

LM-79

Test Report

LM79_ULTIMA_2700K_CRI80_12x46DEG

General Discription

Item number	U-X-X-X-01-2
Date and time	17-2-2017 15:07:12
CCT (Kelvin)	2687 K
Beam angle	30,3°
Luminous flux	2233 lm
Efficiency	123 lm/watt
Weighted energy	18,1 kWh/1000h
Power factor	0,9
CRI (RA)	81,5
Fidelity index Rf	Rf 79,2
Gammut index Rg	Rg 99,4



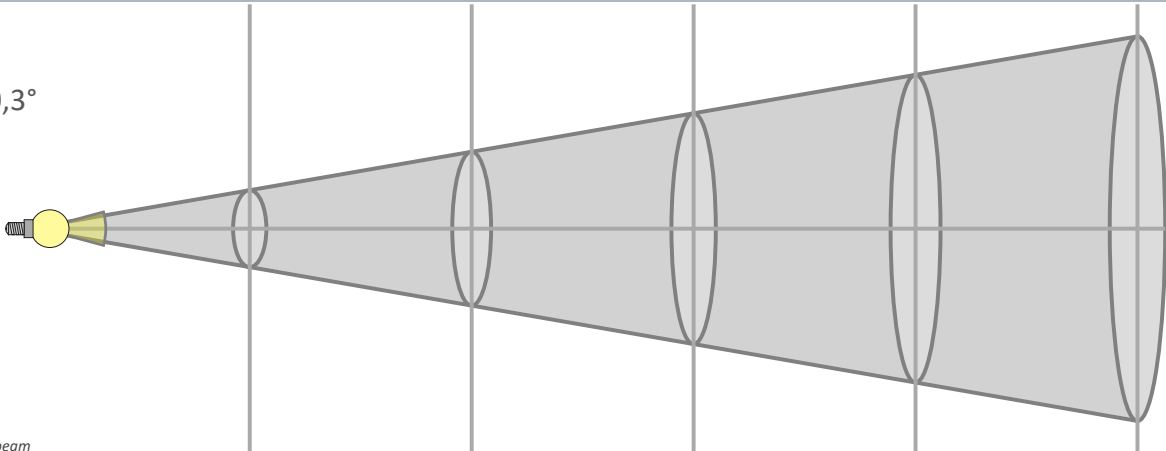
CLS LED BV
info@cls-led.com
www.cls-led.com

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Beam details					1m		2m		3m		4m		5m										
Lux*					6304 lx		1576 lx		700 lx		394 lx		252 lx										
30,3° 																							
*measured at center of beam																							
Footcandles*					585,7 fcd		146,4 fcd		65,1 fcd		36,6 fcd		23,4 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		3,6 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				
6304lx	1576lx	700lx	394lx	252lx	175lx	129lx	99lx	78lx	63lx	52lx	44lx	37lx	32lx	28lx	25lx	22lx	19lx	17lx	16lx				
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				
585,7fcd	146,4fcd	65,1fcd	36,6fcd	23,4fcd	16,3fcd	12fcd	9,2fcd	7,2fcd	5,9fcd	4,8fcd	4,1fcd	3,5fcd	3fcd	2,6fcd	2,3fcd	2fcd	1,8fcd	1,6fcd	1,5fcd				
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°				
6304	5754	4925	3916	2860	1915	1334	825	514	331	195	139	91	73	62	52	45	38	34	30				
100%	91%	78%	62%	45%	30%	21%	13%	8%	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°				
6304	6279	6218	6145	5943	5707	5425	5099	4718	4300	3836	3353	2867	2380	1912	1505	1155	860	629	452				
100%	100%	99%	97%	94%	91%	86%	81%	75%	68%	61%	53%	45%	38%	30%	24%	18%	14%	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°				
6304	5754	4925	3916	2860	1915	1334	825	514	331	195	139	91	73	62	52	45	38	34	30				
100%	91%	78%	62%	45%	30%	21%	13%	8%	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°				
6304	6279	6218	6145	5943	5707	5425	5099	4718	4300	3836	3353	2867	2380	1912	1505	1155	860	629	452				
100%	100%	99%	97%	94%	91%	86%	81%	75%	68%	61%	53%	45%	38%	30%	24%	18%	14%	10%	7%				
Beam angle 50%					Field angle 10%					Cutoff angle 2,5%					Intensity ratio in 120° cone					Intensity ratio in 90° cone			
30,3°					51,1°					{C_ANG}°					96,9%					95,3%			



