

PHOTOMETRIC TEST REPORT

KOS LED ROUND 2700K MATT
CONCRETE UL

astro

LIGHT EFFICIENCY:

63 Lumen/Watt

OUTPUT: 458 lm

LIGHT QUALITY:

CRI: 94.1

PEAK: 991 cd

COLOR TEMPERATURE:

2748 K

POWER: 7.2 W

PF: 0.9

Tracking number: [n/a](#)

Product name:

Kos LED Round 2700K Matt Concrete UL

Item number:

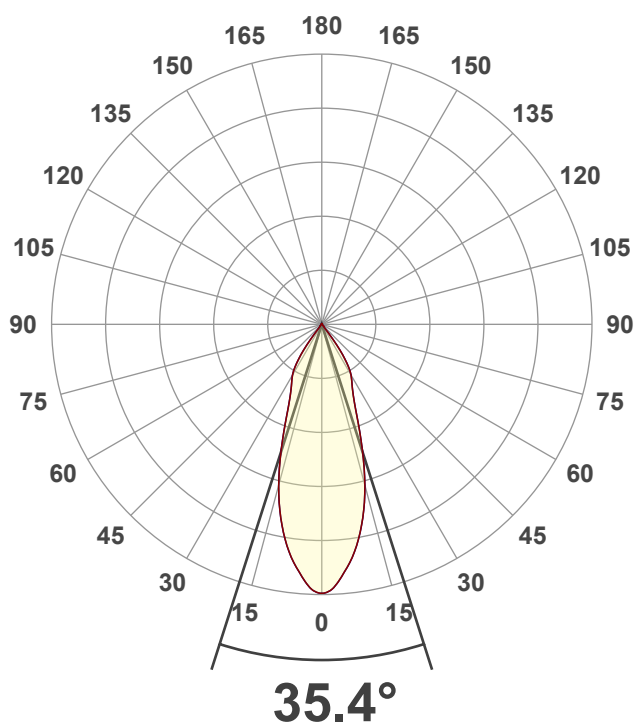
1326049

Date and time:

10/05/2022 15:08:33

Description:

