

# LM-79

## Test Report

LM79\_ULTIMA\_3000K\_CRI80\_54DEG

### General Discription

Item number	U-X-X-X-02-4
Date and time	17-2-2017 13:30:02
CCT (Kelvin)	2935 K
Beam angle	56,8°
Luminous flux	1695 lm
Efficiency	94 lm/watt
Weighted energy	18,1 kWh/1000h
Power factor	0,9
CRI (RA)	83,8
Fidelity index Rf	Rf 84,3
Gammut index Rg	Rg 97,2



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Beam details	1m	2m	3m	4m	5m														
Lux*	1801 lx	450 lx	200 lx	113 lx	72 lx														
*measured at center of beam																			
Footcandles*	167,3 fcd	41,8 fcd	18,6 fcd	10,5 fcd	6,7 fcd														
Beam width (meter)	1,1 m	2,2 m	3,2 m	4,3 m	5,4 m														
Beam width (Feet)	3,5 ft	7,1 ft	10,6 ft	14,2 ft	17,7 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
1801lx	450lx	200lx	113lx	72lx	50lx	37lx	28lx	22lx	18lx	15lx	13lx	11lx	9lx	8lx	7lx	6lx	6lx	5lx	5lx
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
167,3fcd	41,8fcd	18,6fcd	10,5fcd	6,7fcd	4,6fcd	3,4fcd	2,6fcd	2,1fcd	1,7fcd	1,4fcd	1,2fcd	1fcd	0,9fcd	0,7fcd	0,7fcd	0,6fcd	0,5fcd	0,5fcd	0,4fcd
<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°
1801	1808	1815	1817	1815	1812	1770	1726	1662	1568	1473	1349	1218	1083	939	796	665	539	422	340
100%	100%	101%	101%	101%	101%	98%	96%	92%	87%	82%	75%	68%	60%	52%	44%	37%	30%	23%	19%
<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°
1801	1804	1810	1815	1815	1805	1775	1731	1659	1568	1463	1341	1212	1075	933	793	661	534	425	335
100%	100%	100%	101%	101%	100%	99%	96%	92%	87%	81%	74%	67%	60%	52%	44%	37%	30%	24%	19%
<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°
1801	1808	1815	1817	1815	1812	1770	1726	1662	1568	1473	1349	1218	1083	939	796	665	539	422	340
100%	100%	101%	101%	101%	101%	98%	96%	92%	87%	82%	75%	68%	60%	52%	44%	37%	30%	23%	19%
<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°
1801	1804	1810	1815	1815	1805	1775	1731	1659	1568	1463	1341	1212	1075	933	793	661	534	425	335
100%	100%	100%	101%	101%	100%	99%	96%	92%	87%	81%	74%	67%	60%	52%	44%	37%	30%	24%	19%
Beam angle 50%		Field angle 10%				Cutoff angle 2,5%				Intensity ratio in 120° cone				Intensity ratio in 90° cone					
56,8°		85,3°				{C_ANG}°				94,5%				90,4%					



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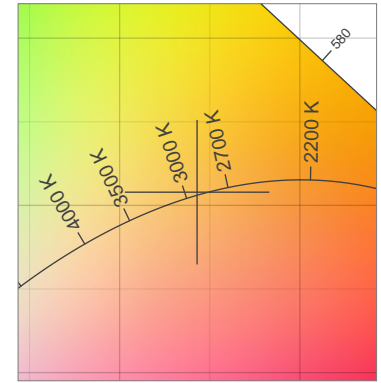
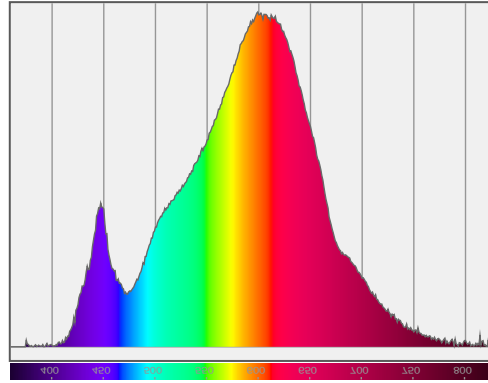
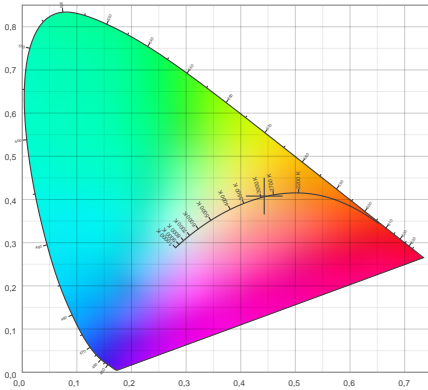
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### Color details



