

LM-79

Test Report

LM79-SAPPHIRE-ZOOM-3000K-CRI80-FLOOD

General Discription

Item number		
Date and time	3-2-2016 16:12:57	
CCT (Kelvin)	3146 K	
Beam angle	55,7°	
Luminous flux	1712 lm	
Efficiency	60 lm/watt	
Weighted energy	28,5 kWh/1000h	
Power factor	0,97	
CRI (RA)	80,0	
Fidelity index Rf	Rf 80,4	
Gammut index Rg	Rg 96,9	
Peak	2428 cd	



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Beam details	1m	2m	3m	4m	5m
Lux*	2426 lx	606 lx	270 lx	152 lx	97 lx

*measured at center of beam

Footcandles*	225,4 fcd	56,3 fcd	25,0 fcd	14,1 fcd	9,0 fcd
Beam width (meter)	1,1 m	2,1 m	3,2 m	4,2 m	5,3 m
Beam width (Feet)	3,5 ft	6,9 ft	10,4 ft	13,9 ft	17,3 ft

Beam intensities																			
1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
2426lx	606lx	270lx	152lx	97lx	67lx	50lx	38lx	30lx	24lx	20lx	17lx	14lx	12lx	11lx	9lx	8lx	7lx	7lx	6lx
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
225,4fcd	56,3fcd	25fcd	14,1fcd	9fcd	6,3fcd	4,6fcd	3,5fcd	2,8fcd	2,3fcd	1,9fcd	1,6fcd	1,3fcd	1,1fcd	1fcd	0,9fcd	0,8fcd	0,7fcd	0,6fcd	0,6fcd

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°
2426	2427	2424	2407	2375	2332	2281	2228	2175	2122	2065	2001	1898	1651	1173	627	231	96	73	59
100%	100%	100%	99%	98%	96%	94%	92%	90%	87%	85%	82%	78%	68%	48%	26%	10%	4%	3%	2%

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°
2426	2427	2424	2407	2375	2332	2281	2228	2175	2122	2065	2001	1898	1651	1173	627	231	96	73	59
100%	100%	100%	99%	98%	96%	94%	92%	90%	87%	85%	82%	78%	68%	48%	26%	10%	4%	3%	2%

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°
2426	2427	2424	2407	2375	2332	2281	2228	2175	2122	2065	2001	1898	1651	1173	627	231	96	73	59
100%	100%	100%	99%	98%	96%	94%	92%	90%	87%	85%	82%	78%	68%	48%	26%	10%	4%	3%	2%

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°
2426	2427	2424	2407	2375	2332	2281	2228	2175	2122	2065	2001	1898	1651	1173	627	231	96	73	59
100%	100%	100%	99%	98%	96%	94%	92%	90%	87%	85%	82%	78%	68%	48%	26%	10%	4%	3%	2%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
55,7°	63,9°	75,6°	99,4%	98,4%



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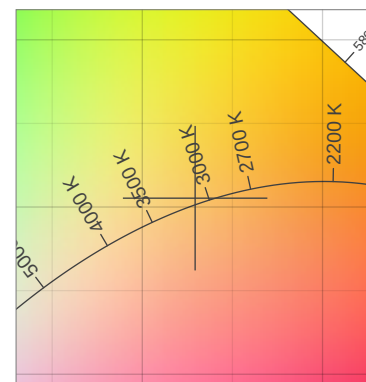
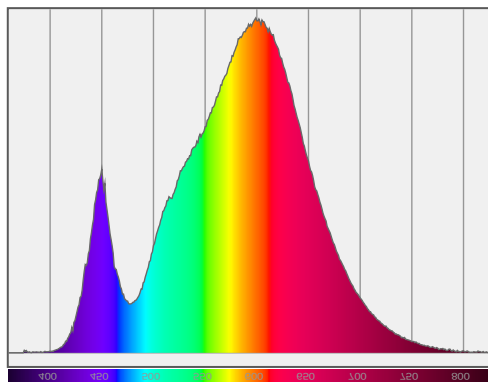
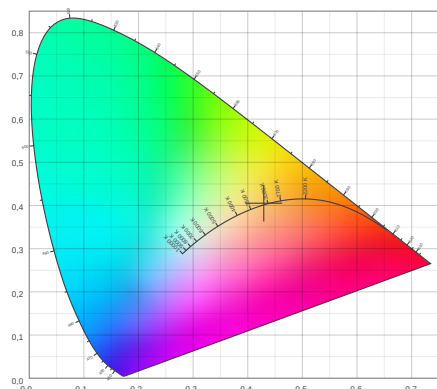
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Color details