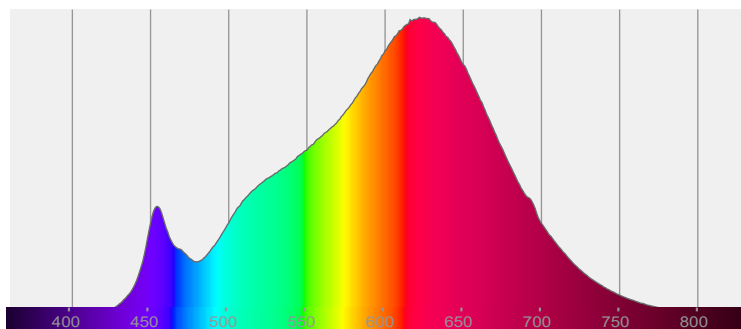
Wet Rated Outdoor LED Ceiling Light



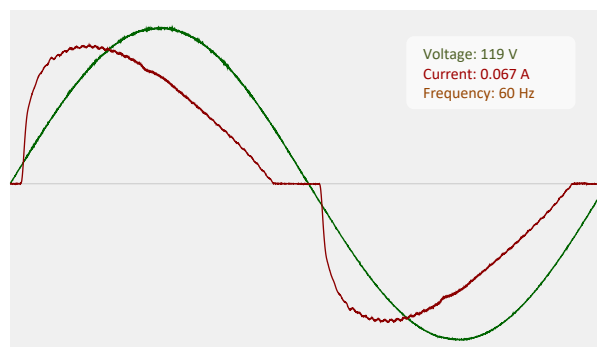
35.4°

CIE 1931
x: 0.458
y: 0.412

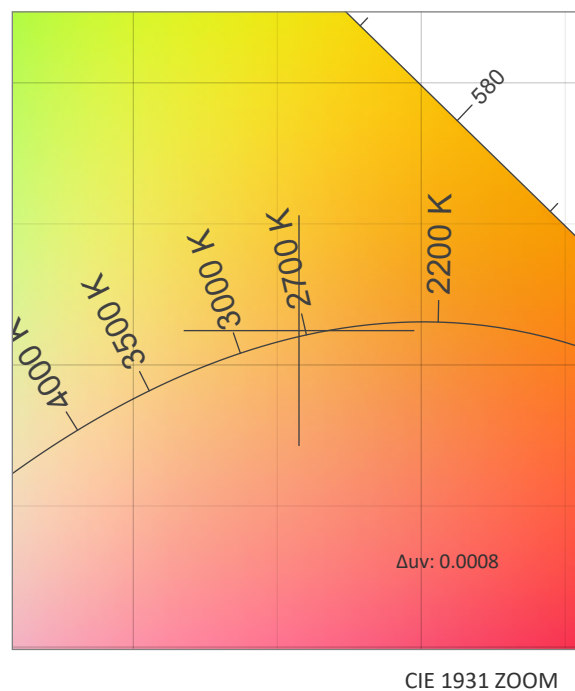
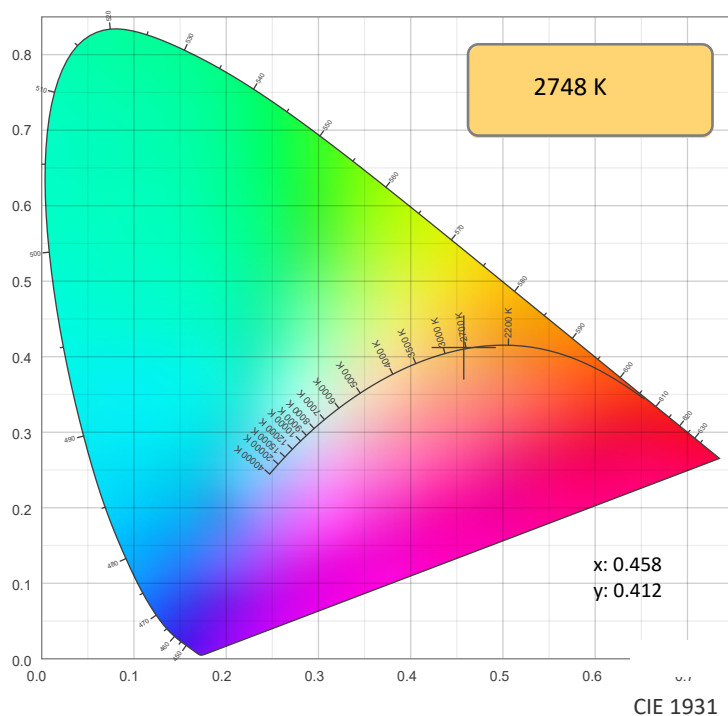
SPECTRA



POWER

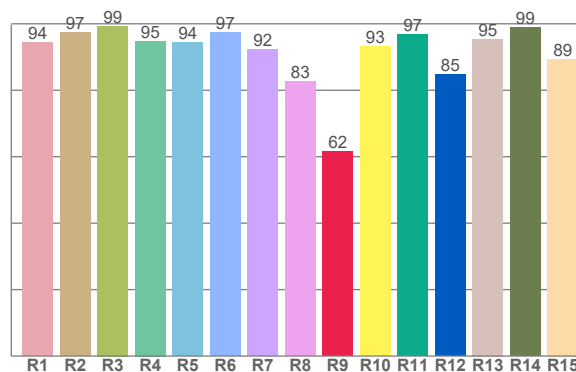
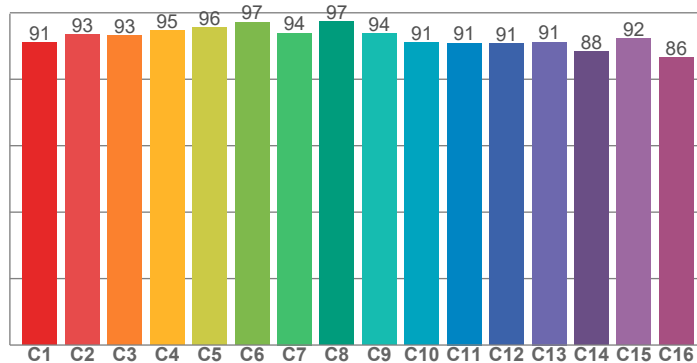


COLOR DETAILS



TM30: 92.6

CRI: 94.1 (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
94.5	97.5	99.3	94.8	94.3	97.4	92.2	82.6	61.5	93.3	96.8	84.8	95.4	98.8	89.4

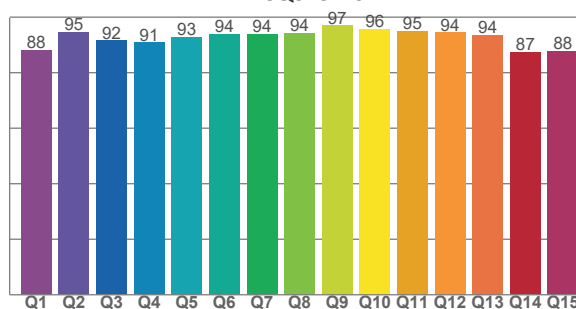
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
91.1	93.3	93.2	94.6	95.7	97.2	93.9	97.4	93.8	91.1	90.9	90.8	91.2	88.4	92.2	86.4

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
88.2	94.7	91.5	90.8	92.8	94.0	93.9	94.2	97.0	95.6	95.0	94.4	93.6	87.3	87.7

