

PHOTOMETRIC TEST REPORT

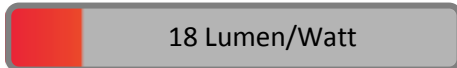
TERRA 90 LED

astro

TERRA 90 LED

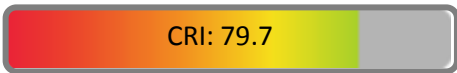
astro

LIGHT EFFICIENCY:



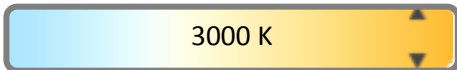
OUTPUT: 71.1 lm

LIGHT QUALITY:



PEAK: 33.6 cd

COLOR TEMPERATURE:



POWER: 4.0 W

PF: 0.42



Tracking number: [n/a](#)

Product name:

Terra 90 LED

Item number:

1201001

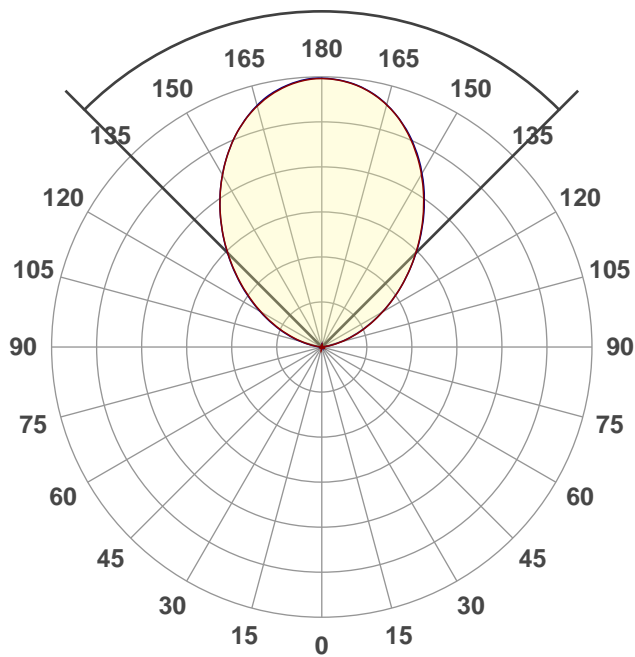
Date and time:

15/08/2019 12:12:17

Description:

