

PHOTOMETRIC TEST REPORT

CAN 30 PENDANT 48V TRACK
DALI - MATT WHITE

astro

astro

68 Lumen/Watt

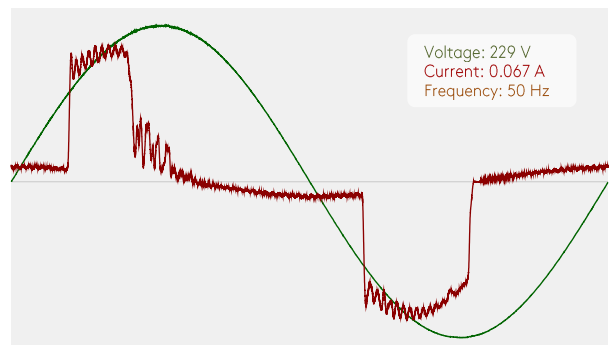
PEAK: 1958 cd

PF: 0.65

2820 K

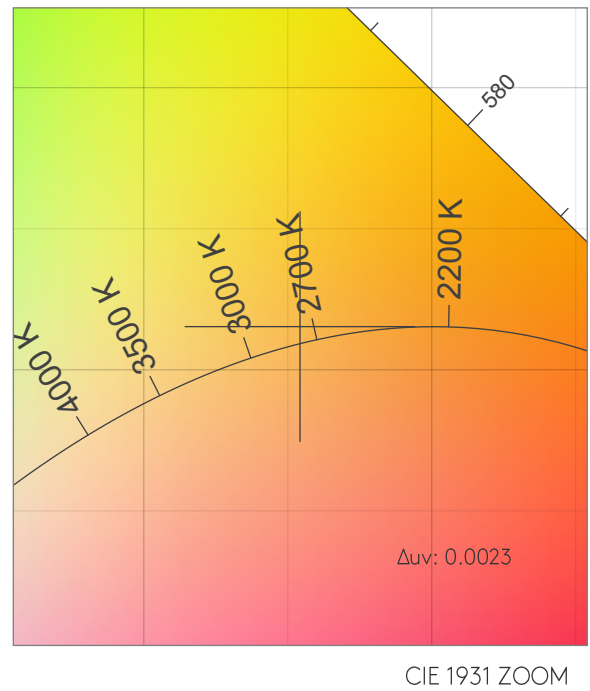
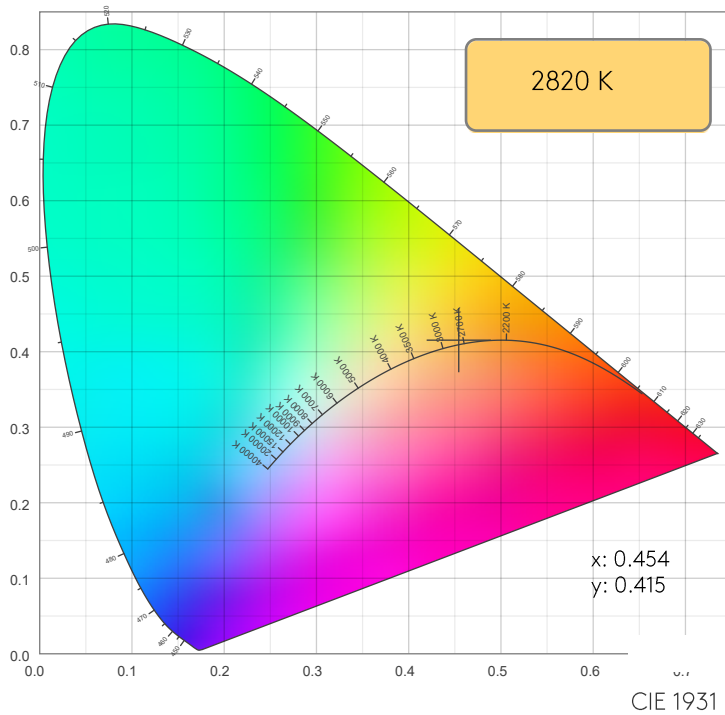


