

# LM-79

## Test Report

LM79\_ULTIMA\_2700K\_CRI80\_30DEG

### General Discription

Item number	U-X-X-X-01-3
Date and time	17-2-2017 16:05:18
CCT (Kelvin)	2699 K
Beam angle	28,8°
Luminous flux	1548 lm
Efficiency	86 lm/watt
Weighted energy	18,1 kWh/1000h
Power factor	0,9
CRI (RA)	81,4
Fidelity index Rf	Rf 79,2
Gammut index Rg	Rg 99,3



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Beam details	1m	2m	3m	4m	5m														
Lux*	5060 lx	1265 lx	562 lx	316 lx	202 lx														
*measured at center of beam																			
Footcandles*	470,1 fcd	117,5 fcd	52,2 fcd	29,4 fcd	18,8 fcd														
Beam width (meter)	0,5 m	1 m	1,5 m	2,1 m	2,6 m														
Beam width (Feet)	1,7 ft	3,4 ft	5,1 ft	6,7 ft	8,4 ft														
<b>Beam intensities</b>																			
1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
5060lx	1265lx	562lx	316lx	202lx	141lx	103lx	79lx	62lx	51lx	42lx	35lx	30lx	26lx	22lx	20lx	18lx	16lx	14lx	13lx
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
470,1fcd	117,5fcd	52,2fcd	29,4fcd	18,8fcd	13,1fcd	9,6fcd	7,3fcd	5,8fcd	4,7fcd	3,9fcd	3,3fcd	2,8fcd	2,4fcd	2,1fcd	1,8fcd	1,6fcd	1,5fcd	1,3fcd	1,2fcd
<b>Intensities in 0° c-plane</b>																			
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
5060	4886	4696	4375	3938	3498	3027	2556	2120	1708	1311	1032	754	561	418	286	219	152	111	81
100%	97%	93%	86%	78%	69%	60%	51%	42%	34%	26%	20%	15%	11%	8%	6%	4%	3%	2%	2%
<b>Intensities in 90° c-plane</b>																			
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
5060	5026	4791	4449	4051	3590	3124	2676	2243	1835	1472	1131	861	629	449	335	236	172	123	87
100%	99%	95%	88%	80%	71%	62%	53%	44%	36%	29%	22%	17%	12%	9%	7%	5%	3%	2%	2%
<b>Intensities in 180° c-plane</b>																			
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
5060	4886	4696	4375	3938	3498	3027	2556	2120	1708	1311	1032	754	561	418	286	219	152	111	81
100%	97%	93%	86%	78%	69%	60%	51%	42%	34%	26%	20%	15%	11%	8%	6%	4%	3%	2%	2%
<b>Intensities in 270° c-plane</b>																			
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
5060	5026	4791	4449	4051	3590	3124	2676	2243	1835	1472	1131	861	629	449	335	236	172	123	87
100%	99%	95%	88%	80%	71%	62%	53%	44%	36%	29%	22%	17%	12%	9%	7%	5%	3%	2%	2%
Beam angle 50%		Field angle 10%				Cutoff angle 2,5%				Intensity ratio in 120° cone				Intensity ratio in 90° cone					
28,8°		54,1°				{C_ANG}°				97,1%				95,8%					



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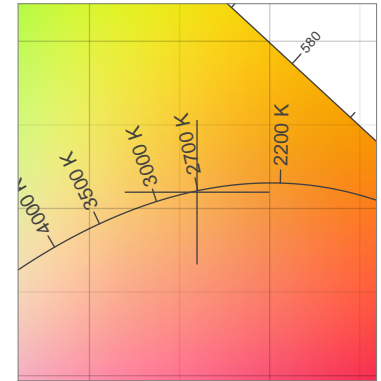
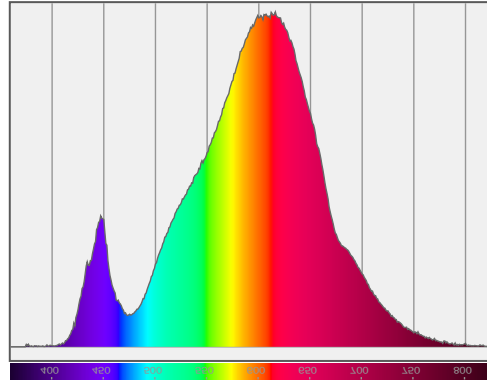
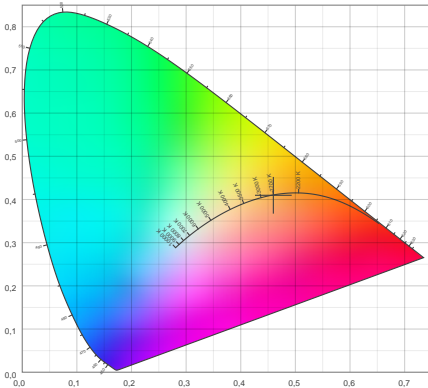
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### Color details