CQS: 92.0



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
2748 K	94.1	61.5	92.6	98.1	92.0	0.458	0.412	0.260	0.352	0.0008

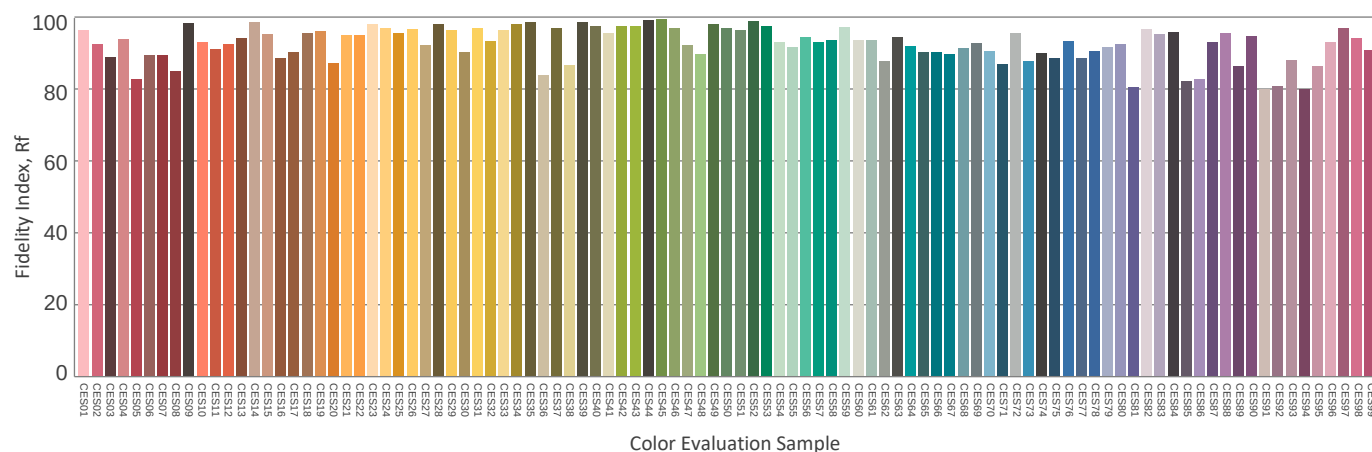
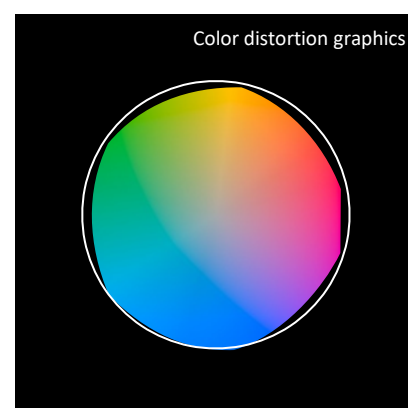
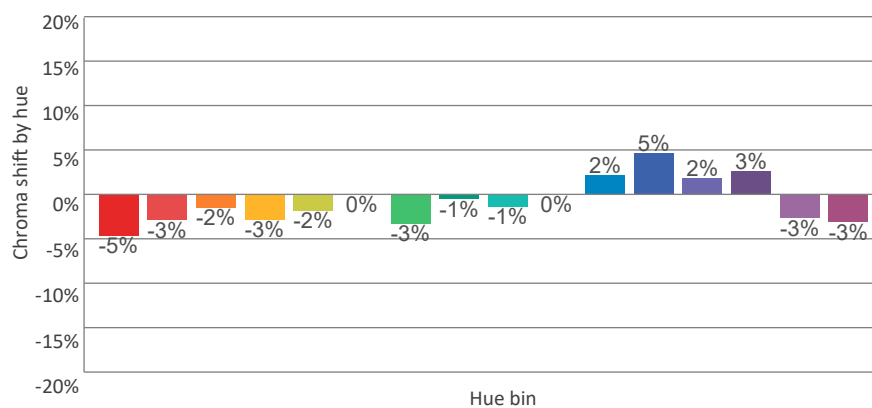
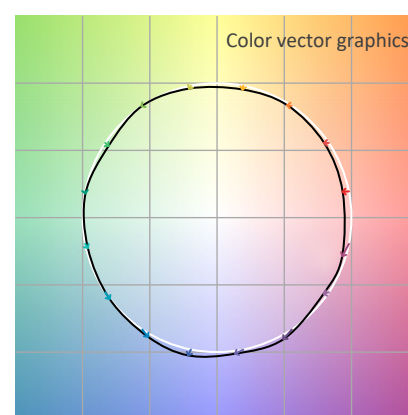
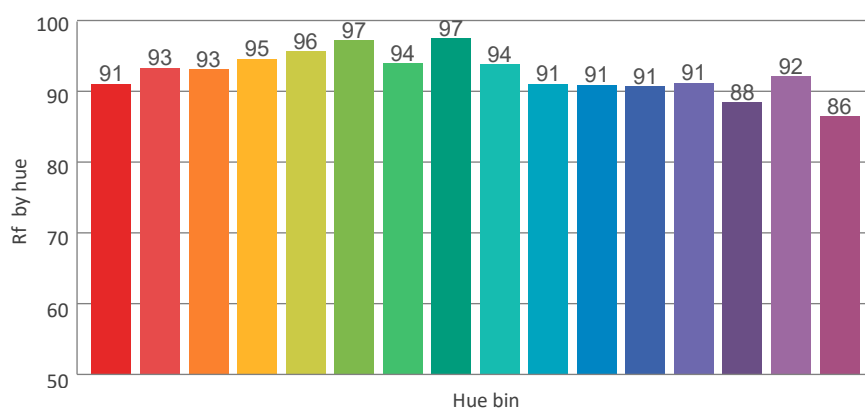
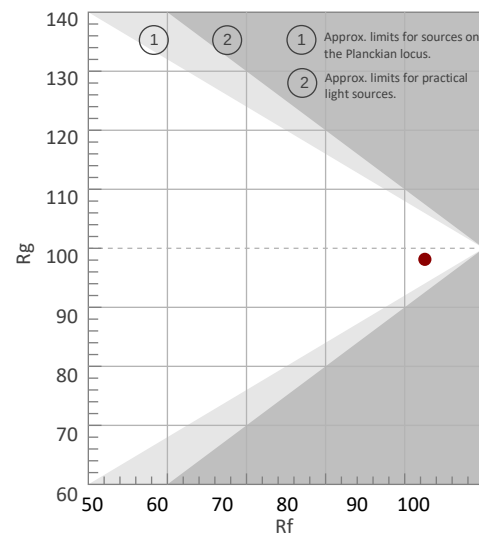
Rf 92.6