POWER



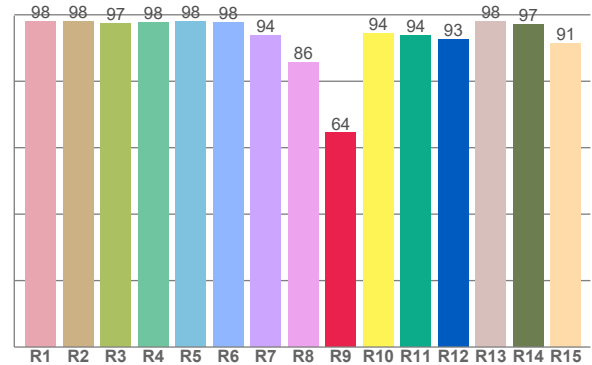
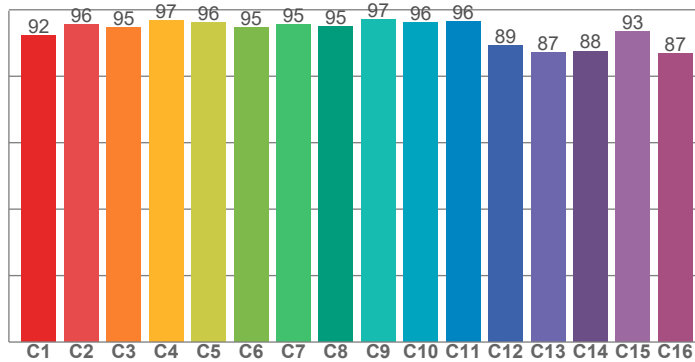
www.astrolighting.com

COLOR DETAILS



TM30: 93.8

CRI: 95.8 (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
98.0	97.9	97.3	97.8	98.1	97.6	93.9	85.5	64.4	94.3	93.7	92.7	97.9	97.2	91.4

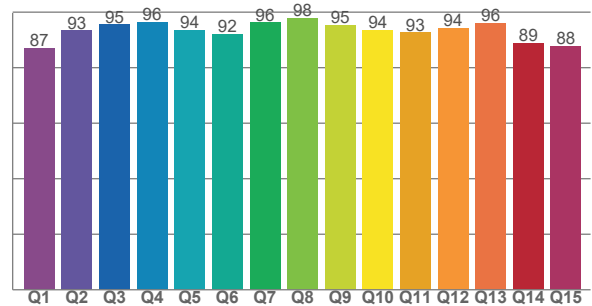
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
92.2	95.7	94.7	96.9	96.1	94.6	95.5	95.0	97.1	96.2	96.4	89.3	87.2	87.6	93.5	86.9

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
87.1	93.3	95.5	96.3	93.6	92.2	96.2	97.8	95.4	93.5	92.6	94.2	96.1	88.8	87.7

CQS: 92.4



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
2820 K	95.8	64.4	93.8	99.9	92.4	0.454	0.415	0.257	0.352	0.0023

