

LM-79

Test Report

LM79_ULTIMA_4000K_CRI80_12x46DEG

General Discription

Item number	U-X-X-X-03-2
Date and time	17-2-2017 15:00:45
CCT (Kelvin)	3806 K
Beam angle	30,2°
Luminous flux	2807 lm
Efficiency	156 lm/watt
Weighted energy	18,0 kWh/1000h
Power factor	0,9
CRI (RA)	83,9
Fidelity index Rf	Rf 84,6
Gammut index Rg	Rg 96,9



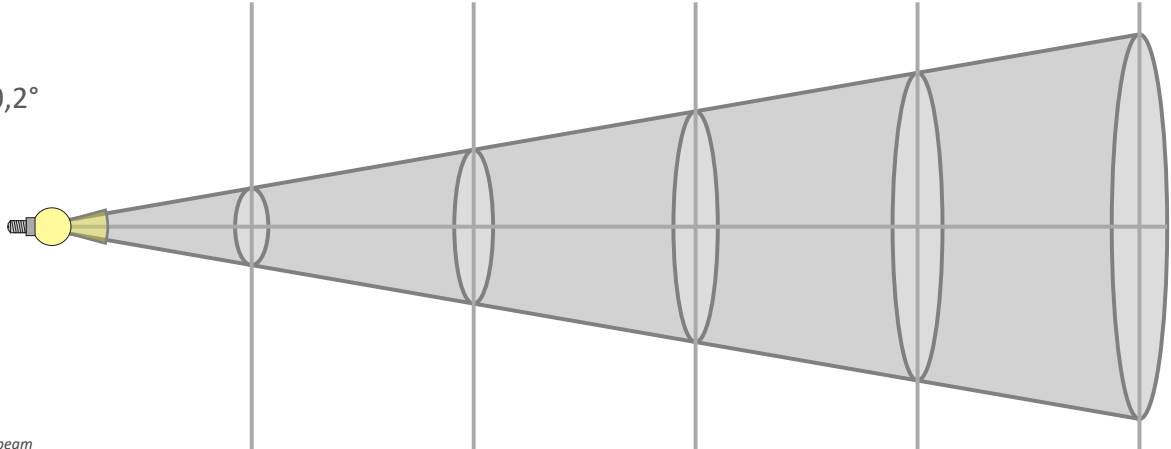
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Beam details					1m		2m		3m		4m		5m											
Lux*					7973 lx		1993 lx		886 lx		498 lx		319 lx											
30,2° 																								
*measured at center of beam																								
Footcandles*					740,7 fcd		185,2 fcd		82,3 fcd		46,3 fcd		29,6 fcd											
Beam width (meter)					0,5 m		1,1 m		1,6 m		2,2 m		2,7 m											
Beam width (Feet)					1,8 ft		3,5 ft		5,3 ft		7,1 ft		8,9 ft											
Beam intensities																								
1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m					
7973lx	1993lx	886lx	498lx	319lx	221lx	163lx	125lx	98lx	80lx	66lx	55lx	47lx	41lx	35lx	31lx	28lx	25lx	22lx	20lx					
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					
740,7fcd	185,2fcd	82,3fcd	46,3fcd	29,6fcd	20,6fcd	15,1fcd	11,6fcd	9,1fcd	7,4fcd	6,1fcd	5,1fcd	4,4fcd	3,8fcd	3,3fcd	2,9fcd	2,6fcd	2,3fcd	2,1fcd	1,9fcd					
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°					
7973	7437	6364	4879	3505	2350	1546	910	562	366	224	156	113	89	77	66	57	50	43	38					
100%	93%	80%	61%	44%	29%	19%	11%	7%	5%	3%	2%	1%	1%	1%	1%	1%	1%	1%	0%					
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°					
7973	7932	7887	7751	7506	7249	6864	6476	5990	5450	4889	4276	3662	3054	2448	1894	1476	1058	796	571					
100%	99%	99%	97%	94%	91%	86%	81%	75%	68%	61%	54%	46%	38%	31%	24%	19%	13%	10%	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°					
7973	7437	6364	4879	3505	2350	1546	910	562	366	224	156	113	89	77	66	57	50	43	38					
100%	93%	80%	61%	44%	29%	19%	11%	7%	5%	3%	2%	1%	1%	1%	1%	1%	1%	1%	0%					
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°					
7973	7932	7887	7751	7506	7249	6864	6476	5990	5450	4889	4276	3662	3054	2448	1894	1476	1058	796	571					
100%	99%	99%	97%	94%	91%	86%	81%	75%	68%	61%	54%	46%	38%	31%	24%	19%	13%	10%	7%					
Beam angle 50%					Field angle 10%					Cutoff angle 2,5%					Intensity ratio in 120° cone					Intensity ratio in 90° cone				
30,2°					50,6°					{C_ANG}°					96,8%					95,2%				