Fidelity index Rf

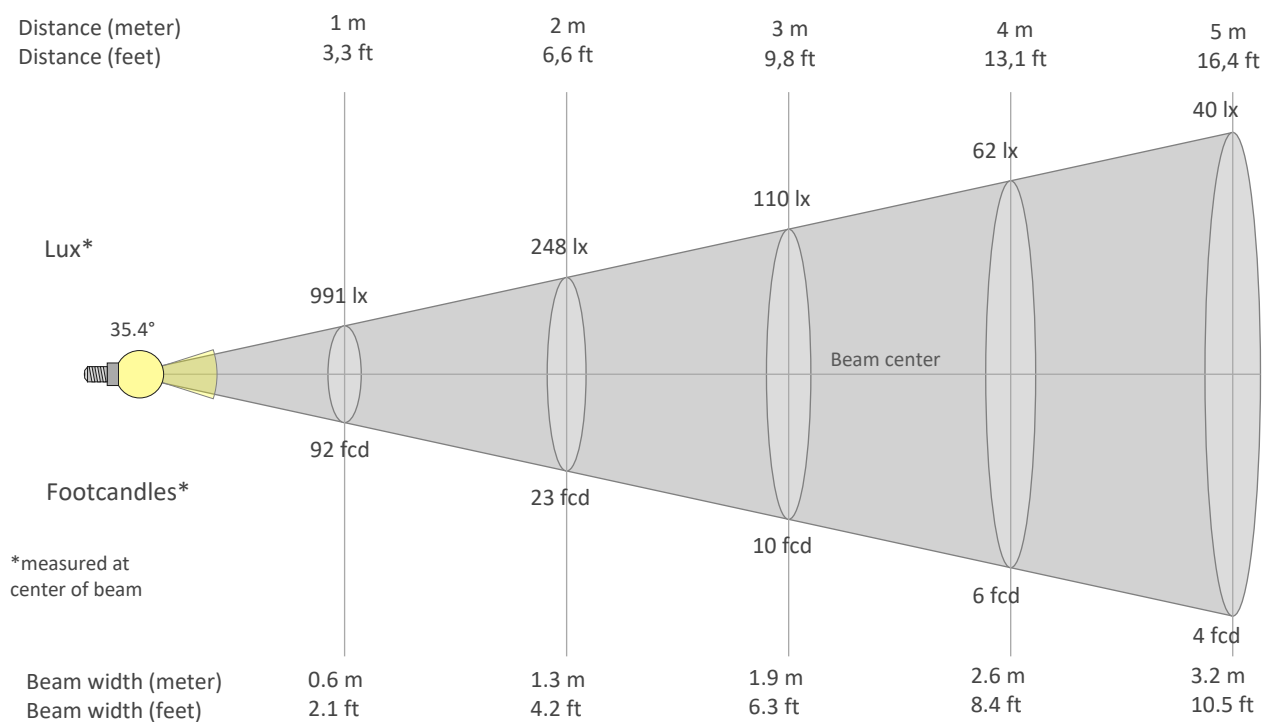
Rg 98.1

Gammut index Rg

Hue Bin	Rf	Graphic shifts (%)	
		Chroma	Hue
1	91	-5%	1%
2	93	-3%	2%
3	93	-2%	3%
4	95	-3%	0%
5	96	-2%	2%
6	97	0%	1%
7	94	-3%	0%
8	97	-1%	1%
9	94	-1%	3%
10	91	0%	6%
11	91	2%	6%
12	91	5%	-1%
13	91	2%	-6%
14	88	3%	-9%
15	92	-3%	-3%
16	86	-3%	-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
991lx	248lx	110lx	62lx	40lx	28lx	20lx	15lx	12lx	10lx	8lx	7lx	6lx	5lx	4lx	4lx	3lx	3lx	3lx	2lx
92.1fcd	23fcd	10.2fcd	5.8fcd	3.7fcd	2.6fcd	1.9fcd	1.4fcd	1.1fcd	0.9fcd	0.8fcd	0.6fcd	0.5fcd	0.5fcd	0.4fcd	0.4fcd	0.3fcd	0.3fcd	0.3fcd	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°
991	981	945	901	853	795	728	654	571	483	399	331	287	257	236	215	187	145	90	27
100%	99%	95%	91%	86%	80%	73%	66%	58%	49%	40%	33%	29%	26%	24%	22%	19%	15%	9%	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°
991	981	945	901	853	795	728	654	571	483	399	331	287	257	236	215	187	145	90	27
100%	99%	95%	91%	86%	80%	73%	66%	58%	49%	40%	33%	29%	26%	24%	22%	19%	15%	9%	3%

Intensities in 180° c-plane

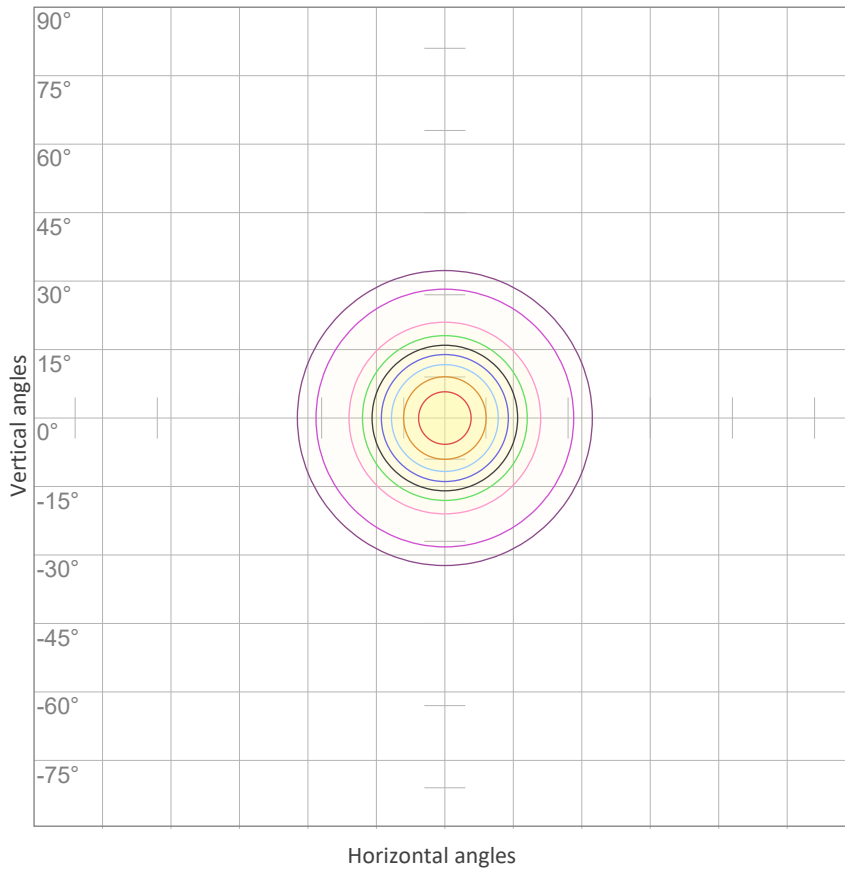
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
991	981	945	901	853	795	728	654	571	483	399	331	287	257	236	215	187	145	90	27
100%	99%	95%	91%	86%	80%	73%	66%	58%	49%	40%	33%	29%	26%	24%	22%	19%	15%	9%	3%