CAN 30 PENDANT 48V TRACK DALI - MATT

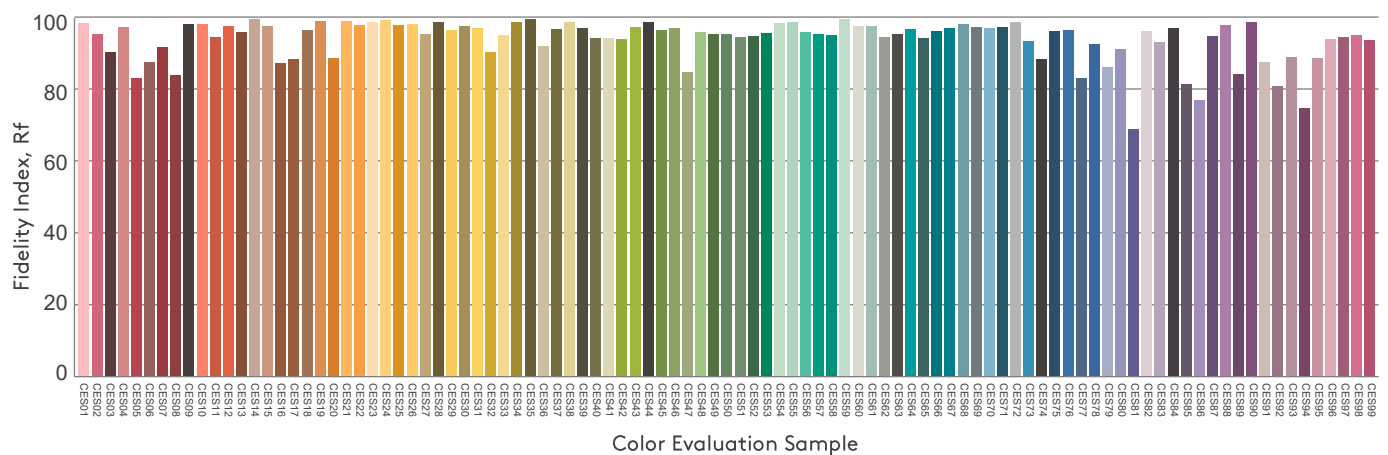
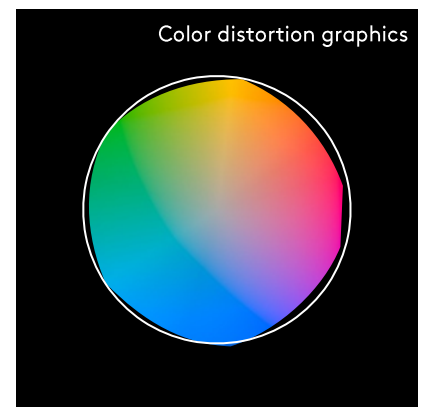
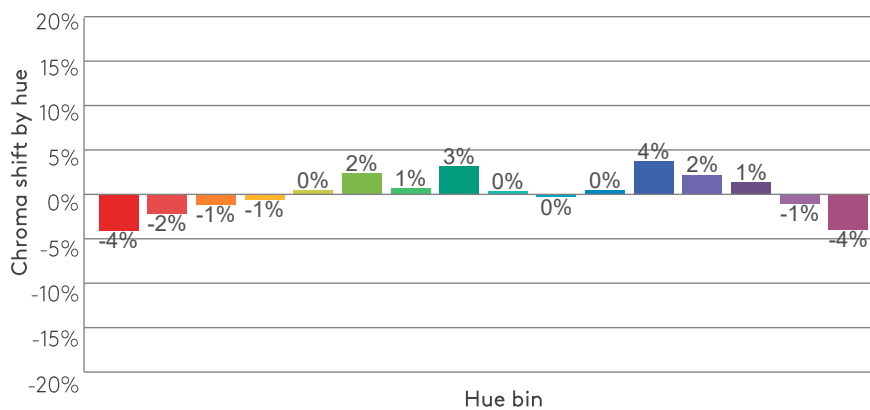
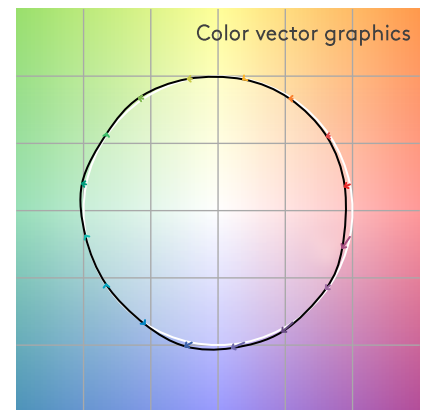
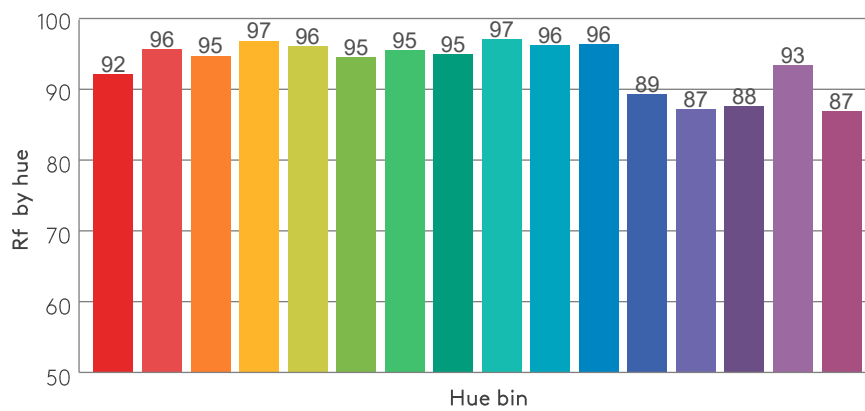
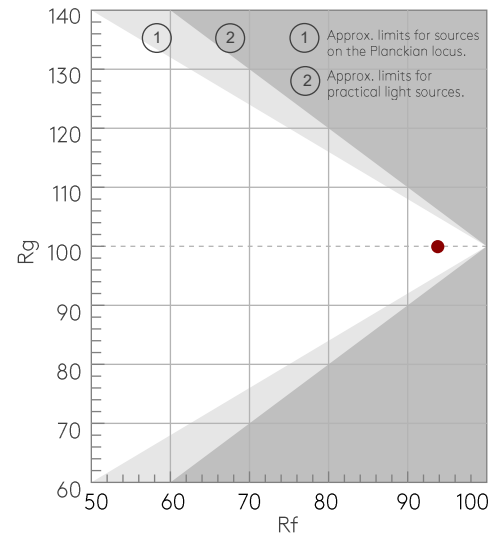
TM30 DETAILS