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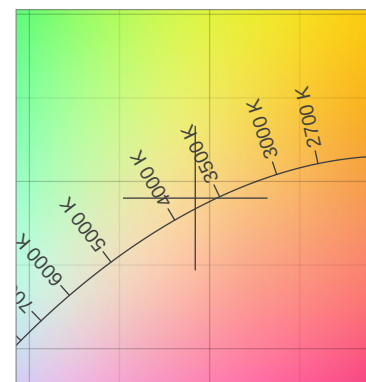
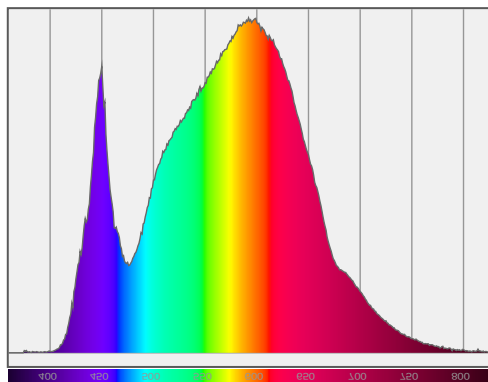
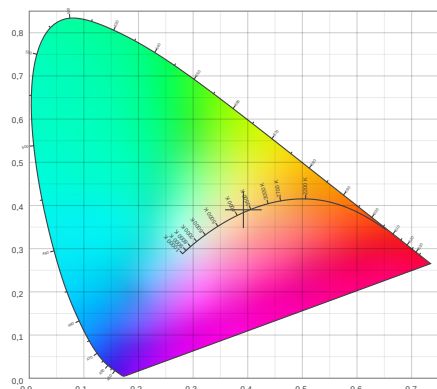
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Color details



CIE 1931

x: 0,392

3806 K

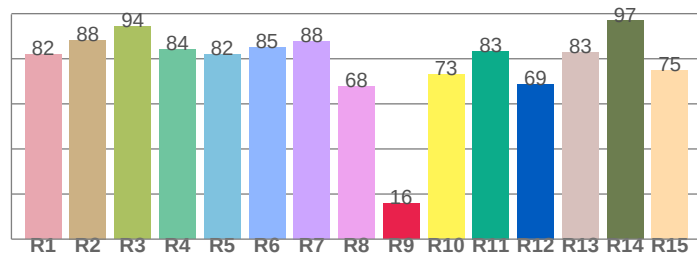
y: 0,390

Spectra

CIE 1931 ZOOM

Δuv : 0,0029

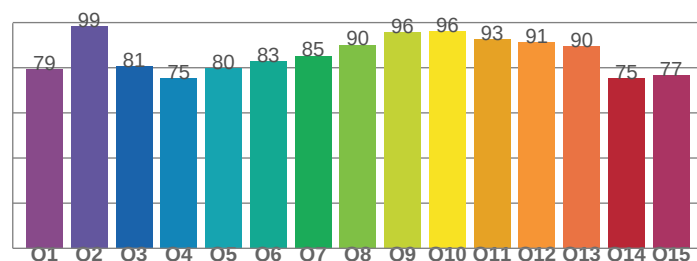
CRI: 83,9 (R1-R8)



CRI values, R1-R8 are used to calculate final CRI value

R1	R2	R3	R4	R5	R6	R7	R8
81,8	88,3	94,4	84,2	82,0	84,9	87,8	67,7
R9	R10	R11	R12	R13	R14	R15	
15,9	73,1	83,5	68,9	83,0	96,8	75,0	