Intensities in 270° c-plane

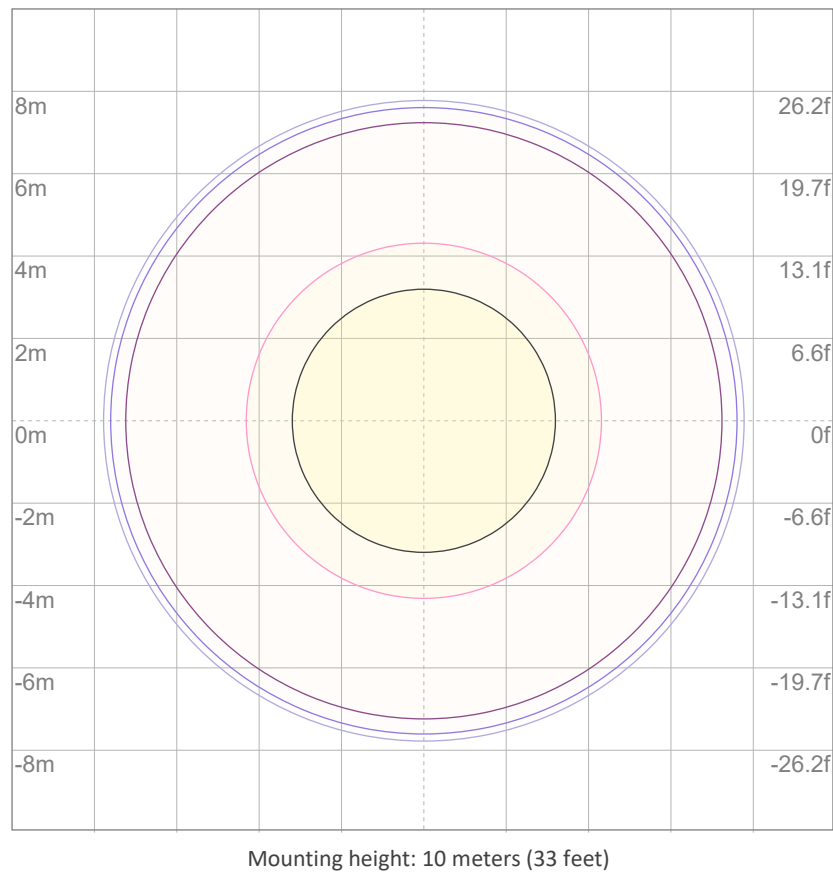
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
991	981	945	901	853	795	728	654	571	483	399	331	287	257	236	215	187	145	90	27
100%	99%	95%	91%	86%	80%	73%	66%	58%	49%	40%	33%	29%	26%	24%	22%	19%	15%	9%	3%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
35.4°	71.4°	76.1°	99.4%	98.1%

