5%	0%
2	92	-3%	3%
3	89	-1%	6%
4	93	0%	3%
5	95	2%	3%
6	94	3%	0%
7	93	-1%	-3%
8	97	0%	-1%
9	95	-2%	1%
10	92	-1%	5%
11	89	1%	8%
12	89	5%	2%
13	92	4%	-5%
14	88	5%	-9%
15	89	0%	-7%
16	86	-2%	-11%



## 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
675lx	169lx	75lx	42lx	27lx	19lx	14lx	11lx	8lx	7lx	6lx	5lx	4lx	3lx	3lx	3lx	2lx	2lx	2lx	2lx
62.7fcd	15.7fcd	7fcd	3.9fcd	2.5fcd	1.7fcd	1.3fcd	1fcd	0.8fcd	0.6fcd	0.5fcd	0.4fcd	0.4fcd	0.3fcd	0.3fcd	0.2fcd	0.2fcd	0.2fcd	0.2fcd	0.2fcd

## 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°
675	671	658	637	606	563	509	448	383	321	265	218	179	146	120	98	79	65	53	44
100%	99%	98%	94%	90%	83%	75%	66%	57%	48%	39%	32%	26%	22%	18%	14%	12%	10%	8%	7%

## 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°
675	671	658	637	606	562	508	446	382	320	263	216	176	144	118	96	79	65	53	44
100%	99%	98%	94%	90%	83%	75%	66%	57%	47%	39%	32%	26%	21%	17%	14%	12%	10%	8%	7%

## Intensities in 180° c-plane

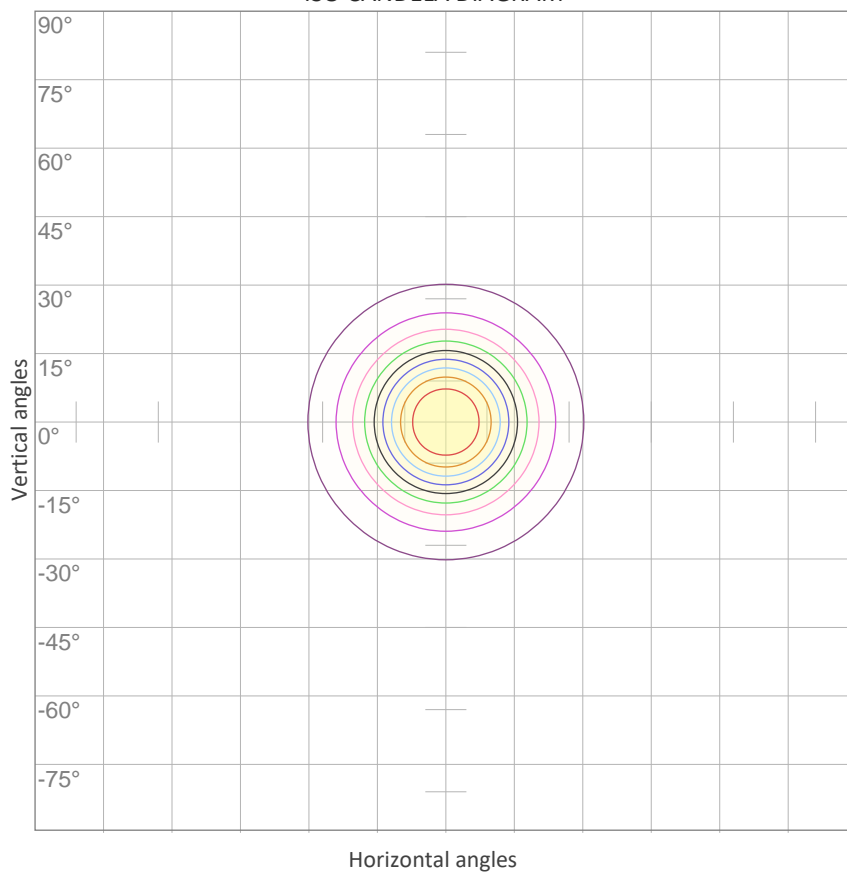
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
675	671	658	637	606	563	509	448	383	321	265	218	179	146	120	98	79	65	53	44
100%	99%	98%	94%	90%	83%	75%	66%	57%	48%	39%	32%	26%	22%	18%	14%	12%	10%	8%	7%

