

LM-79

Test Report

LM79-SAPPHIRE-ZOOM-3000K-CRI80-SPOT

General Discription

Item number		
Date and time	3-2-2016 16:09:54	
CCT (Kelvin)	3141 K	
Beam angle	8,1°	
Luminous flux	947 lm	
Efficiency	33 lm/watt	
Weighted energy	28,5 kWh/1000h	
Power factor	0,97	
CRI (RA)	80,1	
Fidelity index Rf	Rf 80,5	
Gammut index Rg	Rg 97,0	
Peak	34307 cd	



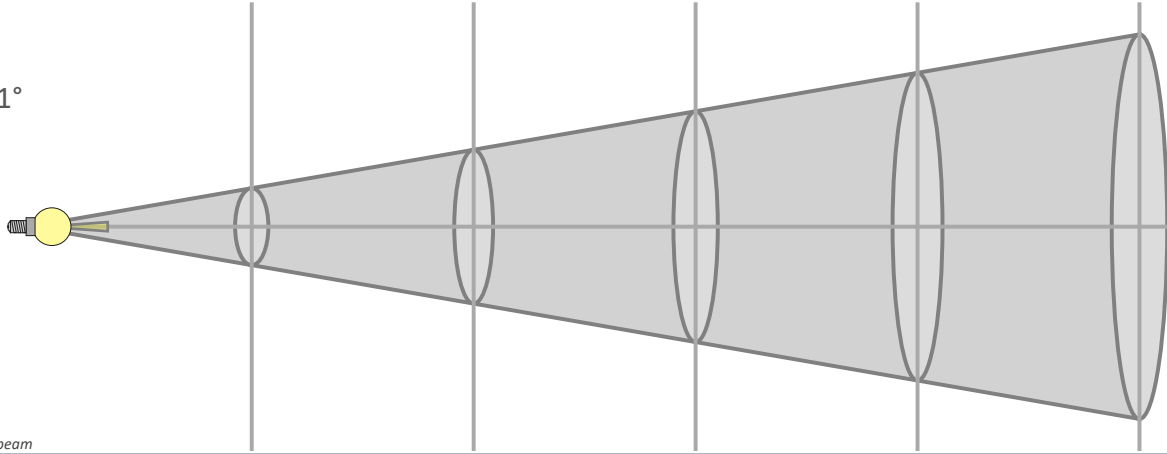
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Beam details					1m		2m		3m		4m		5m							
Lux*					35547 lx		8887 lx		3950 lx		2222 lx		1422 lx							
8,1° 																				
*measured at center of beam																				
Footcandles*					3302,4 fcd		825,6 fcd		366,9 fcd		206,4 fcd		132,1 fcd							
Beam width (meter)					0,1 m		0,3 m		0,4 m		0,6 m		0,7 m							
Beam width (Feet)					0,5 ft		0,9 ft		1,4 ft		1,9 ft		2,3 ft							
Beam intensities																				
1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m	
35547lx	8887lx	3950lx	2222lx	1422lx	987lx	725lx	555lx	439lx	355lx	294lx	247lx	210lx	181lx	158lx	139lx	123lx	110lx	98lx	89lx	
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	
3302,4fcd	825,6fcd	366,9fcd	206,4fcd	132,1fcd	91,7fcd	67,4fcd	51,6fcd	40,8fcd	33fcd	27,3fcd	22,9fcd	19,5fcd	16,8fcd	14,7fcd	12,9fcd	11,4fcd	10,2fcd	9,1fcd	8,3fcd	
Intensities in 0° c-plane																				
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°	
35,5K	34,3K	31,0K	25,1K	18,0K	11,7K	6,8K	4,0K	2,4K	1,6K	1,1K	0,8K	0,5K	0,4K	0,3K	0,2K	0,2K	0,1K	0,1K	0,1K	
100%	97%	87%	71%	51%	33%	19%	11%	7%	4%	3%	2%	2%	1%	1%	1%	1%	0%	0%	0%	
Intensities in 90° c-plane																				
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°	
35,5K	34,3K	31,0K	25,1K	18,0K	11,7K	6,8K	4,0K	2,4K	1,6K	1,1K	0,8K	0,5K	0,4K	0,3K	0,2K	0,2K	0,1K	0,1K	0,1K	
100%	97%	87%	71%	51%	33%	19%	11%	7%	4%	3%	2%	2%	1%	1%	1%	1%	0%	0%	0%	
Intensities in 180° c-plane																				
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°	
35,5K	34,3K	31,0K	25,1K	18,0K	11,7K	6,8K	4,0K	2,4K	1,6K	1,1K	0,8K	0,5K	0,4K	0,3K	0,2K	0,2K	0,1K	0,1K	0,1K	
100%	97%	87%	71%	51%	33%	19%	11%	7%	4%	3%	2%	2%	1%	1%	1%	1%	0%	0%	0%	
Intensities in 270° c-plane																				
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°	
35,5K	34,3K	31,0K	25,1K	18,0K	11,7K	6,8K	4,0K	2,4K	1,6K	1,1K	0,8K	0,5K	0,4K	0,3K	0,2K	0,2K	0,1K	0,1K	0,1K	
100%	97%	87%	71%	51%	33%	19%	11%	7%	4%	3%	2%	2%	1%	1%	1%	1%	0%	0%	0%	
Beam angle 50%					Field angle 10%				Cutoff angle 2,5%				Intensity ratio in 120° cone				Intensity ratio in 90° cone			
8,1°					14,6°				21,1°				97,6%				96,2%			