astro

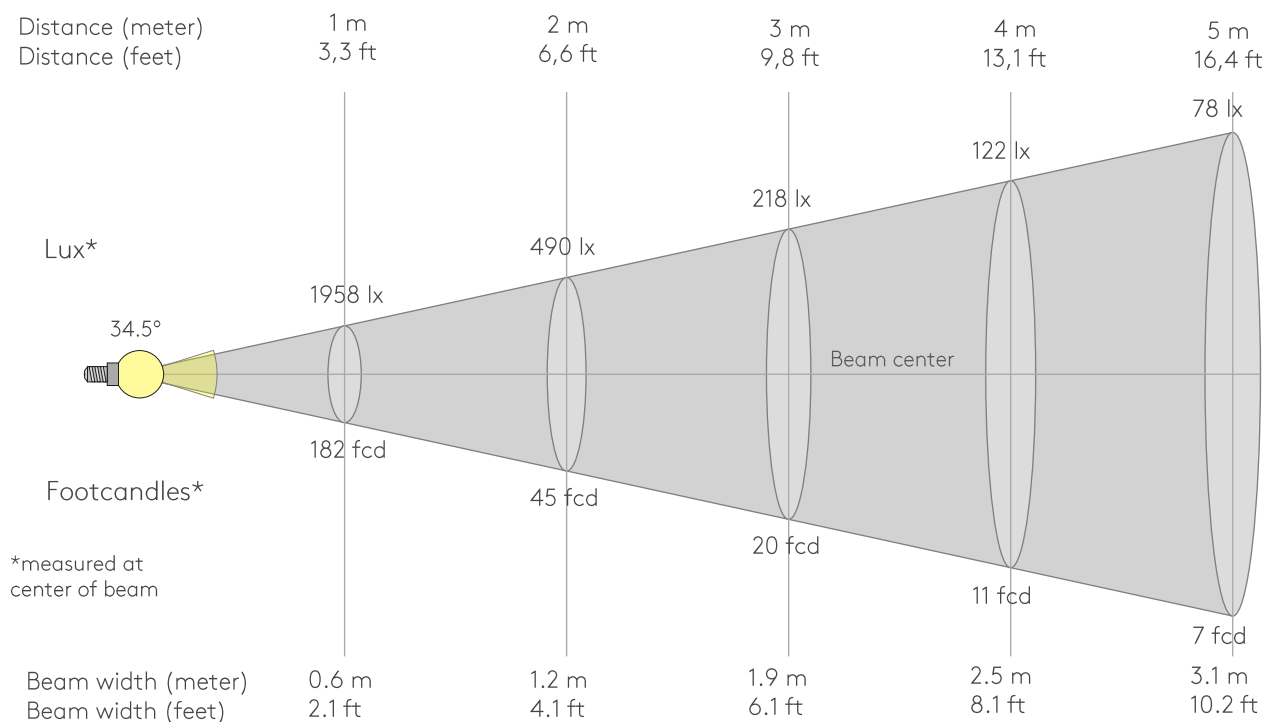
Rf 93.8
Fidelity index Rf

Rg 99.9
Gammut index Rg

Hue Bin	Rf	Graphic shifts (%)	
		Chroma	Hue
1	92	-4%	-1%
2	96	-2%	1%
3	95	-1%	2%
4	97	-1%	1%
5	96	0%	3%
6	95	2%	2%
7	95	1%	-2%
8	95	3%	0%
9	97	0%	-1%
10	96	0%	-1%
11	96	0%	1%
12	89	4%	-4%
13	87	2%	-10%
14	88	1%	-10%
15	93	-1%	-4%
16	87	-4%	-9%