CIE 1931

x: 0,443



Spectra

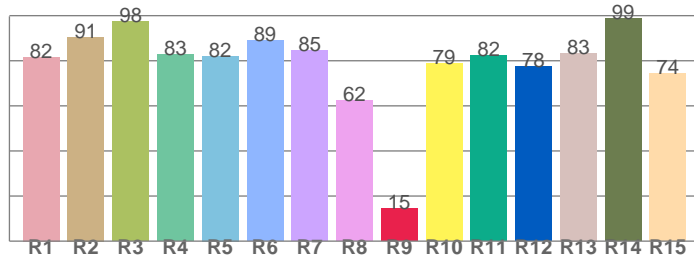
CIE 1931 ZOOM

2935 K

y: 0,408

$\Delta uv$ : 0,0007

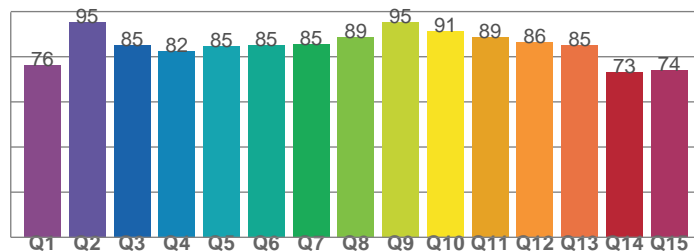
CRI: **83,8** (R1-R8)



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

R1	R2	R3	R4	R5	R6	R7	R8
81,7	90,5	97,5	82,8	82,1	88,9	84,6	62,5
R9	R10	R11	R12	R13	R14	R15	
14,6	78,9	82,4	77,6	83,5	98,9	74,2	

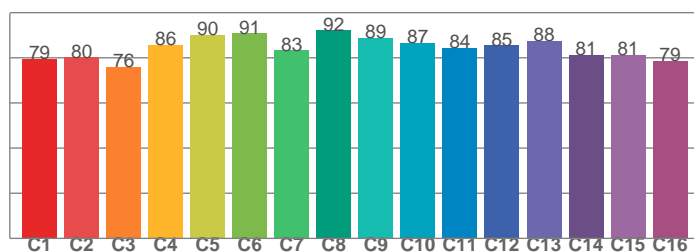
CQS: **83,6**



CQS values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
76,0	95,3	85,2	82,5	84,7	85,2	85,5	88,7
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
95,4	91,4	88,8	86,5	85,0	73,2	73,9	

TM30: **84,3**



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

C1	C2	C3	C4	C5	C6	C7	C8
79,5	80,2	76,0	85,7	90,1	90,7	83,2	92,1
C9	C10	C11	C12	C13	C14	C15	
88,7	86,7	84,3	85,4	87,6	81,3	81,2	

### 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	$\Delta uv$
2935 K	83,8	14,6	84,3	97,2	83,6	0,443	0,408	0,253	0,349	0,0007



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### TM30 details

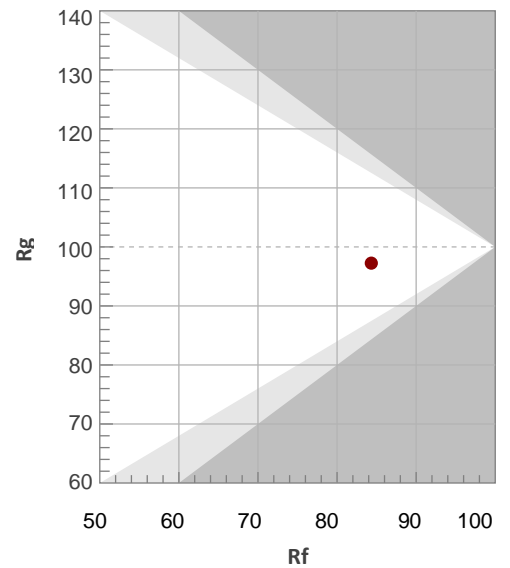
Rf 84,3

Fidelity index Rf

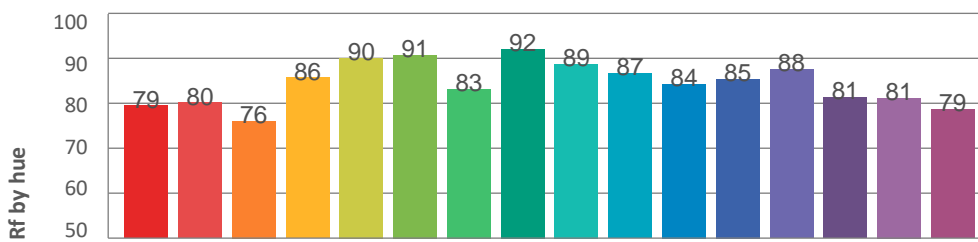
Rg 97,2

Gamut index Rg

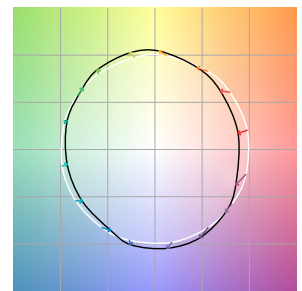
Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	79	-10%	-2%
2	80	-8%	7%
3	76	-3%	11%
4	86	3%	8%
5	90	6%	5%
6	91	4%	-3%
7	83	0%	-10%
8	92	-3%	-3%
9	89	-6%	-1%
10	87	-6%	4%
11	84	-3%	9%
12	85	4%	3%
13	88	5%	-6%
14	81	4%	-13%
15	81	-1%	-10%
16	79	-8%	-13%