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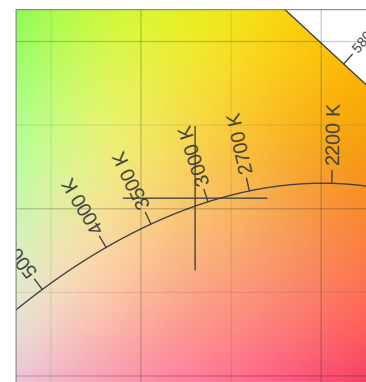
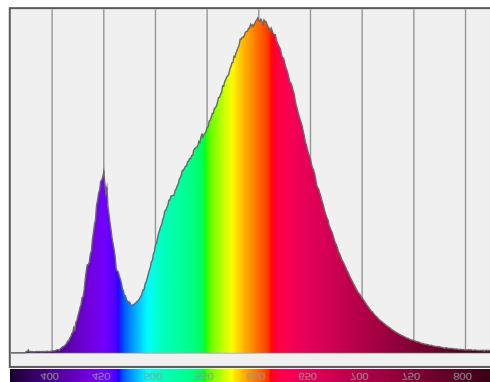
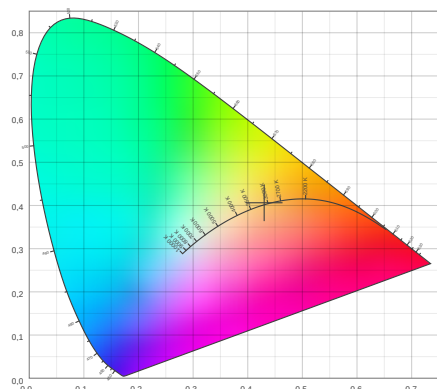
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Color details



CIE 1931

x: 0,430

3141 K

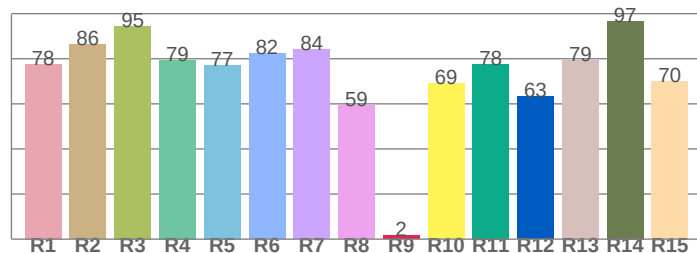
y: 0,406

Spectra

CIE 1931 ZOOM

Δuv : 0,0019

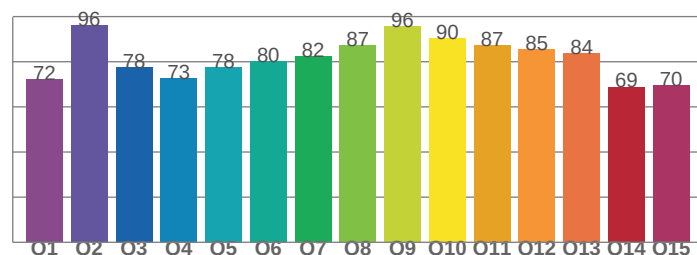
CRI: 80,1 (R1-R8)



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

R1	R2	R3	R4	R5	R6	R7	R8
77,7	86,5	94,6	79,4	77,2	82,3	84,2	59,1
R9	R10	R11	R12	R13	R14	R15	
1,5	68,9	77,6	63,3	79,3	96,8	70,0	