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
1958lx	490lx	218lx	122lx	78lx	54lx	40lx	31lx	24lx	20lx	16lx	14lx	12lx	10lx	9lx	8lx	7lx	6lx	5lx	5lx
181.9fcd	45.5fcd	20.2fcd	11.4fcd	7.3fcd	5.1fcd	3.7fcd	2.8fcd	2.2fcd	1.8fcd	1.5fcd	1.3fcd	1.1fcd	0.9fcd	0.8fcd	0.7fcd	0.6fcd	0.6fcd	0.5fcd	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°
1958	1941	1892	1821	1727	1606	1461	1293	1103	906	715	544	394	269	173	101	56	32	18	10
100%	99%	97%	93%	88%	82%	75%	66%	56%	46%	37%	28%	20%	14%	9%	5%	3%	2%	1%	1%

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°
1958	1941	1892	1821	1727	1606	1461	1293	1103	906	715	544	394	269	173	101	56	32	18	10
100%	99%	97%	93%	88%	82%	75%	66%	56%	46%	37%	28%	20%	14%	9%	5%	3%	2%	1%	1%

Intensities in 180° c-plane

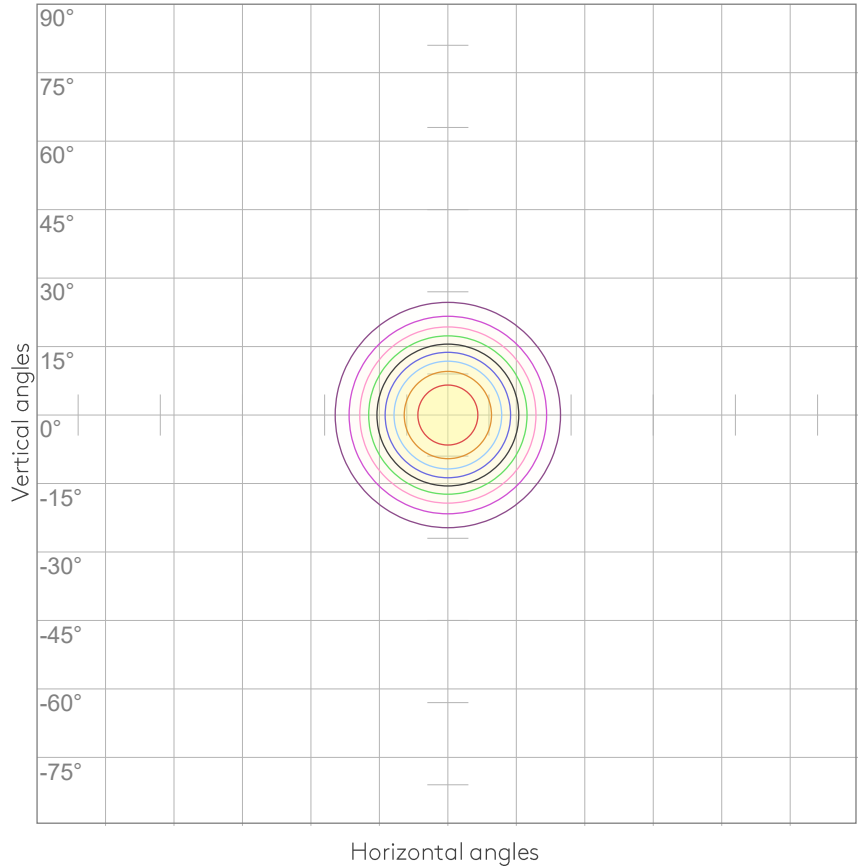
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
1958	1941	1892	1821	1727	1606	1461	1293	1103	906	715	544	394	269	173	101	56	32	18	10
100%	99%	97%	93%	88%	82%	75%	66%	56%	46%	37%	28%	20%	14%	9%	5%	3%	2%	1%	1%