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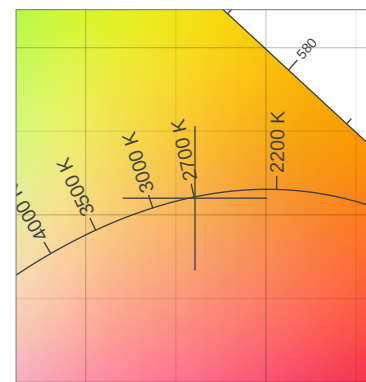
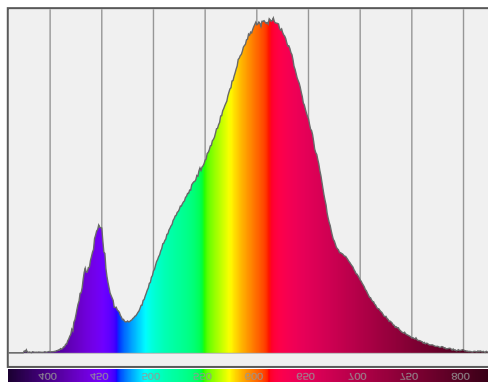
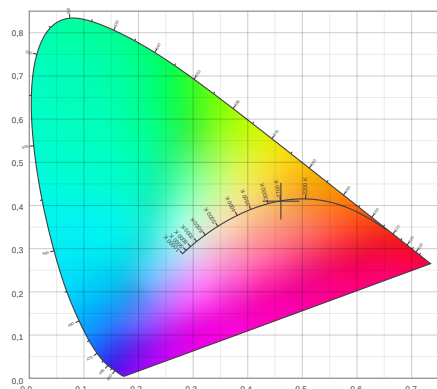
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Color details



CIE 1931

x: 0,461



Spectra

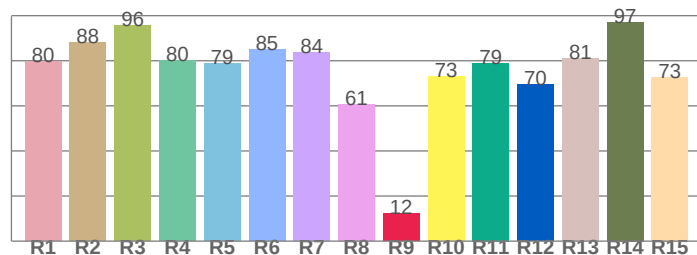
CIE 1931 ZOOM

2687 K

y: 0,410

Δuv : 0,0003

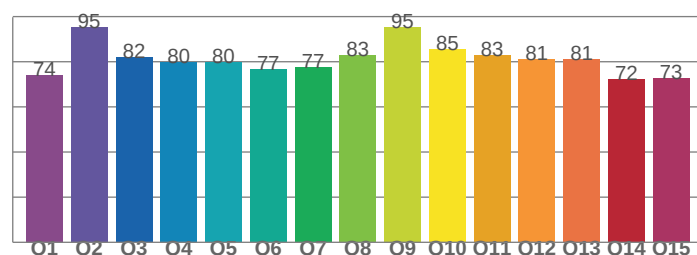
CRI: 81,5 (R1-R8)



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

R1	R2	R3	R4	R5	R6	R7	R8
79,6	88,1	95,7	80,2	78,8	85,0	83,6	60,6
R9	R10	R11	R12	R13	R14	R15	
12,2	73,0	79,0	69,6	81,1	97,2	72,7	

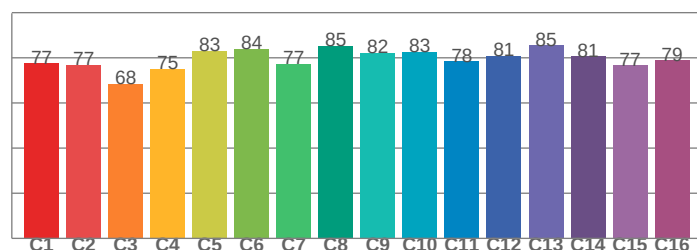
CQS: 79,9



CQS values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
74,1	95,3	81,9	79,8	79,6	76,5	77,4	82,8
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
95,4	85,4	83,0	81,0	81,1	72,2	72,6	