## 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°
675	671	658	637	606	562	508	446	382	320	263	216	176	144	118	96	79	65	53	44
100%	99%	98%	94%	90%	83%	75%	66%	57%	47%	39%	32%	26%	21%	17%	14%	12%	10%	8%	7%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
34.9°	67°	95.9°	98.2%	93.4%

ISO CANDELA DIAGRAM



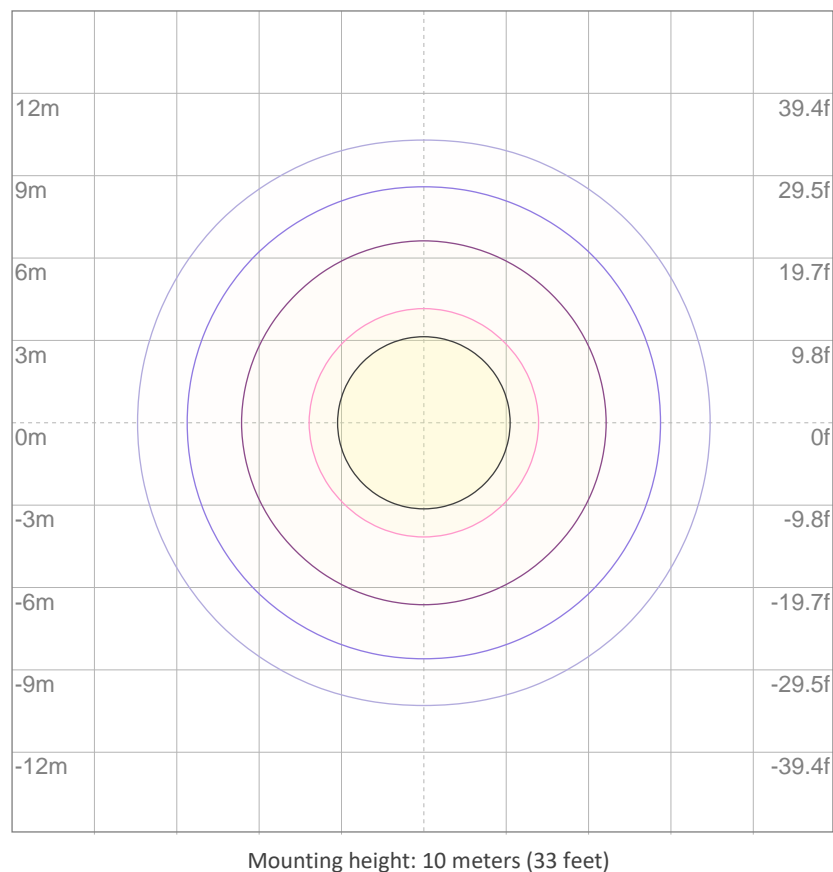
10%	67 cd
20%	135 cd
30%	202 cd
40%	270 cd
50%	337 cd
60%	405 cd
70%	472 cd
80%	540 cd
90%	607 cd

Conditions:

Number of c-planes: 8

Candela at center: 675 cd

ISO LUX DIAGRAM



3%	0.202 lx
5%	0.337 lx
10%	0.675 lx
30%	2.02 lx
50%	{LUX_10M50} lx

Conditions:

Number of c-planes: 8

Lux at center: 6.75 lx

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

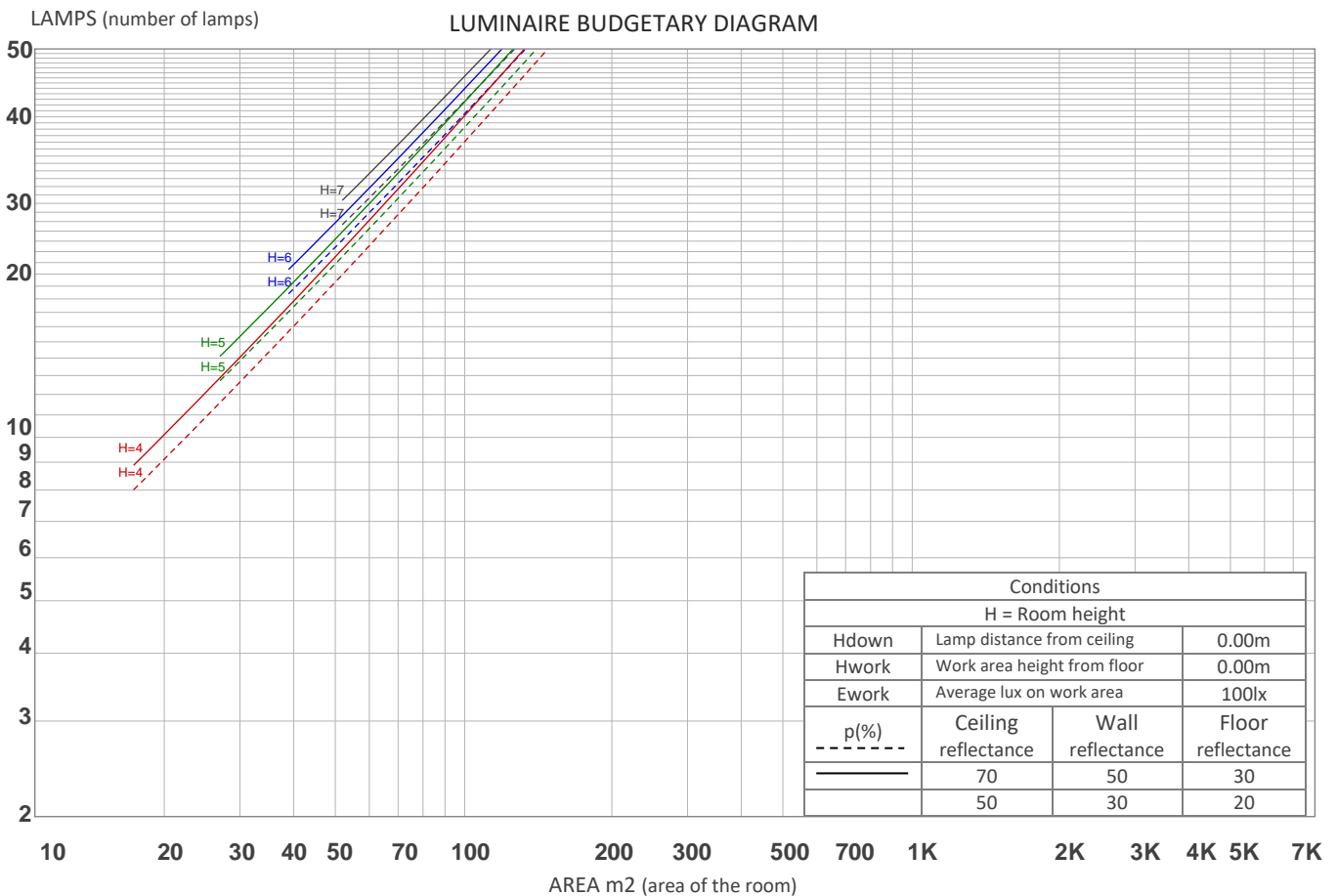
## UGR

## 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	14.6	15.2	14.7	15.4	15.6	14.5	15.1	14.6	15.3	15.5
	3H	14.4	15.1	14.7	15.3	15.5	14.3	15.0	14.7	15.2	15.4
	4H	14.3	15.0	14.7	15.2	15.4	14.2	14.9	14.6	15.1	15.4
	6H	14.3	14.9	14.6	15.2	15.5	14.2	14.8	14.5	15.1	15.5
	8H	14.2	14.8	14.6	15.1	15.5	14.2	14.7	14.5	15.1	15.4
	12H	14.2	14.7	14.5	15.1	15.5	14.1	14.7	14.5	15.0	15.4
4H	2H	14.3	15.0	14.7	15.2	15.4	14.2	14.9	14.6	15.2	15.4
	3H	14.3	14.8	14.6	15.2	15.6	14.2	14.8	14.6	15.1	15.5
	4H	14.2	14.6	14.6	15.1	15.6	14.1	14.6	14.5	15.0	15.5
	6H	14.1	14.6	14.6	14.9	15.3	14.0	14.6	14.5	14.9	15.2
	8H	14.0	14.5	14.5	14.9	15.2	14.0	14.4	14.5	14.8	15.2
	12H	14.0	14.3	14.5	14.8	15.2	13.9	14.3	14.4	14.7	15.2
8H	4H	14.0	14.5	14.5	14.9	15.2	14.0	14.5	14.5	14.8	15.2
	6H	14.0	14.3	14.5	14.8	15.3	13.9	14.2	14.4	14.7	15.2
	8H	14.0	14.2	14.5	14.7	15.4	13.9	14.2	14.4	14.7	15.3
	12H	13.9	14.1	14.5	14.6	15.2	13.8	14.0	14.4	14.6	15.2
12H	4H	14.0	14.3	14.5	14.8	15.2	13.9	14.3	14.4	14.7	15.2
	6H	14.0	14.2	14.5	14.7	15.4	13.9	14.2	14.4	14.7	15.3