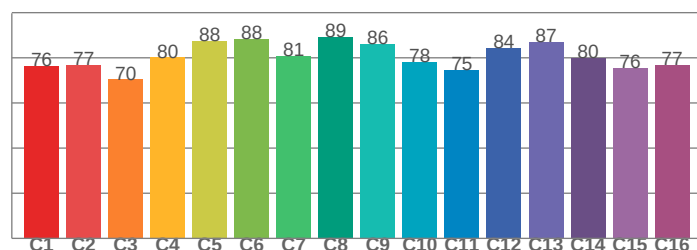
CQS: 79,8



CQS values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
72,1	96,3	77,6	72,7	77,7	80,3	82,3	87,2
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
95,6	90,4	87,2	85,4	83,9	68,9	69,8	

TM30: 80,5



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

C1	C2	C3	C4	C5	C6	C7	C8
76,4	76,8	70,5	80,2	87,5	88,4	80,7	89,3
C9	C10	C11	C12	C13	C14	C15	
86,3	78,1	74,6	84,2	87,2	79,9	75,6	

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
3141 K	80,1	1,5	80,5	97,0	79,8	0,430	0,406	0,245	0,347	0,0019



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TM30 details

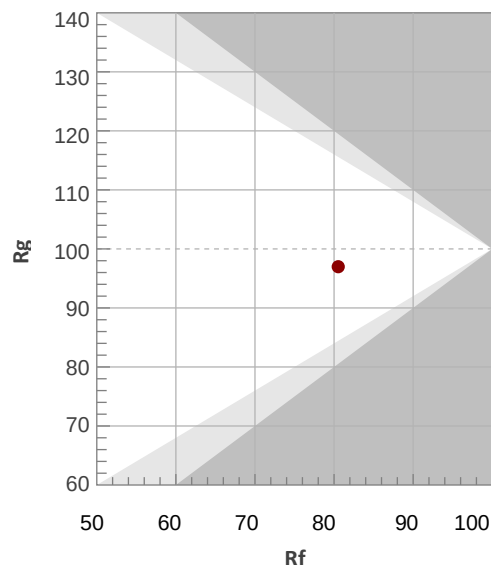
Rf 80,5

Fidelity index Rf

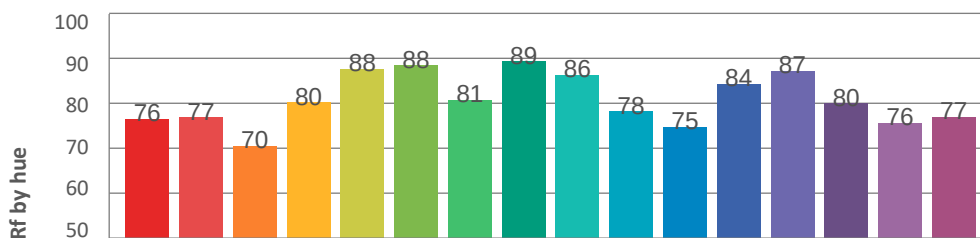
Rg 97,0

Gamut index Rg

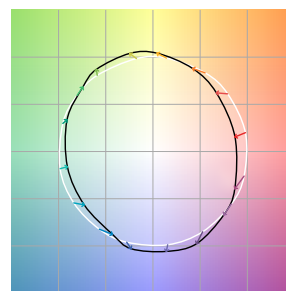
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	76	-12%	-2%
2	77	-9%	8%
3	70	-3%	14%
4	80	3%	11%
5	88	7%	6%
6	88	6%	-3%
7	81	0%	-11%
8	89	-4%	-5%
9	86	-8%	-1%
10	78	-8%	8%
11	75	-3%	15%
12	84	6%	6%
13	87	7%	-3%
14	80	7%	-12%
15	76	0%	-14%
16	77	-7%	-15%