TM30: 79,2



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

C1	C2	C3	C4	C5	C6	C7	C8
77,5	76,8	68,4	75,1	83,1	83,9	77,3	85,1
C9	C10	C11	C12	C13	C14	C15	
82,2	82,6	78,4	80,8	85,4	80,6	76,6	

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
2687 K	81,5	12,2	79,2	99,4	79,9	0,461	0,410	0,263	0,351	0,0003



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TM30 details

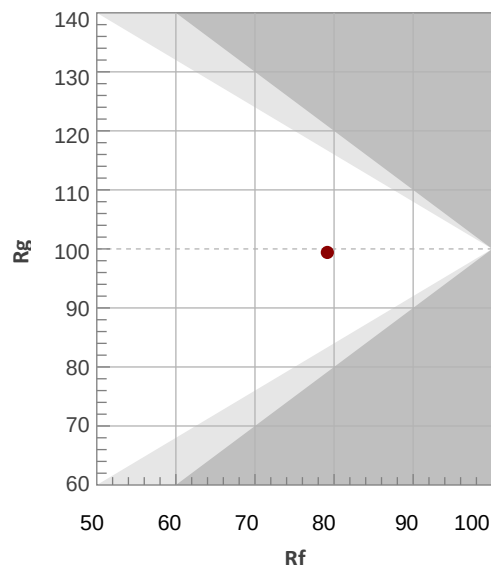
Rf 79,2

Fidelity index Rf

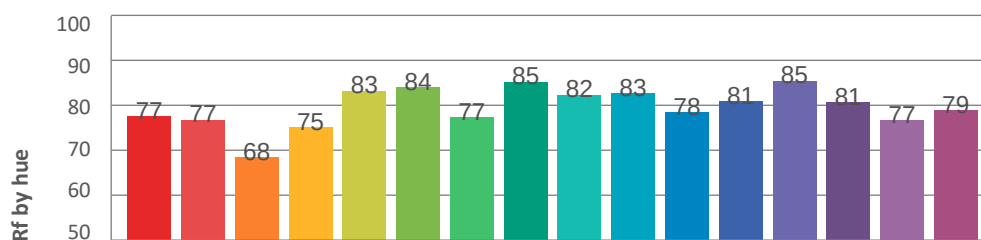
Rg 99,4

Gamut index Rg

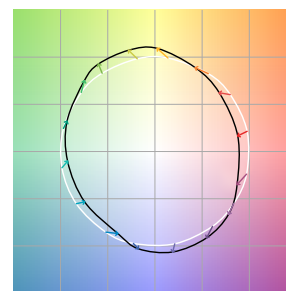
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	77	-11%	-3%
2	77	-9%	8%
3	68	-2%	15%
4	75	8%	13%
5	83	11%	7%
6	84	10%	-2%
7	77	4%	-12%
8	85	-2%	-8%
9	82	-7%	-6%
10	83	-8%	3%
11	78	-6%	11%
12	81	5%	6%
13	85	8%	-4%
14	81	7%	-12%
15	77	2%	-13%
16	79	-8%	-13%