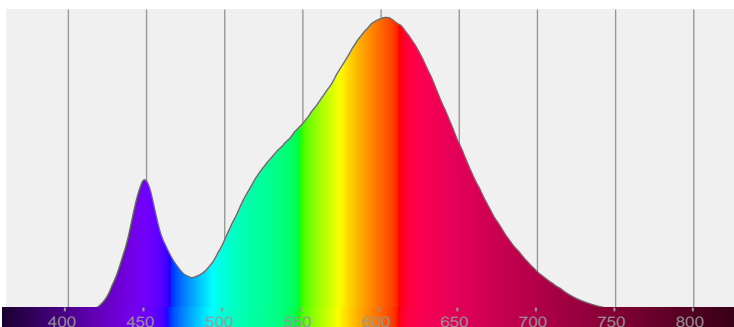
IP67 LED Outdoor Ground Light

90°

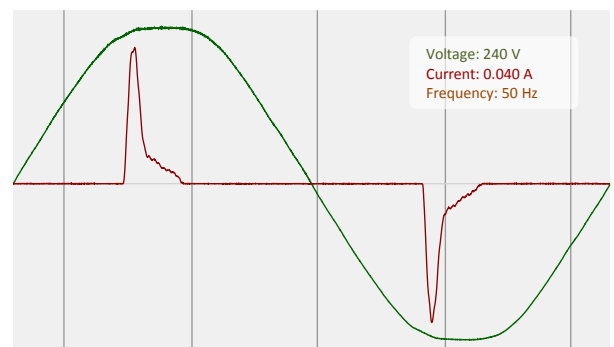


CIE 1931
x: 0.437
y: 0.404

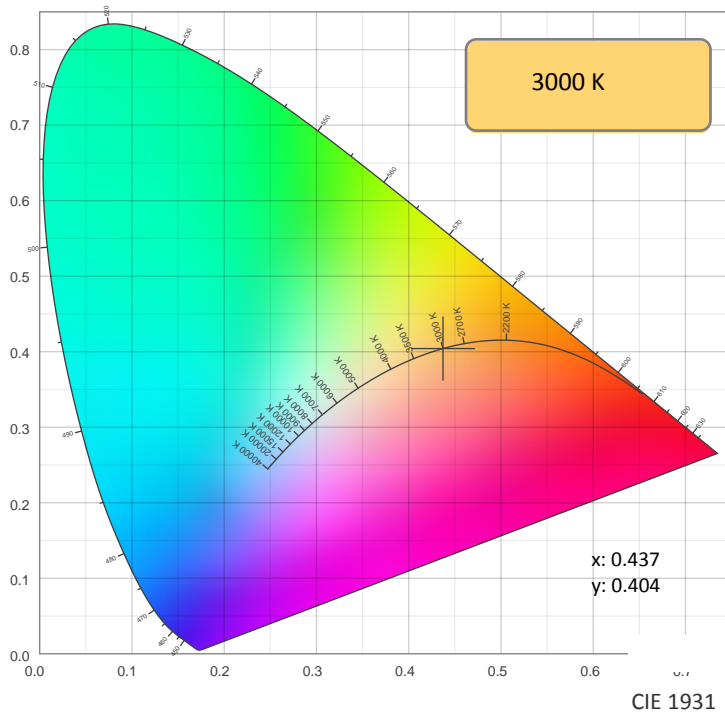
SPECTRA



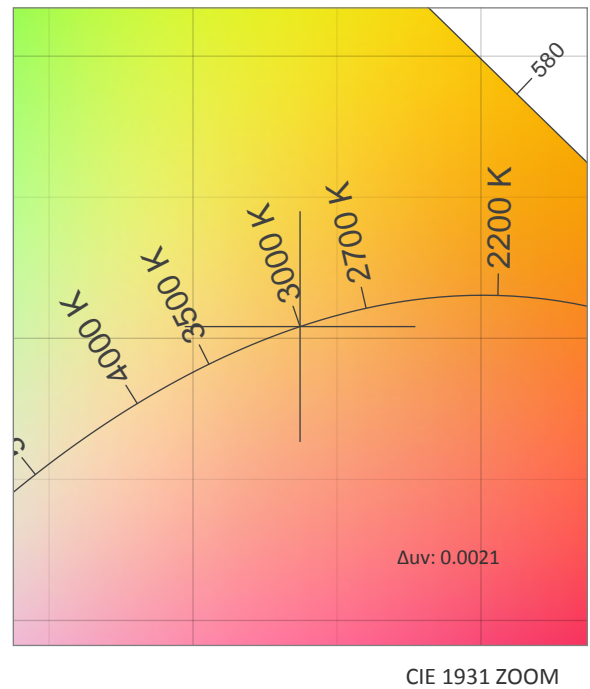
POWER



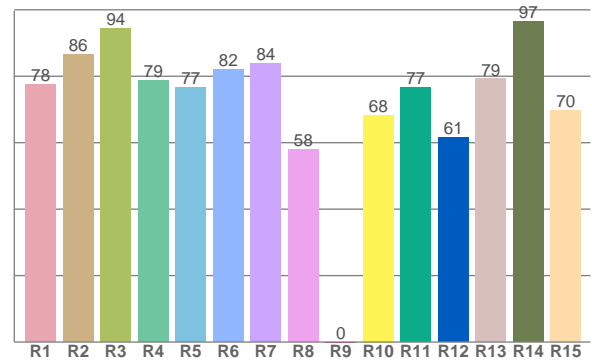
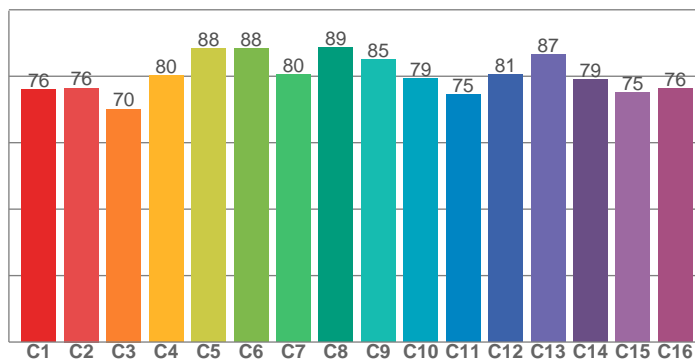
COLOR DETAILS



TM30: 80.1



CRI: 79.7 (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
77.5	86.4	94.5	78.8	76.6	82.1	83.8	57.8	0.0	68.3	76.6	61.5	79.2	96.5	69.6

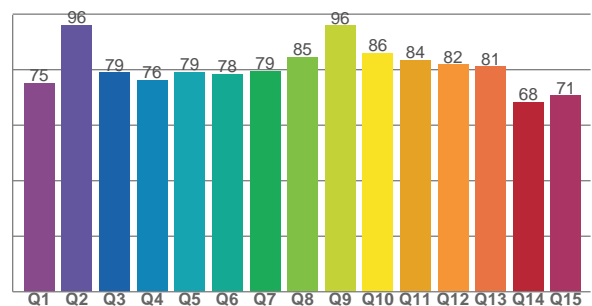
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
75.9	76.5	70.1	80.3	88.3	88.3	80.5	88.7	84.9	79.2	74.6	80.6	86.6	79.1	75.2	76.2

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
75.2	96.1	78.9	76.3	79.1	78.5	79.4	84.6	95.8	86.1	83.5	81.9	81.1	68.3	70.6