CIE 1931

x: 0,429



Spectra

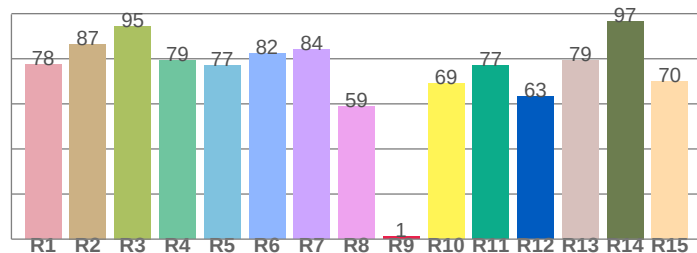
CIE 1931 ZOOM

3146 K

y: 0,405

Δuv : 0,0016

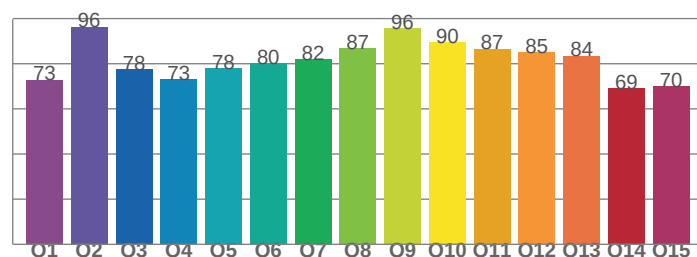
CRI: 80,0 (R1-R8)



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

R1	R2	R3	R4	R5	R6	R7	R8
77,6	86,5	94,6	79,1	77,1	82,2	84,1	58,9
R9	R10	R11	R12	R13	R14	R15	
1,2	68,9	77,2	63,2	79,2	96,8	70,1	

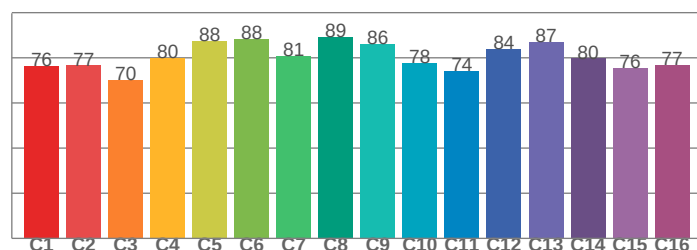
CQS: 79,9



CQS values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
72,9	96,4	77,6	73,1	78,0	80,2	82,0	86,7
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
95,7	89,6	86,6	84,9	83,6	69,0	70,2	

TM30: 80,4



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

C1	C2	C3	C4	C5	C6	C7	C8
76,3	76,6	70,1	80,1	87,5	88,3	80,8	89,1
C9	C10	C11	C12	C13	C14	C15	
86,1	77,7	74,3	84,0	87,1	79,8	75,5	

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
3146 K	80,0	1,2	80,4	96,9	79,9	0,429	0,405	0,245	0,347	0,0016



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TM30 details

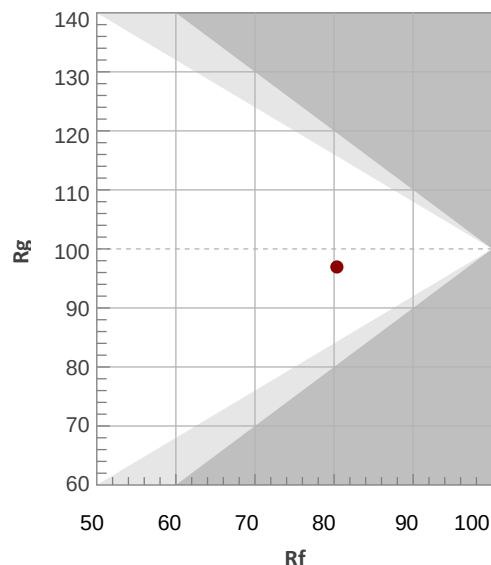
Rf 80,4

Fidelity index Rf

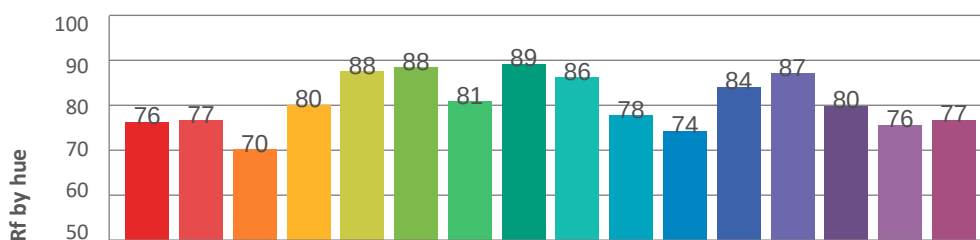
Rg 96,9

Gamut index Rg

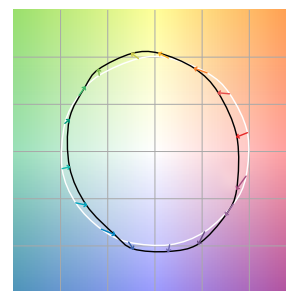
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	76	-12%	-2%
2	77	-9%	8%
3	70	-3%	14%
4	80	3%	11%
5	88	7%	6%
6	88	6%	-3%
7	81	0%	-11%
8	89	-4%	-5%
9	86	-8%	0%
10	78	-8%	8%
11	74	-3%	15%
12	84	6%	6%
13	87	7%	-3%
14	80	7%	-12%
15	76	0%	-14%
16	77	-7%	-15%