Intensities in 270° c-plane

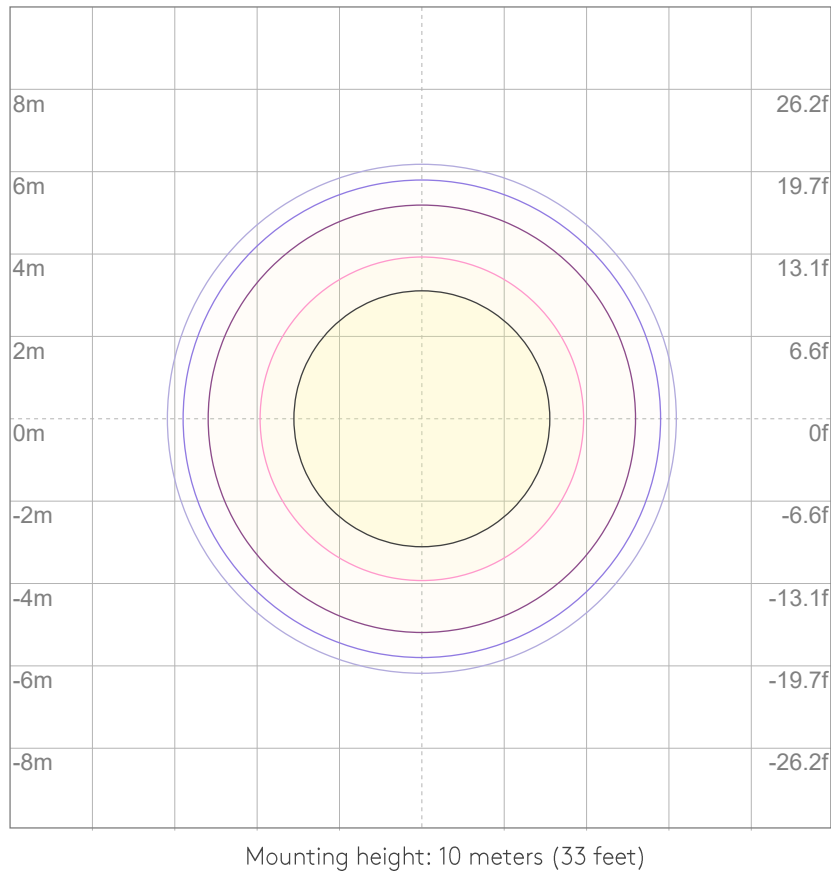
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
1958	1941	1892	1821	1727	1606	1461	1293	1103	906	715	544	394	269	173	101	56	32	18	10
100%	99%	97%	93%	88%	82%	75%	66%	56%	46%	37%	28%	20%	14%	9%	5%	3%	2%	1%	1%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
34.5°	54.9°	65.1°	99.7%	99.5%

