

# LM-79

## Test Report

LM79-RUBY-BRACKET-7-4000K-CRI80-MEDIUM

### General Discription

Item number	RU-37-X-X-03-2-X
Date and time	18-11-2016 16:27:57
CCT (Kelvin)	3890 K
Beam angle	49,4°
Luminous flux	4040 lm
Efficiency	97 lm/watt
Weighted energy	41,8 kWh/1000h
Power factor	0,95
CRI (RA)	82,1
Fidelity index Rf	Rf 82,3
Gammut index Rg	Rg 97,5
Peak	5208 cd



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Beam details	1m	2m	3m	4m	5m														
Lux*	5199 lx	1300 lx	578 lx	325 lx	208 lx														
*measured at center of beam																			
Footcandles*	483,0 fcd	120,7 fcd	53,7 fcd	30,2 fcd	19,3 fcd														
Beam width (meter)	0,9 m	1,8 m	2,8 m	3,7 m	4,6 m														
Beam width (Feet)	3 ft	6 ft	9 ft	12,1 ft	15,1 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
5199lx	1300lx	578lx	325lx	208lx	144lx	106lx	81lx	64lx	52lx	43lx	36lx	31lx	27lx	23lx	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
483fcd	120,7fcd	53,7fcd	30,2fcd	19,3fcd	13,4fcd	9,9fcd	7,5fcd	6fcd	4,8fcd	4fcd	3,4fcd	2,9fcd	2,5fcd	2,1fcd	1,9fcd	1,7fcd	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°
5199	5192	5203	5187	5151	5074	4828	4582	4213	3810	3418	3041	2664	2419	2176	1962	1767	1555	1261	967
100%	100%	100%	100%	99%	98%	93%	88%	81%	73%	66%	58%	51%	47%	42%	38%	34%	30%	24%	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°
5199	5205	5198	5190	5136	5015	4893	4555	4215	3835	3427	3038	2737	2435	2206	1997	1777	1540	1302	991
100%	100%	100%	100%	99%	96%	94%	88%	81%	74%	66%	58%	53%	47%	42%	38%	34%	30%	25%	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°
5199	5192	5203	5187	5151	5074	4828	4582	4213	3810	3418	3041	2664	2419	2176	1962	1767	1555	1261	967
100%	100%	100%	100%	99%	98%	93%	88%	81%	73%	66%	58%	51%	47%	42%	38%	34%	30%	24%	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°
5199	5205	5198	5190	5136	5015	4893	4555	4215	3835	3427	3038	2737	2435	2206	1997	1777	1540	1302	991
100%	100%	100%	100%	99%	96%	94%	88%	81%	74%	66%	58%	53%	47%	42%	38%	34%	30%	25%	19%
Beam angle 50%		Field angle 10%				Cutoff angle 2,5%				Intensity ratio in 120° cone				Intensity ratio in 90° cone					
49,4°		82,7°				96,2°				98,8%				96,3%					



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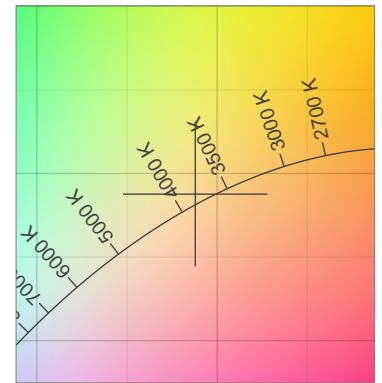
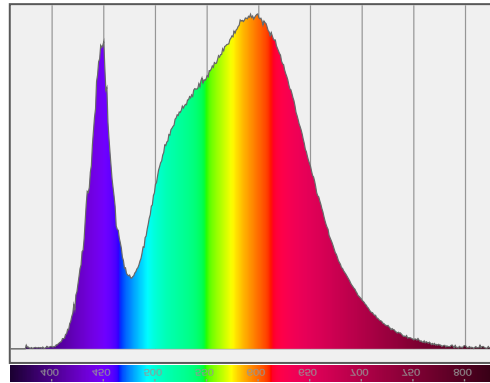
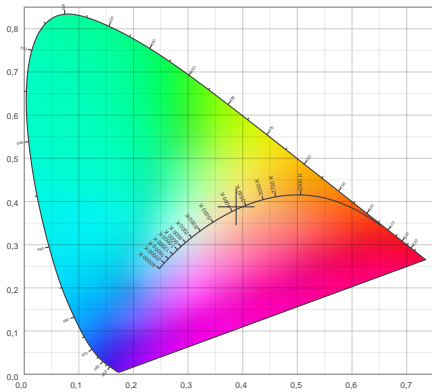
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### Color details