	8H	13.9	14.1	14.5	14.6	15.2	13.8	14.0	14.4	14.6	15.2
Variation of the observer position for the luminaire distance S											
S = 1.0H		3.9 / -5.0					3.9 / -5.0				
S = 1.5H		6.3 / -7.8					6.3 / -7.8				
S = 2.0H		8.2 / -9.4					8.2 / -9.4				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 316 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	111	109	107	111	109	107	105	105	103	102	101	100	98	98	97	96	94
2	109	104	100	97	106	102	99	96	99	96	94	96	94	92	93	91	90	88
3	104	98	93	89	102	96	92	89	94	90	87	91	88	86	89	86	84	83
4	99	92	87	83	97	91	86	82	89	85	81	87	83	80	85	82	79	78
5	95	87	82	78	93	86	81	77	84	80	77	83	79	76	81	78	75	74
6	91	82	77	73	89	82	77	73	80	76	72	79	75	72	77	74	71	70
7	87	78	73	69	86	78	73	69	76	72	68	75	71	68	74	70	68	66
8	83	75	69	66	82	74	69	65	73	68	65	72	68	65	71	67	65	63
9	80	71	66	62	79	71	66	62	70	65	62	69	65	62	68	64	62	60
10	77	68	63	60	76	68	63	59	67	62	59	66	62	59	66	62	59	58



## ZONAL LUMEN SUMMARY

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
59.3 lm	113 lm	74.6 lm	37.6 lm	17.8 lm	7.81 lm	3.31 lm	0.951 lm	0.184 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0.083 lm	0.080 lm	0.110 lm	0.146 lm	0.223 lm	0.263 lm	0.255 lm	0.162 lm	0.050 lm