ISO CANDELA DIAGRAM



ISO LUX DIAGRAM



UGR

GLARE EVALUATION ACCORDING TO UGR

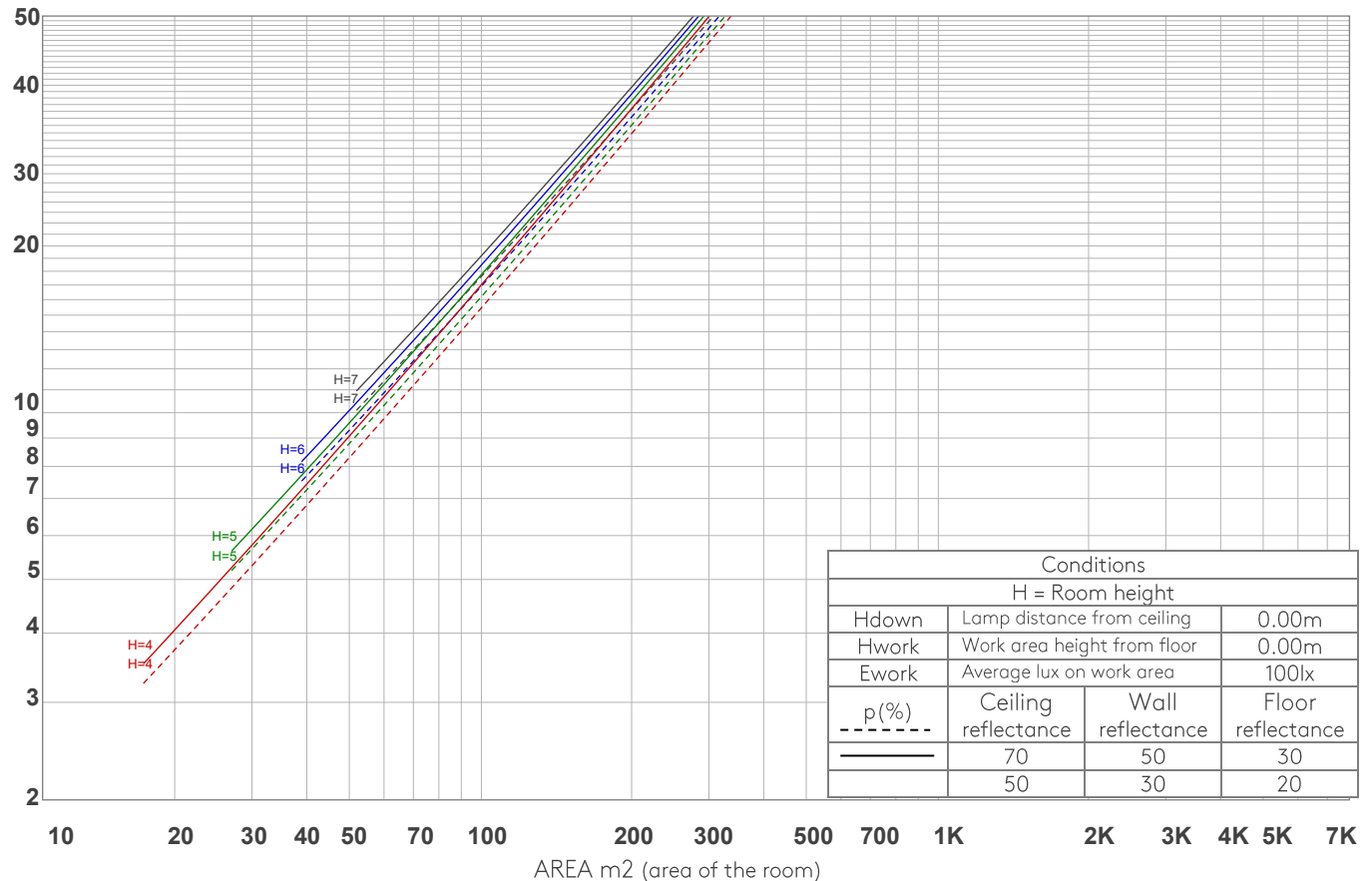
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	13.1	13.5	13.1	13.7	13.9	13.1	13.5	13.1	13.7	13.9
	3H	12.7	13.3	13.1	13.5	13.7	12.7	13.3	13.1	13.5	13.7
	4H	12.7	13.2	13.1	13.5	13.7	12.7	13.2	13.1	13.5	13.7
	6H	12.7	13.1	13.0	13.4	13.8	12.7	13.1	13.0	13.4	13.8
	8H	12.6	13.1	12.9	13.4	13.8	12.6	13.1	12.9	13.4	13.8
	12H	12.6	13.0	12.9	13.3	13.8	12.6	13.0	12.9	13.3	13.8
4H	2H	12.7	13.2	13.1	13.5	13.7	12.7	13.2	13.1	13.5	13.7
	3H	12.6	13.0	12.9	13.3	13.8	12.6	13.0	12.9	13.3	13.8
	4H	12.4	12.8	12.8	13.2	13.8	12.4	12.8	12.8	13.2	13.8
	6H	12.3	12.8	12.8	13.1	13.5	12.3	12.8	12.8	13.1	13.5
	8H	12.3	12.7	12.8	13.0	13.4	12.3	12.7	12.8	13.0	13.4
	12H	12.2	12.5	12.7	12.9	13.4	12.2	12.5	12.7	12.9	13.4
8H	4H	12.3	12.7	12.8	13.0	13.4	12.3	12.7	12.8	13.0	13.4
	6H	12.2	12.5	12.7	12.9	13.4	12.2	12.5	12.7	12.9	13.4
	8H	12.2	12.4	12.7	12.9	13.5	12.2	12.4	12.7	12.9	13.5
	12H	12.1	12.3	12.7	12.8	13.4	12.1	12.3	12.7	12.8	13.4
12H	4H	12.2	12.5	12.7	12.9	13.4	12.2	12.5	12.7	12.9	13.4
	6H	12.2	12.4	12.7	12.9	13.5	12.2	12.4	12.7	12.9	13.5
	8H	12.1	12.3	12.7	12.8	13.4	12.1	12.3	12.7	12.8	13.4
Variation of the observer position for the luminaire distance S											
S = 1.0H		6.6 / -14.7					6.6 / -14.7				
S = 1.5H		9.4 / -17.0					9.4 / -17.0				
S = 2.0H		11.4 / -21.5					11.4 / -21.5				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 671 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	115	113	111	109	112	110	109	107	106	105	104	103	102	101	99	98	98	96
2	111	107	104	101	109	105	102	100	102	100	98	99	97	96	96	95	94	92
3	107	102	98	95	105	101	97	94	98	95	93	96	93	91	94	92	90	89
4	103	98	93	90	102	96	93	90	94	91	89	93	90	88	91	88	87	85
5	100	94	89	86	98	93	89	86	91	88	85	89	86	84	88	85	83	82
6	97	90	85	82	95	89	85	82	88	84	81	87	83	81	85	83	80	79
7	93	87	82	79	92	86	82	79	85	81	78	84	80	78	83	80	78	76
8	91	83	79	76	90	83	79	76	82	78	75	81	78	75	80	77	75	74
9	88	81	76	73	87	80	76	73	79	76	73	79	75	73	78	75	72	71
10	85	78	74	71	84	78	73	71	77	73	70	76	73	70	75	72	70	69