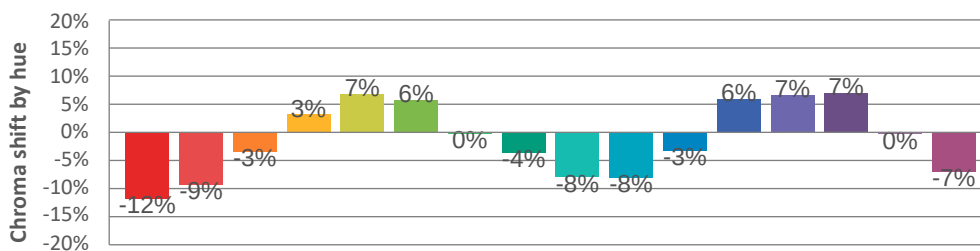
Hue binH



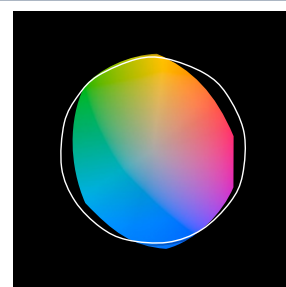
Color vector graphics



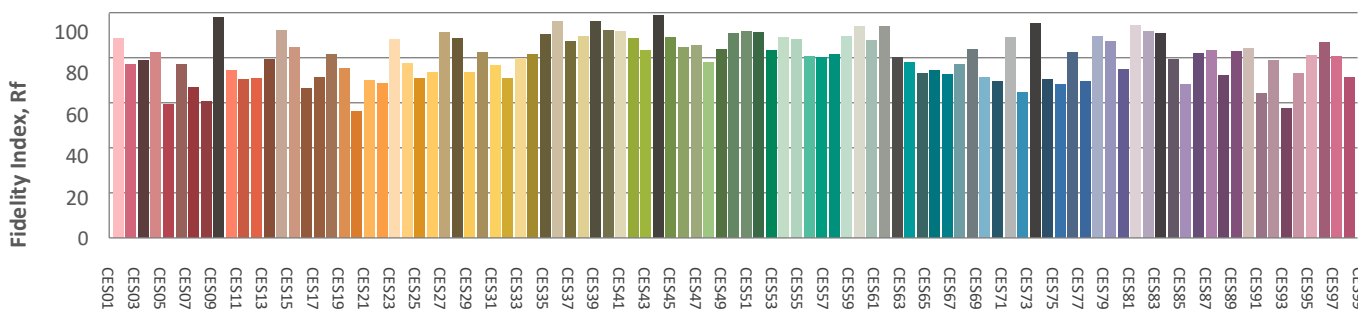
Hue bin



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	7,0	7,7	7,3	7,9	8,1	7,0	7,7	7,3	7,9	8,1
	3H	8,1	8,7	8,4	9,0	9,2	8,1	8,7	8,4	9,0	9,2
	4H	8,4	9,0	8,8	9,3	9,6	8,4	9,0	8,8	9,3	9,6
	6H	8,9	9,4	9,2	9,7	10,0	8,9	9,4	9,2	9,7	10,0
	8H	9,2	9,7	9,5	10,0	10,3	9,2	9,7	9,5	10,0	10,3
	12H	9,5	10,0	9,9	10,3	10,7	9,5	10,0	9,9	10,3	10,7
4H	2H	7,5	8,1	7,8	8,3	8,6	7,5	8,1	7,8	8,3	8,6
	3H	8,8	9,2	9,1	9,6	9,9	8,8	9,2	9,1	9,6	9,9
	4H	9,2	9,6	9,6	9,9	10,3	9,2	9,6	9,6	9,9	10,3
	6H	9,8	10,1	10,2	10,5	10,9	9,8	10,1	10,2	10,5	10,9
	8H	10,2	10,5	10,7	10,9	11,4	10,2	10,5	10,7	10,9	11,4
	12H	10,7	11,0	11,2	11,4	11,8	10,7	11,0	11,2	11,4	11,8
8H	4H	9,4	9,7	9,8	10,1	10,5	9,4	9,7	9,8	10,1	10,5
	6H	10,2	10,5	10,7	10,9	11,4	10,2	10,5	10,7	10,9	11,4
	8H	10,8	11,0	11,3	11,5	12,0	10,8	11,0	11,3	11,5	12,0
	12H	11,5	11,6	12,0	12,1	12,6	11,5	11,6	12,0	12,1	12,6
12H	4H	9,4	9,7	9,8	10,1	10,5	9,4	9,7	9,8	10,1	10,5
	6H	10,4	10,5	10,8	11,0	11,5	10,4	10,5	10,8	11,0	11,5
	8H	11,0	11,2	11,5	11,6	12,2	11,0	11,2	11,5	11,6	12,2
Variation of the observer position for the luminaire distance S											
S = 1,0H		+0,2 / -0,2					+0,2 / -0,2				
S = 1,5H		+0,4 / -0,6					+0,4 / -0,6				
S = 2,0H		+1,0 / -1,0					+1,0 / -1,0				
Standard table		BK06					BK06				
Correction summand		-6,4					-6,4				
Corrected glare indices referring to 947lm total luminous flux											