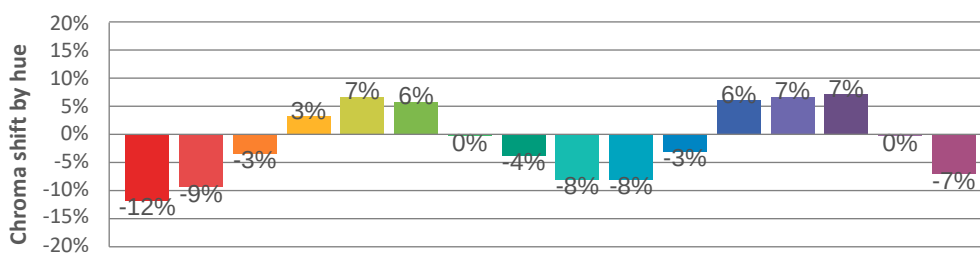
Hue binH



Color vector graphics



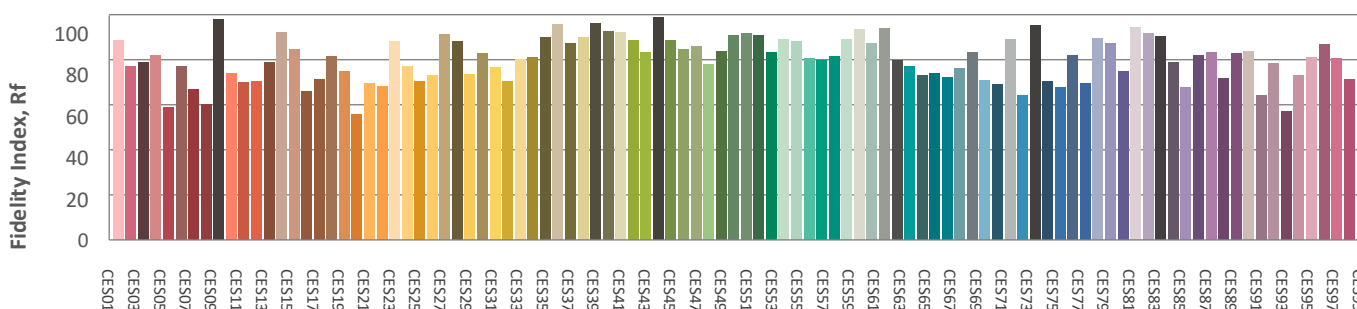
Hue bin



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	11,6	12,2	11,8	12,4	12,6	11,6	12,2	11,8	12,4	12,6
	3H	11,5	12,1	11,8	12,3	12,6	11,5	12,1	11,8	12,3	12,6
	4H	11,4	12,0	11,7	12,2	12,5	11,4	12,0	11,7	12,2	12,5
	6H	11,4	11,9	11,7	12,2	12,5	11,4	11,9	11,7	12,2	12,5
	8H	11,3	11,8	11,7	12,1	12,4	11,3	11,8	11,7	12,1	12,4
	12H	11,3	11,8	11,7	12,1	12,4	11,3	11,8	11,7	12,1	12,4
4H	2H	11,4	12,0	11,7	12,2	12,5	11,4	12,0	11,7	12,2	12,5
	3H	11,3	11,8	11,7	12,1	12,4	11,3	11,8	11,7	12,1	12,4
	4H	11,3	11,7	11,7	12,0	12,4	11,3	11,7	11,7	12,0	12,4
	6H	11,2	11,6	11,6	11,9	12,3	11,2	11,6	11,6	11,9	12,3
	8H	11,2	11,5	11,6	11,9	12,3	11,2	11,5	11,6	11,9	12,3
	12H	11,2	11,4	11,6	11,8	12,2	11,2	11,4	11,6	11,8	12,2
8H	4H	11,2	11,5	11,6	11,9	12,3	11,2	11,5	11,6	11,9	12,3
	6H	11,1	11,3	11,6	11,8	12,2	11,1	11,3	11,6	11,8	12,2
	8H	11,1	11,3	11,5	11,7	12,2	11,1	11,3	11,5	11,7	12,2
	12H	11,1	11,2	11,5	11,7	12,2	11,1	11,2	11,5	11,7	12,2
12H	4H	11,1	11,4	11,6	11,8	12,2	11,1	11,4	11,6	11,8	12,2
	6H	11,1	11,2	11,5	11,7	12,2	11,1	11,2	11,5	11,7	12,2
	8H	11,0	11,2	11,5	11,6	12,1	11,0	11,2	11,5	11,6	12,1
Variation of the observer position for the luminaire distance S											
S = 1,0H		+5,3 / -6,8					+5,3 / -6,8				
S = 1,5H		+8,0 / -8,8					+8,0 / -8,8				
S = 2,0H		+10,0 / -10,5					+10,0 / -10,5				
Standard table		BK00					BK00				
Correction summand		-7,0					-7,0				
Corrected glare indices referring to 1712lm total luminous flux											