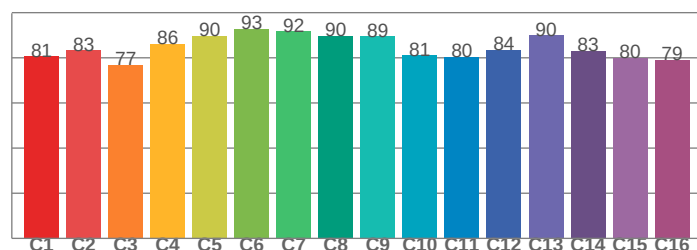
CQS: 84,0



CQS values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
79,3	98,5	80,6	75,4	79,7	82,8	85,3	90,2
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
95,8	96,1	92,5	91,2	89,5	75,5	76,6	

TM30: 84,6



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

C1	C2	C3	C4	C5	C6	C7	C8
80,5	83,3	76,9	86,1	89,7	92,7	91,7	89,8
C9	C10	C11	C12	C13	C14	C15	
89,5	81,0	80,4	83,6	89,9	83,1	80,1	

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
3806 K	83,9	15,9	84,6	96,9	84,0	0,392	0,390	0,227	0,339	0,0029



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TM30 details

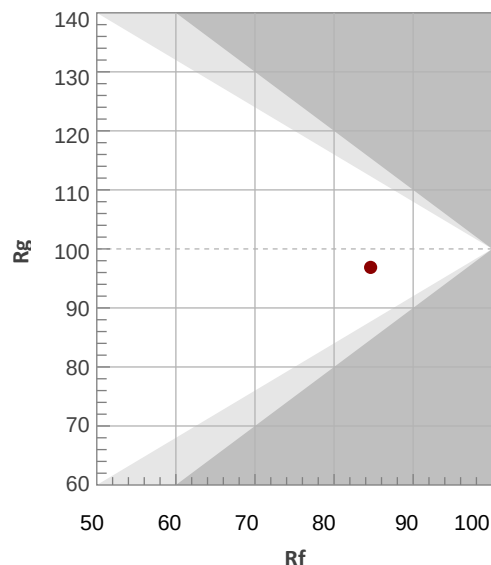
Rf 84,6

Fidelity index Rf

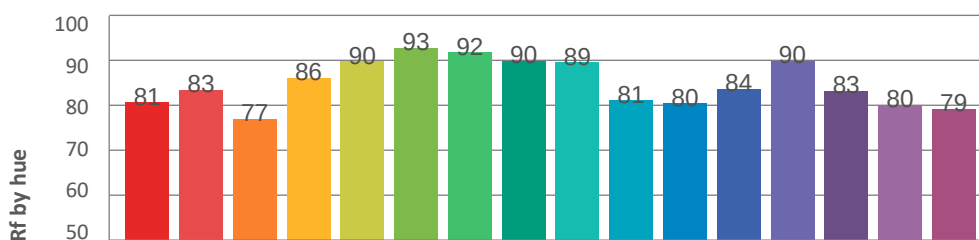
Rg 96,9

Gamut index Rg

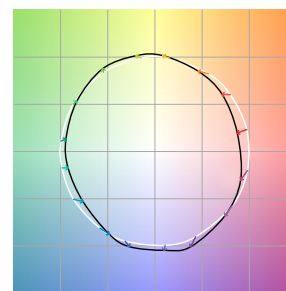
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	81	-11%	-2%
2	83	-7%	5%
3	77	-4%	11%
4	86	1%	8%
5	90	4%	5%
6	93	4%	-1%
7	92	-1%	-5%
8	90	-5%	-3%
9	89	-6%	1%
10	81	-7%	7%
11	80	0%	12%
12	84	5%	6%
13	90	5%	-2%
14	83	6%	-11%
15	80	-1%	-13%
16	79	-5%	-11%