ISO CANDELA DIAGRAM



ISO LUX DIAGRAM



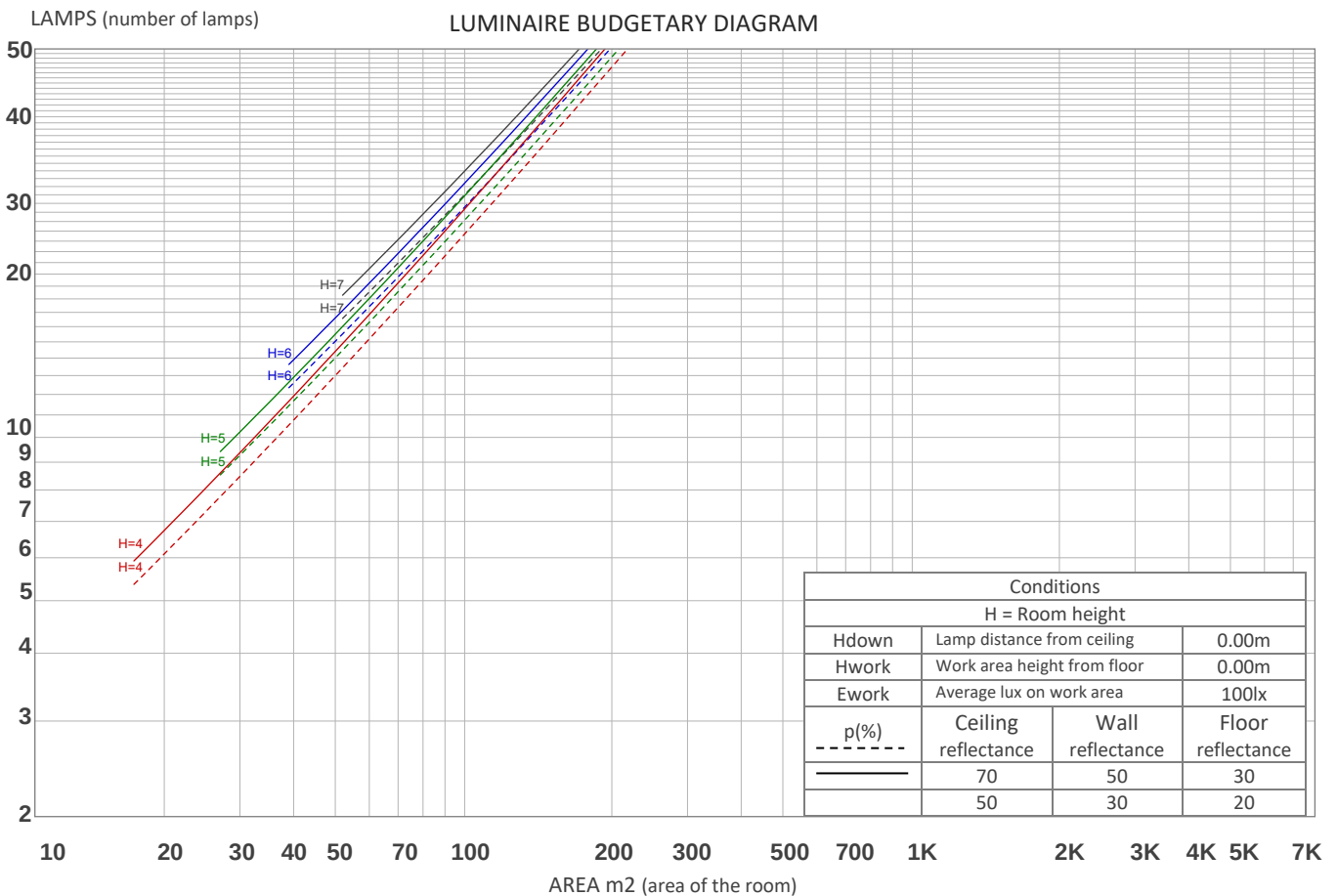
UGR

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	14.6	15.1	14.7	15.3	15.5	14.6	15.1	14.7	15.3	15.5
	3H	14.3	15.0	14.7	15.2	15.3	14.3	15.0	14.7	15.2	15.3
	4H	14.2	14.9	14.6	15.1	15.3	14.2	14.9	14.6	15.1	15.3
	6H	14.2	14.7	14.5	15.0	15.4	14.2	14.7	14.5	15.0	15.4
	8H	14.2	14.7	14.5	15.0	15.4	14.2	14.7	14.5	15.0	15.4
	12H	14.1	14.6	14.5	15.0	15.4	14.1	14.6	14.5	15.0	15.4
4H	2H	14.2	14.9	14.6	15.1	15.3	14.2	14.9	14.6	15.1	15.3
	3H	14.1	14.6	14.5	15.0	15.4	14.1	14.6	14.5	15.0	15.4
	4H	14.0	14.4	14.4	14.9	15.4	14.0	14.4	14.4	14.9	15.4
	6H	13.9	14.4	14.4	14.7	15.1	13.9	14.4	14.4	14.7	15.1
	8H	13.8	14.3	14.3	14.6	15.0	13.8	14.3	14.3	14.6	15.0
	12H	13.8	14.1	14.3	14.5	15.0	13.8	14.1	14.3	14.5	15.0
8H	4H	13.8	14.3	14.3	14.6	15.0	13.8	14.3	14.3	14.6	15.0
	6H	13.7	14.1	14.3	14.5	15.0	13.7	14.1	14.3	14.5	15.0
	8H	13.7	14.0	14.3	14.5	15.1	13.7	14.0	14.3	14.5	15.1
	12H	13.7	13.9	14.3	14.4	15.0	13.7	13.9	14.3	14.4	15.0
12H	4H	13.8	14.1	14.3	14.5	15.0	13.8	14.1	14.3	14.5	15.0
	6H	13.7	14.0	14.3	14.5	15.1	13.7	14.0	14.3	14.5	15.1
	8H	13.7	13.9	14.3	14.4	15.0	13.7	13.9	14.3	14.4	15.0
Variation of the observer position for the luminaire distance S											
S = 1.0H		6.4 / -18.8					6.4 / -18.8				
S = 1.5H		9.2 / -22.4					9.2 / -22.4				
S = 2.0H		11.2 / -24.2					11.2 / -24.2				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 458 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	109	107	112	109	107	106	105	104	102	102	100	99	98	97	96	94
2	109	105	101	98	107	103	100	97	100	97	95	97	95	93	94	93	91	89
3	105	99	95	91	103	98	94	90	95	92	89	93	90	87	90	88	86	85
4	100	94	89	85	98	92	88	85	90	87	84	88	85	83	87	84	82	80
5	96	89	84	80	94	88	83	80	86	82	79	84	81	78	83	80	77	76
6	92	84	79	75	91	84	79	75	82	78	75	81	77	74	79	76	74	72
7	88	80	75	71	87	80	75	71	78	74	71	77	73	70	76	73	70	69
8	85	77	71	68	84	76	71	68	75	70	67	74	70	67	73	69	67	66
9	82	73	68	65	81	73	68	64	72	67	64	71	67	64	70	66	64	63
10	78	70	65	62	78	70	65	61	69	64	61	68	64	61	67	64	61	60