CQS: 79.5



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	Δuv
3000 K	79.7	0.0	80.1	96.6	79.5	0.437	0.404	0.250	0.350	0.0021

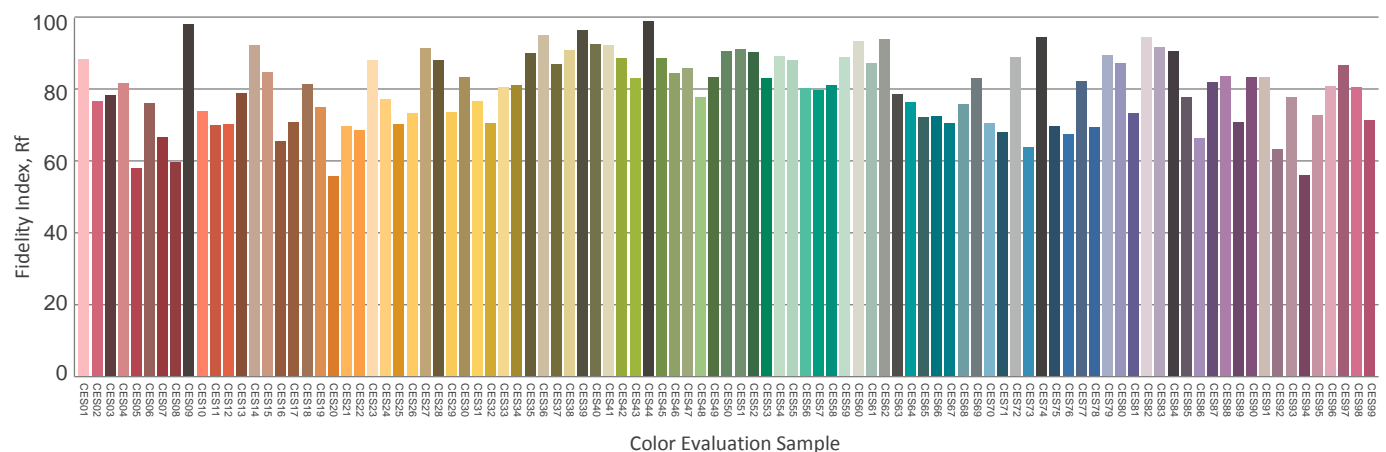
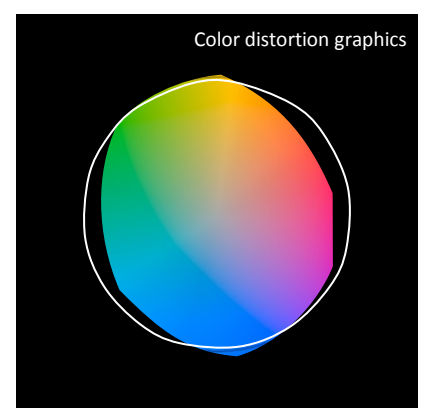
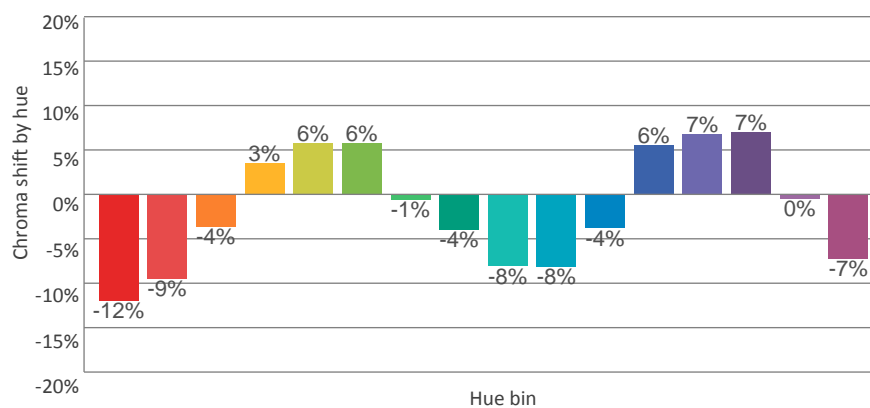
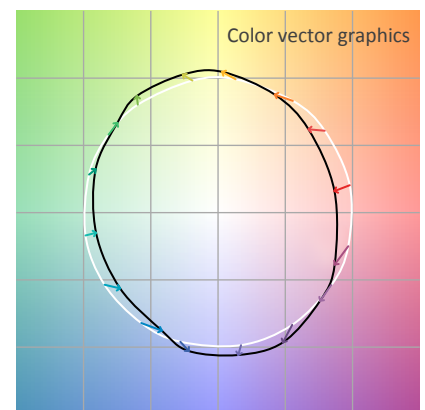
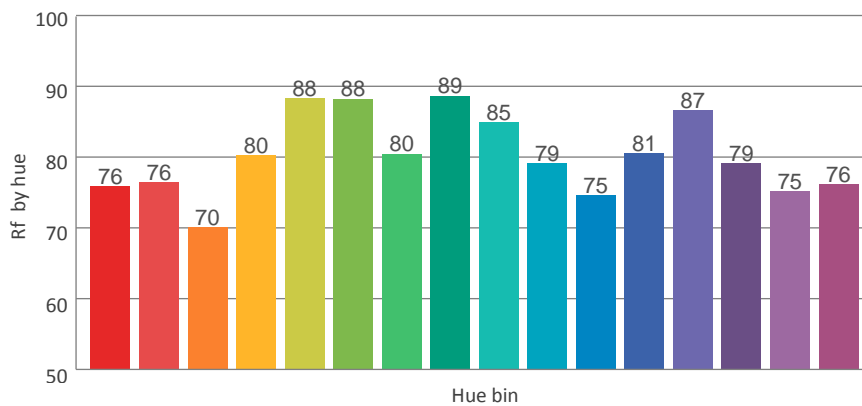
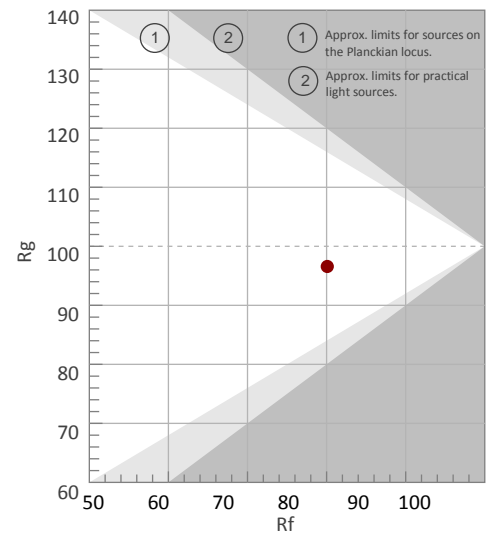
Rf 80.1