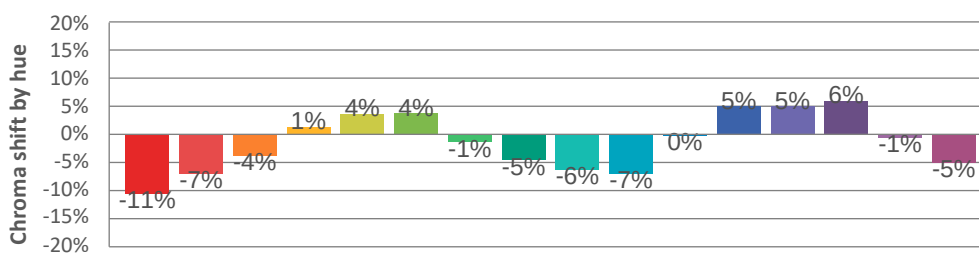
Hue binH



Color vector graphics



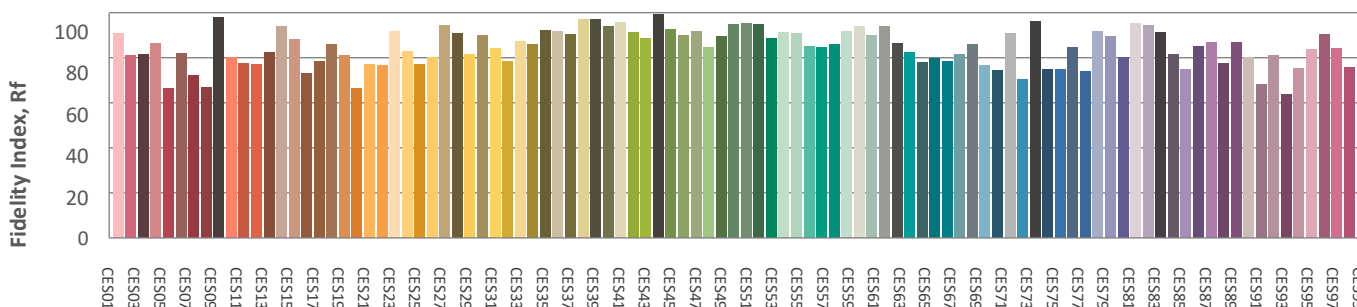
Hue bin



Color distortion graphics



Color Evaluation Sample



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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	9,9	10,5	10,1	10,8	11,0	17,4	18,1	17,7	18,3	18,6
	3H	9,8	10,4	10,1	10,7	11,0	17,3	17,9	17,6	18,2	18,5
	4H	9,8	10,4	10,1	10,7	11,0	17,3	17,8	17,6	18,1	18,4
	6H	9,9	10,4	10,2	10,7	11,0	17,2	17,8	17,6	18,1	18,4
	8H	10,0	10,5	10,4	10,8	11,2	17,2	17,7	17,6	18,1	18,4
	12H	10,3	10,8	10,7	11,1	11,5	17,3	17,8	17,7	18,1	18,5
4H	2H	9,8	10,3	10,1	10,6	10,9	17,2	17,8	17,6	18,1	18,4
	3H	9,8	10,2	10,1	10,6	10,9	17,1	17,6	17,5	17,9	18,3
	4H	9,8	10,2	10,2	10,6	11,0	17,1	17,5	17,5	17,8	18,2
	6H	10,0	10,3	10,4	10,7	11,1	17,0	17,4	17,5	17,8	18,2
	8H	10,2	10,5	10,7	11,0	11,4	17,1	17,4	17,6	17,8	18,3
	12H	10,8	11,0	11,2	11,5	11,9	17,3	17,5	17,7	18,0	18,4
8H	4H	9,8	10,1	10,2	10,5	11,0	16,9	17,3	17,4	17,7	18,1
	6H	10,1	10,4	10,6	10,8	11,3	17,0	17,2	17,5	17,7	18,2
	8H	10,6	10,8	11,1	11,3	11,8	17,1	17,3	17,6	17,7	18,3
	12H	11,5	11,6	12,0	12,1	12,7	17,4	17,5	17,9	18,0	18,6
12H	4H	9,8	10,1	10,3	10,5	11,0	16,9	17,2	17,4	17,6	18,1
	6H	10,3	10,4	10,8	10,9	11,5	16,9	17,1	17,4	17,6	18,1
	8H	10,8	11,0	11,4	11,5	12,0	17,1	17,2	17,6	17,7	18,3

Variation of the observer position for the luminaire distance S

S = 1,0H	+3,3 / -2,1	+5,3 / -5,6
S = 1,5H	+5,0 / -2,6	+8,1 / -6,3
S = 2,0H	+7,0 / -3,2	+10,1 / -7,1
Standard table	---	BK00
Correction summand	---	-0,7

Corrected glare indices referring to 2807lm total luminous flux



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