CIE 1931

x: 0,460



Spectra

CIE 1931 ZOOM

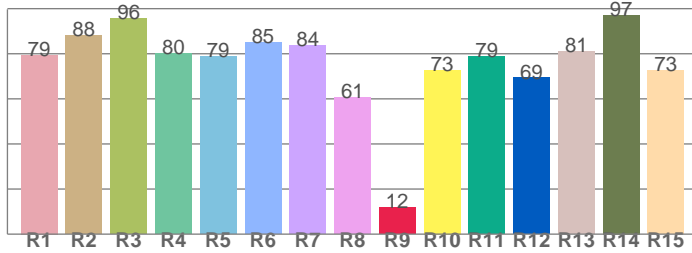
2699 K

y: 0,410

$\Delta uv$ : 0,0003

CRI: 81,4 (R1-R8)

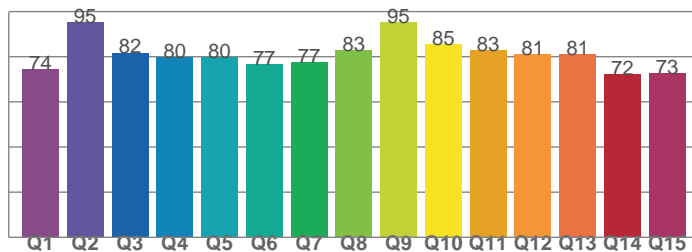
CRI values, R1-R8 are used to calculate final CRI value



R1	R2	R3	R4	R5	R6	R7	R8
79,5	88,1	95,7	80,1	78,7	84,9	83,6	60,6
R9	R10	R11	R12	R13	R14	R15	
11,9	72,8	78,8	69,3	81,0	97,2	72,7	

CQS: 79,9

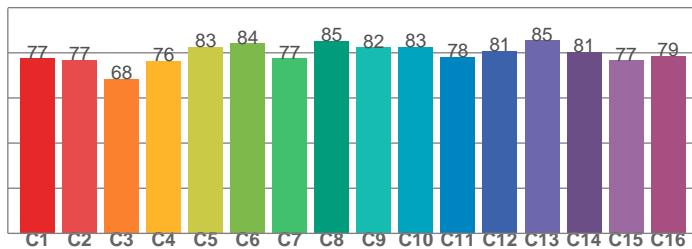
CQS values



Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
74,3	95,4	81,8	79,7	79,6	76,6	77,4	82,8
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
95,4	85,4	82,9	81,0	81,0	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	76,7	68,3	76,4	82,7	84,1	77,5	85,3
C9	C10	C11	C12	C13	C14	C15	
82,4	82,5	78,2	80,7	85,5	80,5	76,7	

### 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	$\Delta uv$
2699 K	81,4	11,9	79,2	99,3	79,9	0,460	0,410	0,263	0,351	0,0003



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### TM30 details

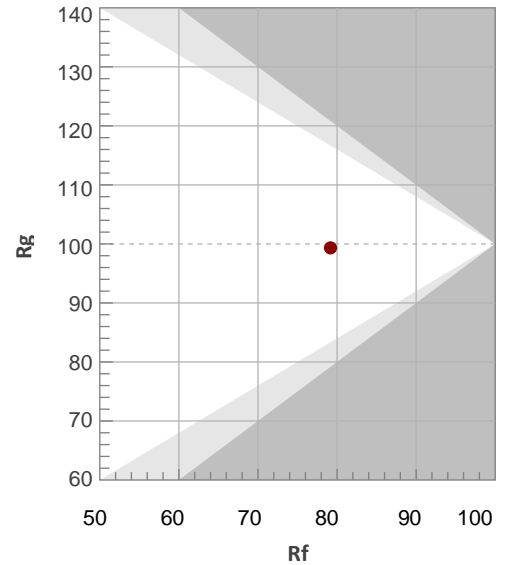
Rf 79,2

Fidelity index Rf

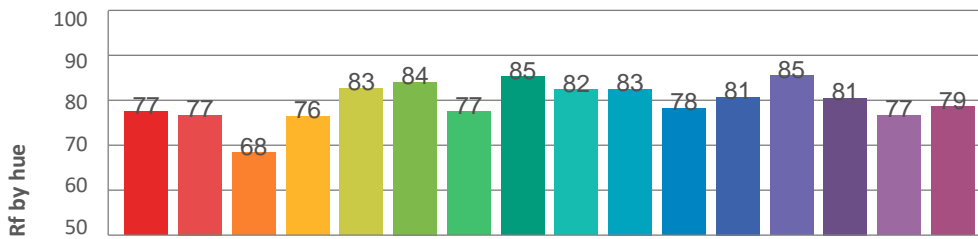
Rg 99,3

Gamut index Rg

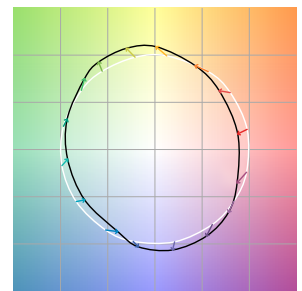
Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	77	-11%	-3%
2	77	-9%	8%
3	68	-2%	15%
4	76	7%	13%
5	83	11%	7%
6	84	10%	-2%
7	77	4%	-12%
8	85	-2%	-8%
9	82	-7%	-6%
10	83	-8%	3%
11	78	-6%	12%
12	81	5%	6%
13	85	8%	-4%
14	81	7%	-12%
15	77	2%	-13%
16	79	-8%	-13%