Fidelity index Rf

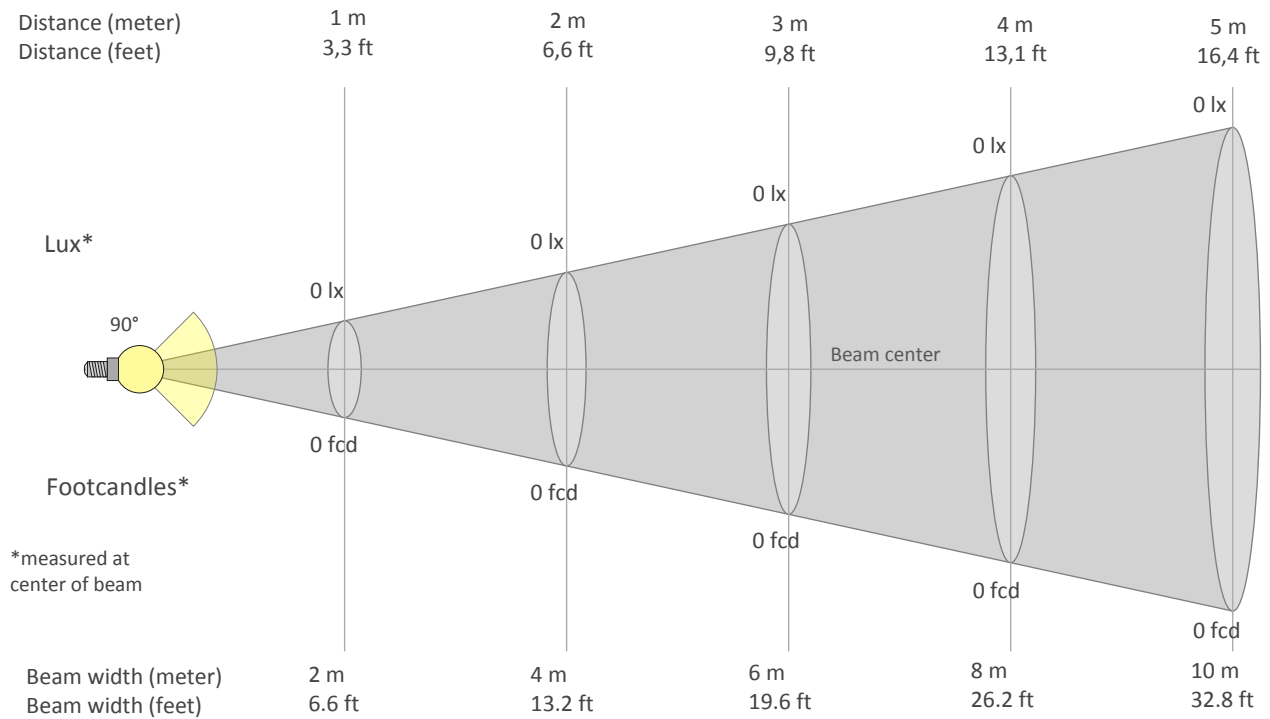
Rg 96.6

Gammut index Rg

Hue Bin	Graphic shifts (%)		
	R _f	Chroma	Hue
1	76	-12%	-2%
2	76	-9%	8%
3	70	-4%	14%
4	80	3%	11%
5	88	6%	6%
6	88	6%	-3%
7	80	-1%	-11%
8	89	-4%	-5%
9	85	-8%	0%
10	79	-8%	9%
11	75	-4%	16%
12	81	6%	7%
13	87	7%	-3%
14	79	7%	-13%
15	75	0%	-14%
16	76	-7%	-15%