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°
170 lm	322 lm	156 lm	19.7 lm	1.95 lm	0.598 lm	0.199 lm	0.008 lm	0.012 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0.005 lm	0.006 lm	0.019 lm	0.065 lm	0.180 lm	0.377 lm	0.505 lm	0.395 lm	0.078 lm

Flicker /TLA details

FLICKER

Flicker Meter Type Viso Systems LabFlicker
 Frequency of input power 50 Hz
 Flicker/TLA sample rate 20000 samples/s

Measurement time
 PstLM 180 sec
 All other indices 1,2 sec

Flicker indices according to Illuminating Engineering Society (IES)

Flicker frequency 1000 Hz
 Percent Flicker 0.58 %
 Flicker index 0

Flicker indices according to California Energy Commission (CEC) 2016b

JA8/10 40 Hz 0.02 %
 JA8/10 90 Hz 0.02 %
 JA8/10 200 Hz 0.03 %
 JA8/10 400 Hz 0.04 %
 JA8/10 1000 Hz 0.51 %

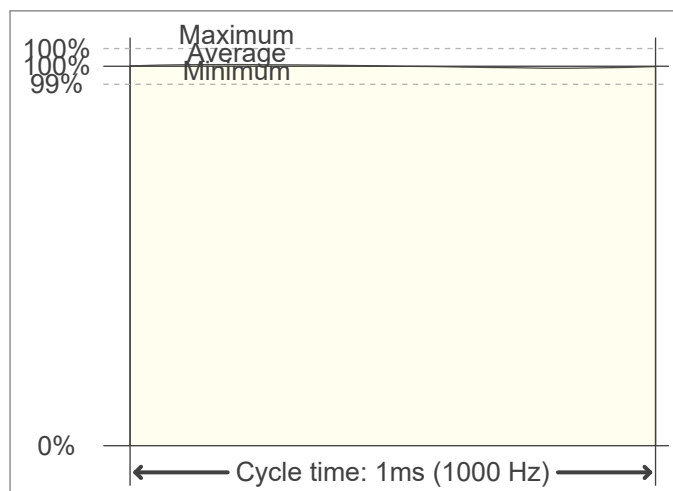
TLA indices (re IEC TR 61547-1, IEC 61000-3-3 and IEC 61000-4-15)

PstLM value ($F < 80$ Hz) 0.01
 SVM value ($80 < F < 2000$ Hz) 0

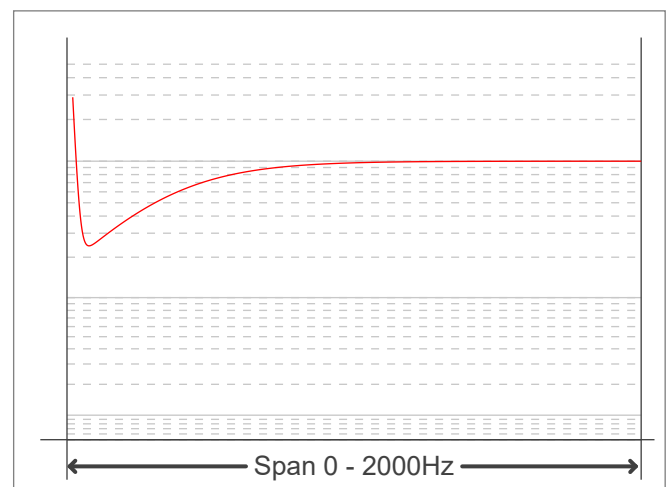
Flicker indices according to Lighting Research Center (2015)

Perception metric, Assist Mp 0.01

Flicker frame (frame of one flicker period in time domain)



Flicker FFT (flicker curve in frequency domain)



IEEE 1789 Frequency/modulation plot