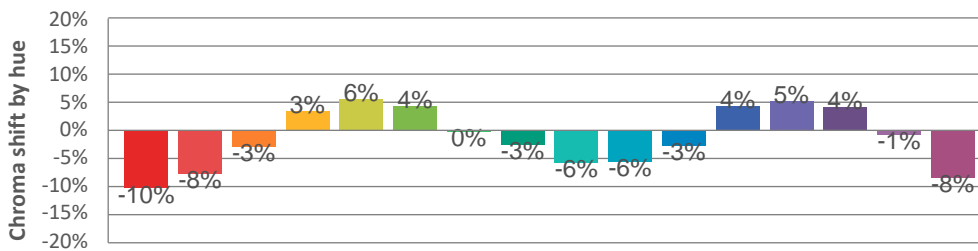
### Hue binH



### Color vector graphics



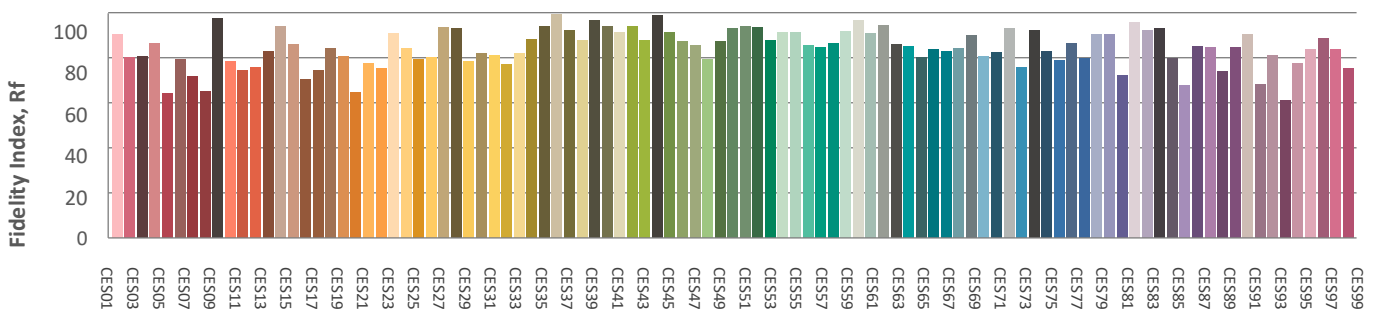
### Hue bin



### 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	16,4	17,2	16,7	17,4	17,7	16,4	17,1	16,7	17,4	17,6
	3H	16,3	17,0	16,7	17,3	17,6	16,3	17,0	16,6	17,2	17,5
	4H	16,3	16,9	16,7	17,2	17,6	16,3	16,9	16,6	17,2	17,5
	6H	16,4	16,9	16,7	17,3	17,6	16,4	16,9	16,7	17,3	17,6
	8H	16,5	17,1	16,9	17,4	17,8	16,6	17,1	17,0	17,5	17,9
	12H	17,0	17,5	17,4	17,9	18,3	17,1	17,7	17,5	18,0	18,4
4H	2H	16,3	16,9	16,6	17,2	17,5	16,2	16,8	16,6	17,2	17,5
	3H	16,2	16,7	16,6	17,0	17,4	16,1	16,6	16,5	17,0	17,4
	4H	16,1	16,6	16,6	17,0	17,4	16,1	16,6	16,5	17,0	17,4
	6H	16,3	16,7	16,8	17,1	17,6	16,3	16,7	16,8	17,2	17,6
	8H	16,7	17,0	17,2	17,5	18,0	16,8	17,1	17,3	17,6	18,1
	12H	17,5	17,8	18,0	18,2	18,7	17,7	18,0	18,2	18,5	19,0
8H	4H	16,1	16,4	16,6	16,9	17,3	16,0	16,4	16,5	16,8	17,3
	6H	16,4	16,7	17,0	17,2	17,7	16,5	16,7	17,0	17,2	17,7
	8H	17,0	17,3	17,6	17,8	18,3	17,2	17,4	17,7	17,9	18,5
	12H	18,2	18,4	18,8	18,9	19,5	18,5	18,7	19,0	19,2	19,8
12H	4H	16,1	16,4	16,6	16,8	17,3	16,1	16,3	16,5	16,8	17,3
	6H	16,6	16,8	17,1	17,3	17,8	16,6	16,8	17,1	17,3	17,9
	8H	17,3	17,5	17,8	18,0	18,6	17,4	17,6	18,0	18,1	18,7
Variation of the observer position for the luminaire distance S											
S = 1,0H	+2,6 / -1,9					+2,4 / -1,7					
S = 1,5H	+4,9 / -2,6					+4,7 / -2,4					
S = 2,0H	+6,9 / -3,4					+6,7 / -3,1					
Standard table	---					---					
Correction summand	---					---					
Corrected glare indices referring to 1695lm total luminous flux											