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
0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx
0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd

Intensities in 0° c-plane

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
100%	96%	110%	76%	73%	79%	75%	88%	73%	62%	81%	74%	85%	72%	62%	63%	49%	37%	79%	1224%

Intensities in 90° c-plane

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
100%	133%	73%	88%	122%	93%	90%	73%	77%	80%	91%	90%	91%	88%	62%	53%	55%	51%	85%	972%

Intensities in 180° c-plane

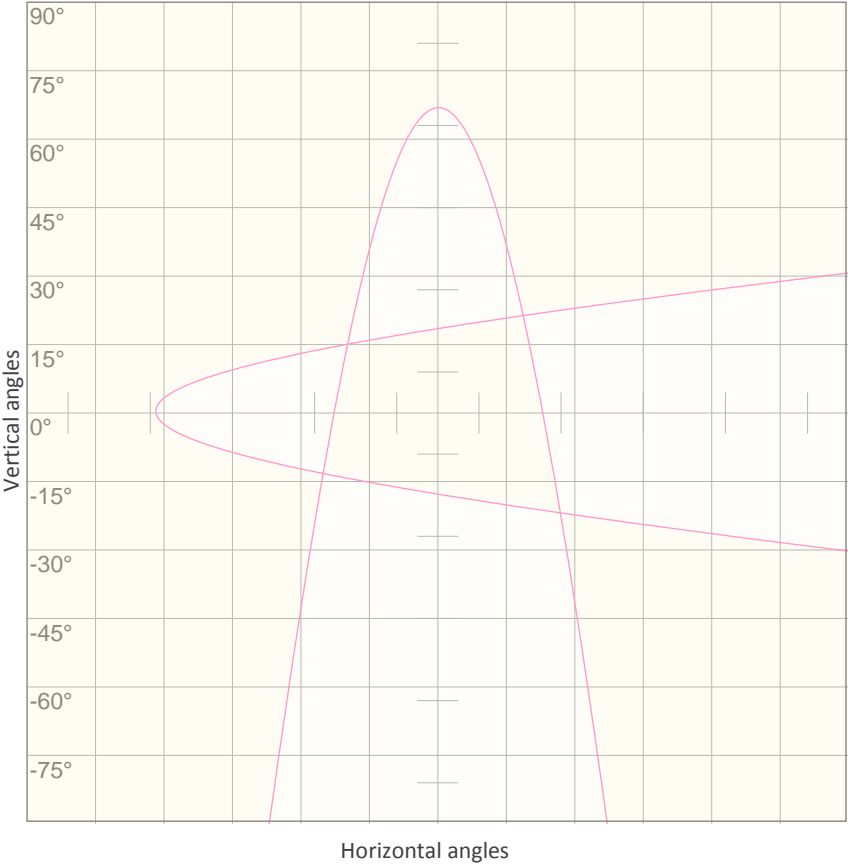
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
100%	74%	145%	114%	89%	87%	96%	89%	99%	95%	70%	58%	66%	43%	29%	34%	50%	42%	101%	1254%

Intensities in 270° c-plane

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
100%	112%	163%	147%	149%	98%	100%	107%	120%	104%	77%	74%	81%	74%	45%	32%	35%	45%	152%	1713%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
90°	145.8°	162.6°	86.3%	63.4%