CIE 1931

x: 0,388



Spectra

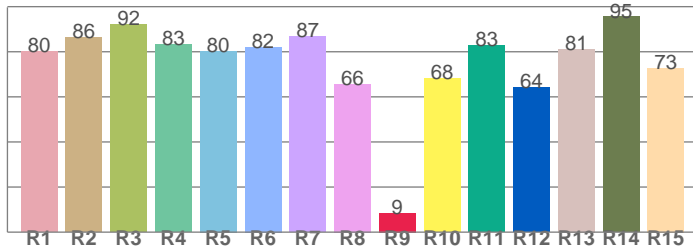
CIE 1931 ZOOM

3890 K

y: 0,388

$\Delta uv: 0,0029$

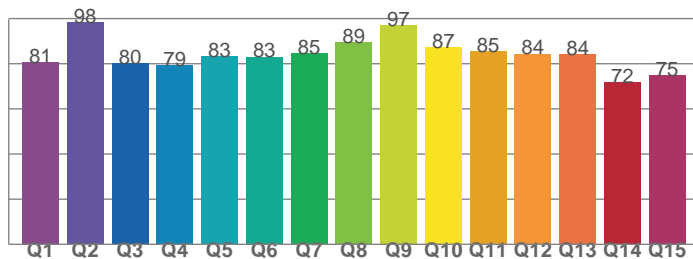
**CRI: 82,1 (R1-R8)**



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

R1	R2	R3	R4	R5	R6	R7	R8
80,2	86,2	92,1	83,2	80,3	82,1	86,7	65,7
R9	R10	R11	R12	R13	R14	R15	
8,5	68,3	82,7	64,0	81,2	95,5	72,8	

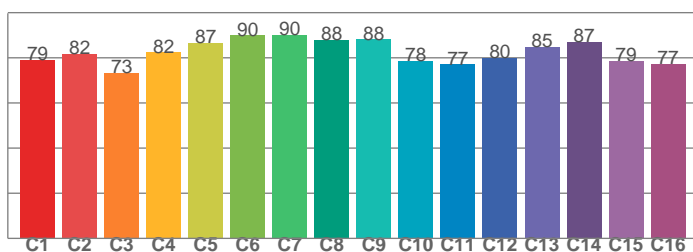
**CQS: 82,8**



*CQS values*

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
80,8	98,2	80,2	79,5	83,2	83,1	84,6	89,4
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
97,2	87,3	85,4	84,4	84,1	71,7	74,9	

**TM30: 82,3**



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

C1	C2	C3	C4	C5	C6	C7	C8
79,1	81,6	73,4	82,4	86,5	89,8	90,1	87,9
C9	C10	C11	C12	C13	C14	C15	
88,1	78,5	77,1	79,9	84,9	86,9	78,7	

### 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	$\Delta uv$
3890 K	82,1	8,5	82,3	97,5	82,8	0,388	0,388	0,226	0,338	0,0029



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### TM30 details

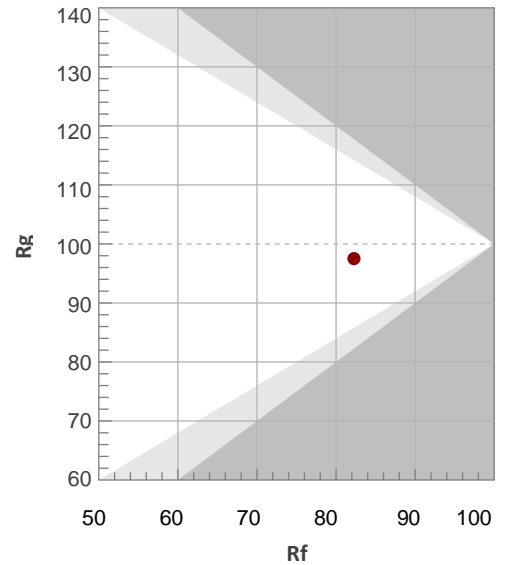
Rf 82,3

Fidelity index Rf

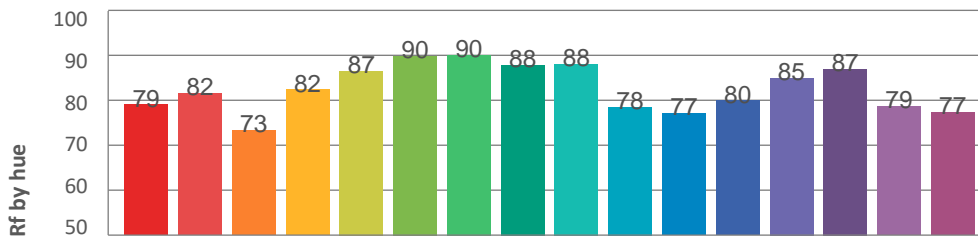
Rg 97,5

Gamut index Rg

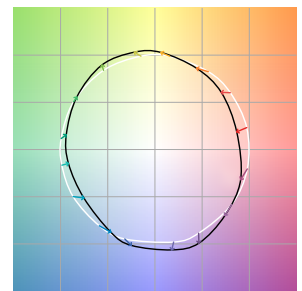
Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	79	-11%	-2%
2	82	-8%	6%
3	73	-4%	12%
4	82	2%	10%
5	87	6%	6%
6	90	6%	-2%
7	90	0%	-6%
8	88	-5%	-5%
9	88	-7%	0%
10	78	-9%	8%
11	77	-1%	14%
12	80	5%	8%
13	85	8%	-4%
14	87	9%	-6%
15	79	1%	-14%
16	77	-5%	-12%