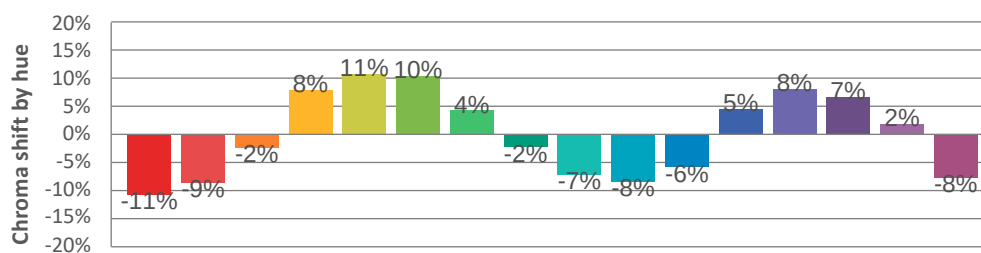
Hue binH



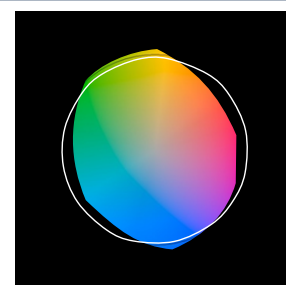
Color vector graphics



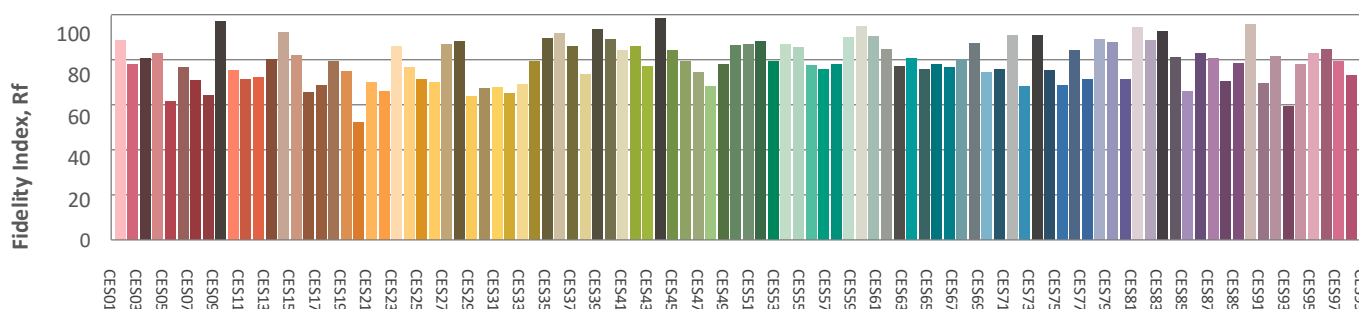
Hue bin



Color distortion graphics



Color Evaluation Sample



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info@cls-led.com
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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	9,1	9,7	9,4	10,0	10,2	16,6	17,3	16,9	17,5	17,8
	3H	9,0	9,6	9,4	9,9	10,2	16,5	17,1	16,8	17,4	17,7
	4H	9,0	9,6	9,4	9,9	10,2	16,4	17,0	16,8	17,3	17,6
	6H	9,1	9,6	9,5	9,9	10,3	16,4	16,9	16,8	17,2	17,6
	8H	9,3	9,8	9,6	10,1	10,4	16,4	16,9	16,8	17,2	17,6
	12H	9,6	10,1	10,0	10,5	10,8	16,4	16,9	16,8	17,3	17,6
4H	2H	9,0	9,5	9,3	9,8	10,1	16,4	17,0	16,8	17,3	17,6
	3H	9,0	9,5	9,4	9,8	10,2	16,3	16,8	16,7	17,1	17,5
	4H	9,0	9,4	9,4	9,8	10,2	16,2	16,6	16,7	17,0	17,4
	6H	9,2	9,6	9,7	10,0	10,4	16,2	16,6	16,7	17,0	17,4
	8H	9,5	9,8	10,0	10,3	10,7	16,3	16,6	16,7	17,0	17,4
	12H	10,2	10,4	10,6	10,9	11,3	16,4	16,6	16,8	17,1	17,5
8H	4H	9,0	9,3	9,5	9,7	10,2	16,1	16,4	16,6	16,9	17,3
	6H	9,4	9,6	9,9	10,1	10,6	16,1	16,4	16,6	16,8	17,3
	8H	9,9	10,1	10,4	10,6	11,1	16,2	16,4	16,7	16,9	17,4
	12H	10,9	11,0	11,4	11,5	12,1	16,4	16,5	16,9	17,0	17,6
12H	4H	9,0	9,3	9,5	9,7	10,2	16,1	16,4	16,6	16,8	17,3
	6H	9,5	9,7	10,0	10,2	10,7	16,1	16,3	16,6	16,8	17,3
	8H	10,1	10,3	10,7	10,8	11,3	16,2	16,4	16,7	16,9	17,4

Variation of the observer position for the luminaire distance S

S = 1,0H	+3,2 / -1,9	+5,3 / -6,1
S = 1,5H	+4,9 / -2,5	+8,1 / -6,8
S = 2,0H	+6,8 / -3,0	+10,1 / -7,6
Standard table	---	BK00
Correction summand	---	-1,7

Corrected glare indices referring to 2233lm total luminous flux



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