ISO CANDELA DIAGRAM



10%0 cd

20%0 cd

30%0 cd

40%0 cd

50%0 cd

60%0 cd

70%0 cd

80%0 cd

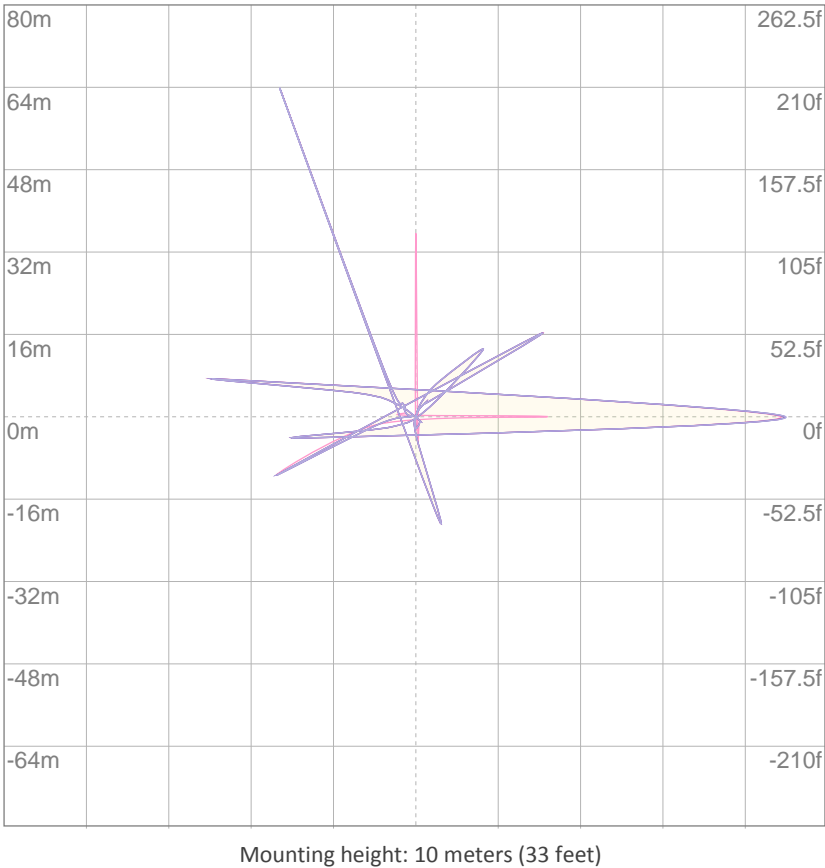
90%0 cd

Conditions:

Number of c-planes: 8

Candela at center: 0 cd

ISO LUX DIAGRAM



3%6u lx

5%11u lx

10%21u lx

30%64u lx

50%{LUX_10M50} lx

Conditions:

Number of c-planes: 8

Lux at center: 214u lx

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

UGR

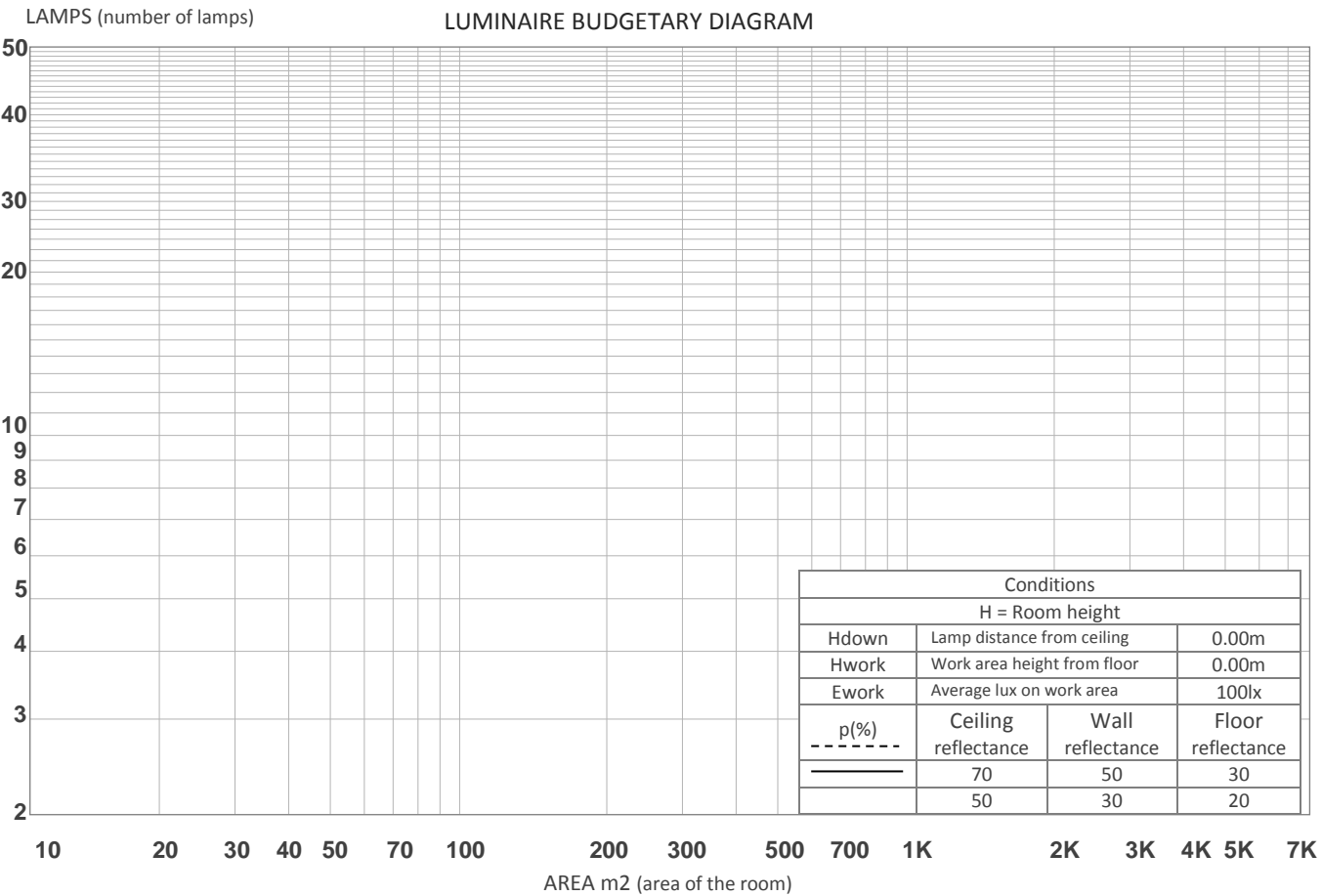
GLARE EVALUATION ACCORDING TO UGR

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	-28.0	-27.4	-26.7	-26.2	-24.3	-27.1	-26.6	-25.8	-25.3	-23.5
	3H	-25.5	-25.0	-24.2	-23.8	-21.9	-24.9	-24.4	-23.6	-23.1	-21.3
	4H	-24.1	-23.7	-22.8	-22.4	-20.5	-23.9	-23.4	-22.6	-22.2	-20.3
	6H	-22.7	-22.3	-21.4	-21.0	-19.2	-22.5	-22.1	-21.2	-20.8	-18.9
	8H	-22.0	-21.7	-20.7	-20.4	-18.5	-21.6	-21.2	-20.3	-19.9	-18.1
	12H	-21.4	-21.0	-20.1	-19.7	-17.9	-20.6	-20.2	-19.2	-18.9	-17.1
4H	2H	-27.2	-26.8	-25.9	-25.5	-23.7	-26.5	-26.1	-25.2	-24.8	-23.0
	3H	-24.7	-24.3	-23.4	-23.1	-21.2	-24.2	-23.8	-22.9	-22.6	-20.7
	4H	-23.2	-22.9	-21.9	-21.6	-19.8	-23.0	-22.7	-21.7	-21.4	-19.6
	6H	-21.6	-21.4	-20.3	-20.1	-18.2	-21.4	-21.1	-20.1	-19.8	-18.0
	8H	-20.9	-20.6	-19.6	-19.4	-17.5	-20.4	-20.1	-19.1	-18.8	-17.0
	12H	-20.1	-19.9	-18.8	-18.6	-16.7	-19.2	-19.0	-17.9	-17.7	-15.8
8H	4H	-23.0	-22.7	-21.6	-21.4	-19.5	-22.6	-22.4	-21.3	-21.1	-19.2
	6H	-21.1	-20.9	-19.8	-19.6	-17.7	-20.7	-20.5	-19.4	-19.2	-17.3
	8H	-20.1	-20.0	-18.8	-18.7	-16.8	-19.5	-19.3	-18.2	-18.0	-16.1
	12H	-19.1	-19.0	-17.8	-17.7	-15.8	-18.1	-17.9	-16.7	-16.6	-14.7
12H	4H	-22.9	-22.6	-21.6	-21.4	-19.5	-22.6	-22.3	-21.2	-21.0	-19.2
	6H	-20.9	-20.7	-19.6	-19.4	-17.6	-20.5	-20.3	-19.2	-19.0	-17.1
	8H	-19.9	-19.7	-18.6	-18.4	-16.5	-19.2	-19.0	-17.9	-17.7	-15.8
Variation of the observer position for the luminaire distance S											
S = 1.0H		+0.1 / -0.1					+0.1 / -0.1				
S = 1.5H		+0.3 / -0.2					+0.2 / -0.3				
S = 2.0H		+0.3 / -0.3					+0.5 / -0.4				
Standard table		BK12					BK12				
Correction summand		-33.1					-32.5				
Corrected glare indices referring to 71.1 lm total luminous flux											

UGR data could be incorrect as lamp output is not symmetrical. Goto Edit->Photometric->Corrections and select Correct asymmetry.

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	95	95	95	95	81	81	81	81	56	56	56	32	32	32	10	10	10	0
1	87	83	79	76	74	71	68	65	48	47	45	28	27	26	9	9	9	0
2	79	72	66	62	67	62	57	53	42	40	37	24	23	22	8	8	7	0
3	72	63	57	51	61	54	49	44	37	34	31	22	20	18	7	6	6	0
4	65	56	48	43	56	48	42	37	33	29	26	19	17	16	6	6	5	0
5	60	49	42	36	51	42	36	32	29	25	22	17	15	13	5	5	4	0
6	55	44	36	31	47	38	32	27	26	22	19	15	13	11	5	4	4	0
7	50	39	32	27	43	34	28	23	23	19	17	14	11	10	4	4	3	0
8	47	35	28	23	40	30	24	20	21	17	14	12	10	9	4	3	3	0
9	43	32	25	20	37	27	22	18	19	15	13	11	9	8	4	3	3	0
10	40	29	22	18	34	25	19	16	17	14	11	10	8	7	3	3	2	0