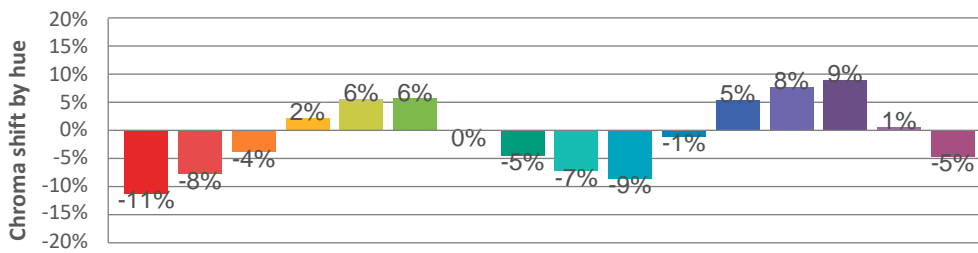
### Hue binH



### Color vector graphics



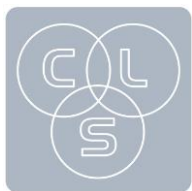
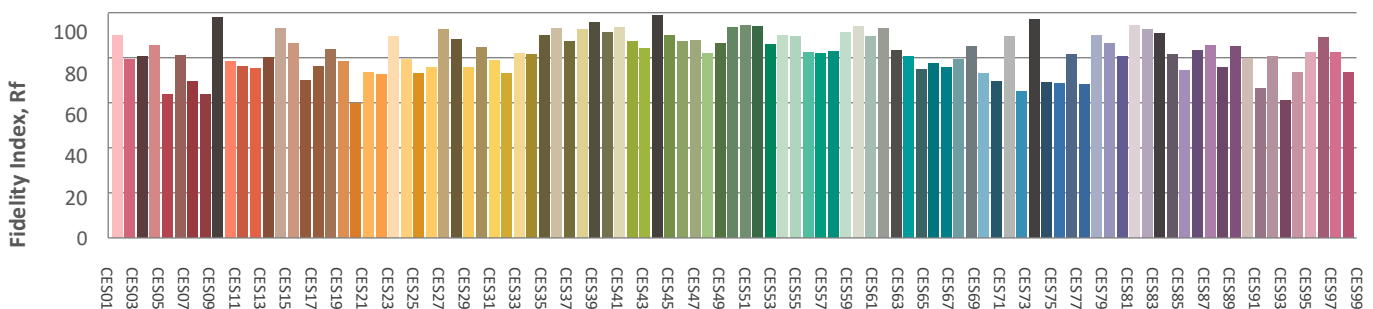
### Hue bin



### 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	21,4	22,1	21,7	22,3	22,5	21,4	22,1	21,7	22,3	22,5
	3H	21,3	21,9	21,6	22,1	22,4	21,3	21,9	21,6	22,1	22,4
	4H	21,2	21,8	21,5	22,1	22,3	21,2	21,8	21,5	22,1	22,3
	6H	21,1	21,7	21,5	22,0	22,3	21,1	21,7	21,5	22,0	22,3
	8H	21,1	21,6	21,4	21,9	22,2	21,1	21,6	21,4	21,9	22,2
	12H	21,1	21,6	21,4	21,9	22,2	21,1	21,6	21,4	21,9	22,2
4H	2H	21,2	21,8	21,5	22,1	22,3	21,2	21,8	21,5	22,1	22,3
	3H	21,1	21,6	21,4	21,9	22,2	21,1	21,6	21,4	21,9	22,2
	4H	21,0	21,4	21,4	21,8	22,1	21,0	21,4	21,4	21,8	22,1
	6H	20,9	21,3	21,3	21,7	22,0	20,9	21,3	21,3	21,7	22,0
	8H	20,9	21,2	21,3	21,6	22,0	20,9	21,2	21,3	21,6	22,0
	12H	20,9	21,1	21,3	21,5	22,0	20,9	21,1	21,3	21,5	22,0
8H	4H	20,9	21,2	21,3	21,6	22,0	20,9	21,2	21,3	21,6	22,0
	6H	20,8	21,0	21,3	21,5	21,9	20,8	21,0	21,3	21,5	21,9
	8H	20,8	21,0	21,2	21,4	21,9	20,8	21,0	21,2	21,4	21,9
	12H	20,7	20,9	21,2	21,4	21,9	20,7	20,9	21,2	21,4	21,9
12H	4H	20,8	21,1	21,3	21,5	22,0	20,8	21,1	21,3	21,5	22,0
	6H	20,8	21,0	21,2	21,4	21,9	20,8	21,0	21,2	21,4	21,9
	8H	20,7	20,9	21,2	21,3	21,9	20,7	20,9	21,2	21,3	21,9
Variation of the observer position for the luminaire distance S											
S = 1,0H	+4,6 / -10,6					+4,6 / -10,6					
S = 1,5H	+7,4 / -13,5					+7,4 / -13,5					
S = 2,0H	+9,4 / -15,9					+9,4 / -15,9					
Standard table	BK00					BK00					
Correction summand	2,8					2,8					
Corrected glare indices referring to 4040lm total luminous flux											



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