ZONAL LUMEN SUMMARY

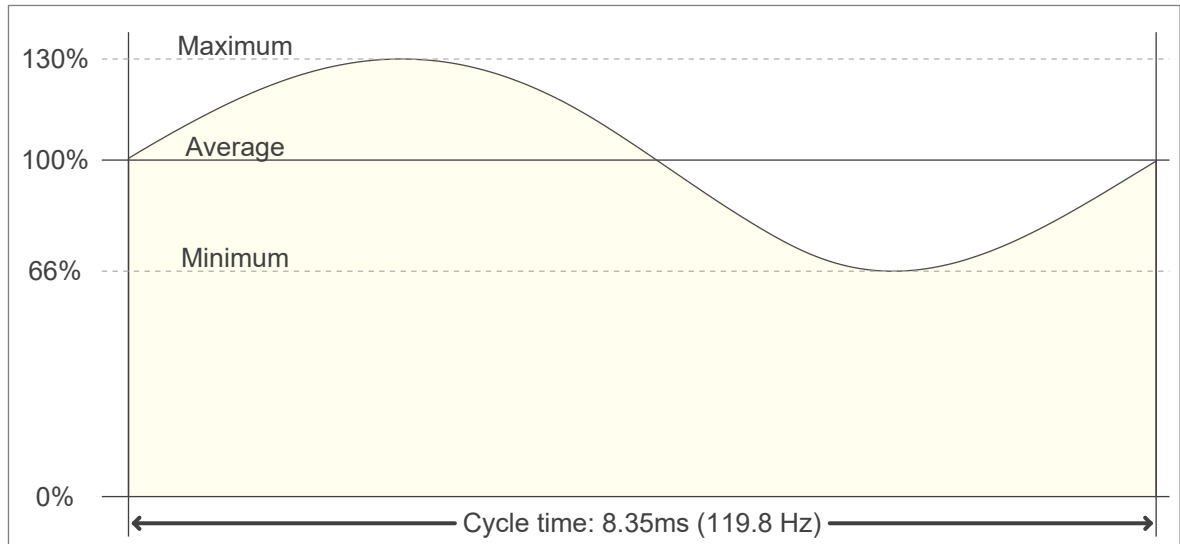
0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
84.1 lm	166 lm	128 lm	67.5 lm	6.73 lm	2.65 lm	0.568 lm	0.211 lm	0.112 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0.103 lm	0.119 lm	0.151 lm	0.213 lm	0.309 lm	0.343 lm	0.323 lm	0.214 lm	0.066 lm

FLICKER

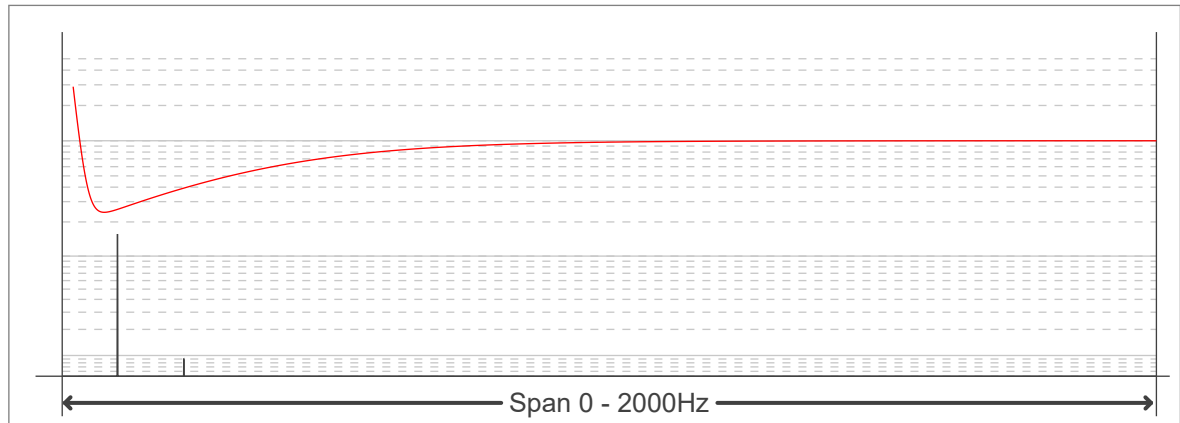
FLICKER CURVE (COMPLETE SAMPLED FLICKER)



FLICKER FRAME (FRAME OF ONE FLICKER PERIOD)



FLICKER FFT (FREQUENCY SCOPE OF FLICKER CURVE)



FLICKER RESULTS:

Flicker frequency:	119.76 Hz
Flicker index:	0.1
Flicker percentage:	32.05 %
SVM: (Visual flicker)	1.14

FLICKER CONDITIONS:

Sample rate:	20000 samples/second
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