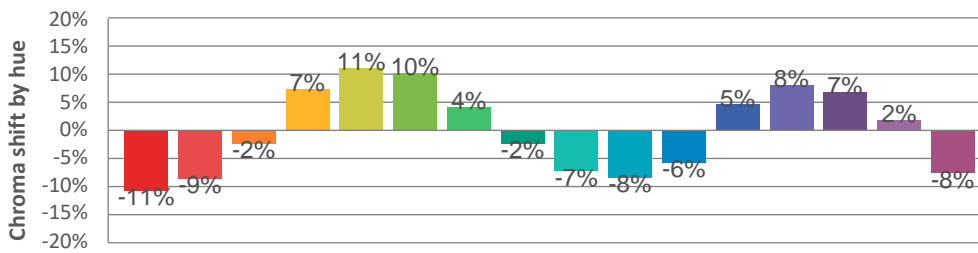
### Hue binH



### Color vector graphics



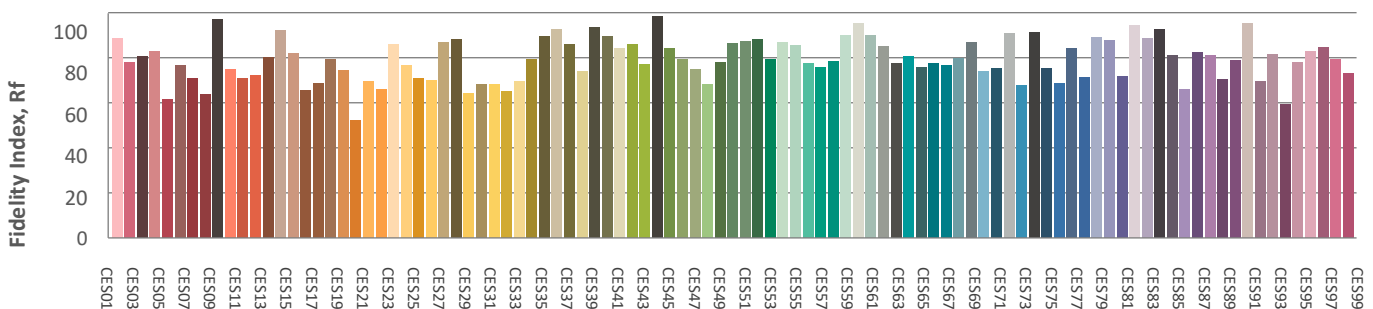
### Hue bin



### Color distortion graphics



### Color Evaluation Sample



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### 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	8,2	8,9	8,5	9,1	9,4	8,5	9,2	8,8	9,4	9,6
	3H	8,3	8,9	8,6	9,2	9,4	8,6	9,2	8,9	9,4	9,7
	4H	8,3	8,9	8,6	9,2	9,4	8,6	9,2	8,9	9,4	9,7
	6H	8,5	9,0	8,8	9,3	9,6	8,8	9,3	9,2	9,6	10,0
	8H	8,7	9,2	9,1	9,5	9,9	9,3	9,8	9,6	10,1	10,4
	12H	9,1	9,6	9,5	9,9	10,3	9,9	10,4	10,3	10,7	11,1
4H	2H	8,1	8,7	8,5	9,0	9,3	8,4	9,0	8,8	9,3	9,6
	3H	8,3	8,7	8,6	9,1	9,4	8,5	9,0	8,9	9,3	9,7
	4H	8,3	8,7	8,7	9,1	9,5	8,6	9,0	9,0	9,4	9,8
	6H	8,7	9,0	9,1	9,4	9,8	9,0	9,4	9,5	9,8	10,2
	8H	9,1	9,4	9,6	9,8	10,3	9,8	10,1	10,2	10,5	10,9
	12H	9,8	10,1	10,3	10,5	11,0	10,7	11,0	11,2	11,4	11,9
8H	4H	8,3	8,6	8,8	9,1	9,5	8,6	8,9	9,1	9,3	9,8
	6H	8,9	9,2	9,4	9,6	10,1	9,3	9,5	9,8	10,0	10,5
	8H	9,6	9,8	10,1	10,3	10,8	10,3	10,5	10,8	11,0	11,5
	12H	10,6	10,8	11,2	11,3	11,8	11,6	11,8	12,1	12,3	12,8
12H	4H	8,4	8,6	8,8	9,1	9,5	8,6	8,9	9,1	9,3	9,8
	6H	9,1	9,3	9,6	9,8	10,3	9,4	9,6	9,9	10,1	10,6
	8H	9,9	10,1	10,5	10,6	11,1	10,6	10,7	11,1	11,2	11,8

### Variation of the observer position for the luminaire distance S

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

Corrected glare indices referring to 1548lm total luminous flux