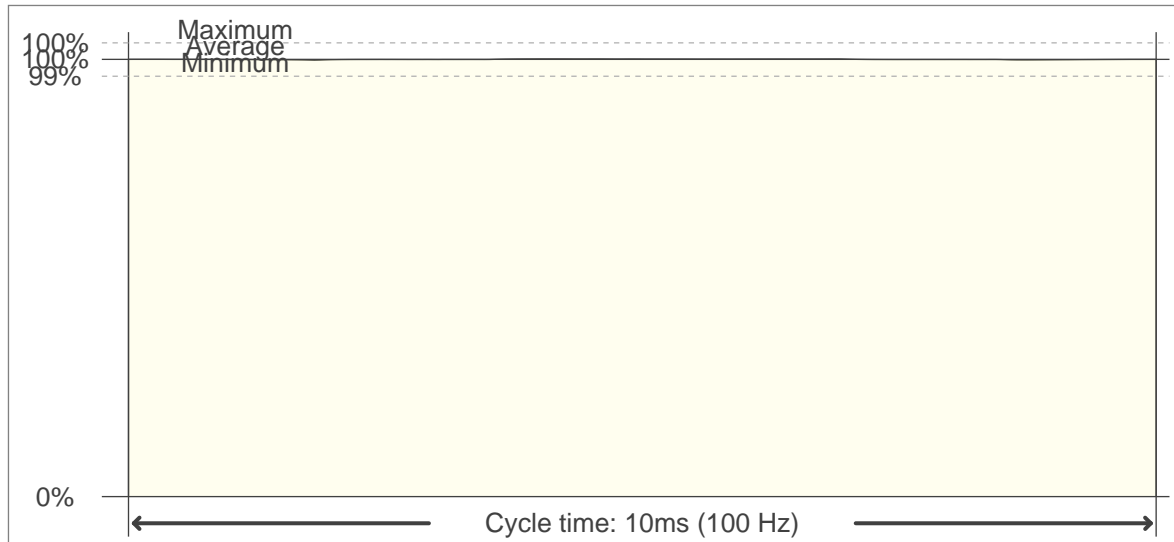


## FLICKER

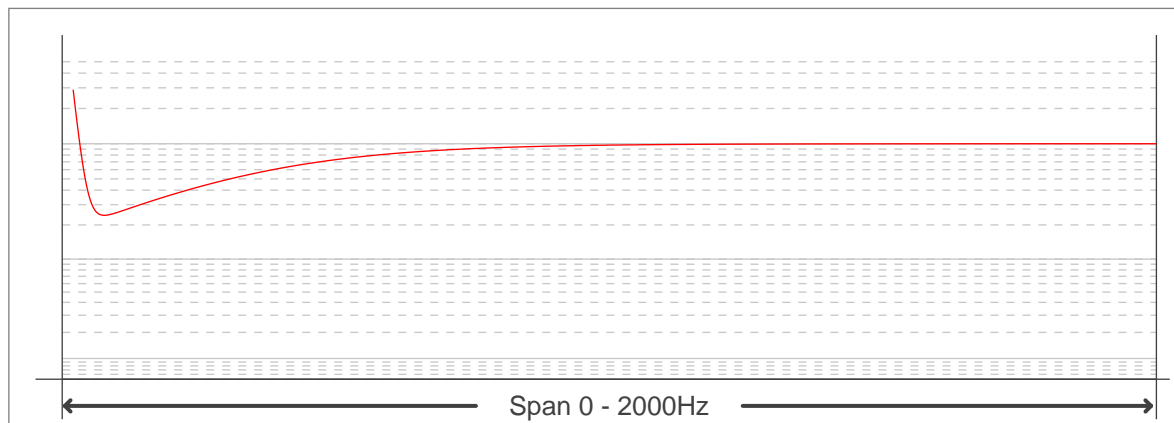
## FLICKER CURVE (COMPLETE SAMPLED FLICKER)



## FLICKER FRAME (FRAME OF ONE FLICKER PERIOD)



## FLICKER FFT (FREQUENCY SCOPE OF FLICKER CURVE)



## FLICKER RESULTS:

Flicker frequency:	100 Hz
Flicker index:	0
Flicker percentage:	0.17 %
SVM: (Visual flicker)	0

## FLICKER CONDITIONS:

Sample rate:	20000 samples/second
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