ZONAL LUMEN SUMMARY

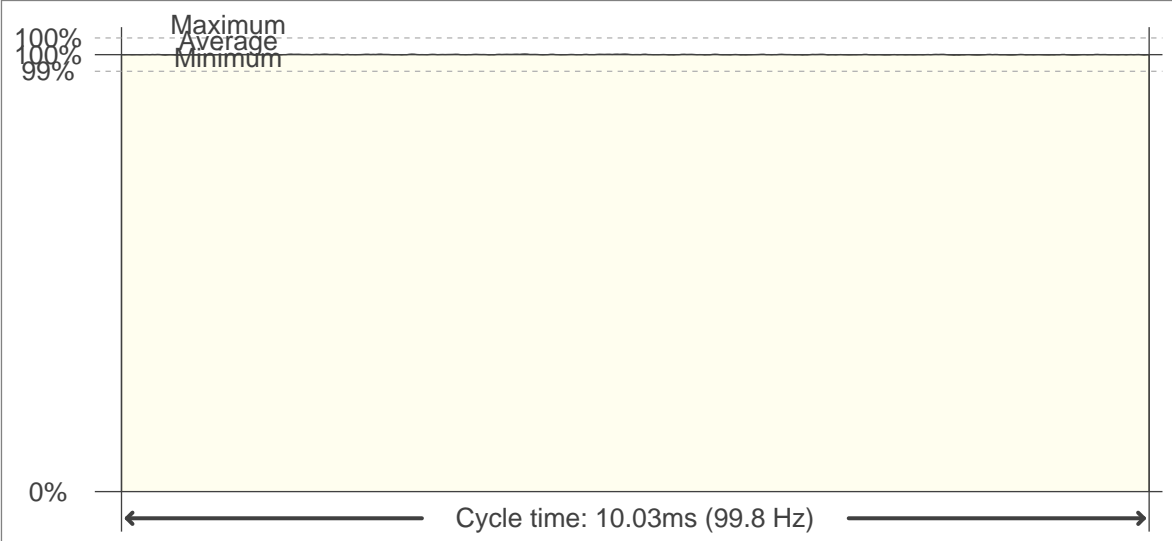
0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
0.002 lm	0.006 lm	0.009 lm	0.012 lm	0.013 lm	0.014 lm	0.015 lm	0.011 lm	0.011 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0.361 lm	2.80 lm	6.48 lm	10.1 lm	12.8 lm	13.9 lm	12.6 lm	8.79 lm	3.15 lm

FLICKER

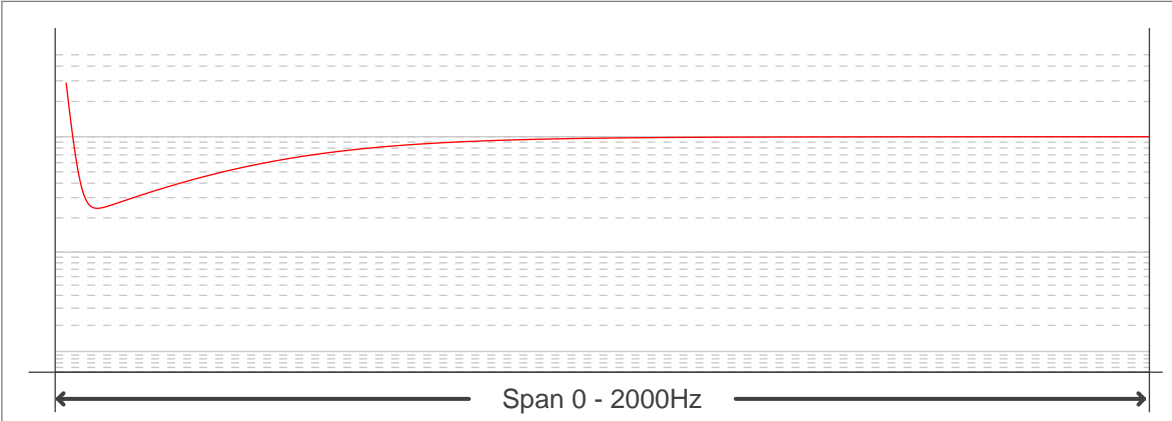
FLICKER CURVE (COMPLETE SAMPLED FLICKER)



FLICKER FRAME (FRAME OF ONE FLICKER PERIOD)



FLICKER FFT (FREQUENCY SCOPE OF FLICKER CURVE)



FLICKER RESULTS:

Flicker frequency:	99.75 Hz
Flicker index:	0
Flicker percentage:	0.23 %
SVM: (Visual flicker)	0

FLICKER CONDITIONS:

Sample rate:	40000 samples/second
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