

# LM-79

## Test Report

LM79-RUBY-5-3000K-CRI80-SPOT

### General Discription

Item number		
Date and time	10-3-2017 15:41:52	
CCT (Kelvin)	3047 K	
Beam angle	15,8°	
Luminous flux	1931 lm	
Efficiency	95 lm/watt	
Weighted energy	20,4 kWh/1000h	
Power factor	0,89	
CRI (RA)	82,1	
Fidelity index Rf	Rf 83,2	
Gammut index Rg	Rg 95,7	



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Beam details	1m	2m	3m	4m	5m														
Lux*	9752 lx	2438 lx	1084 lx	610 lx	390 lx														
*measured at center of beam																			
Footcandles*	906,0 fcd	226,5 fcd	100,7 fcd	56,6 fcd	36,2 fcd														
Beam width (meter)	0,3 m	0,6 m	0,8 m	1,1 m	1,4 m														
Beam width (Feet)	0,9 ft	1,8 ft	2,7 ft	3,6 ft	4,6 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
9752lx	2438lx	1084lx	610lx	390lx	271lx	199lx	152lx	120lx	98lx	81lx	68lx	58lx	50lx	43lx	38lx	34lx	30lx	27lx	24lx
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
906fcd	226,5fcd	100,7fcd	56,6fcd	36,2fcd	25,2fcd	18,5fcd	14,2fcd	11,2fcd	9,1fcd	7,5fcd	6,3fcd	5,4fcd	4,6fcd	4fcd	3,5fcd	3,1fcd	2,8fcd	2,5fcd	2,3fcd
<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°
9752	9228	7843	6441	4948	3456	2603	2006	1517	1313	1108	1008	929	864	822	779	719	659	531	343
100%	95%	80%	66%	51%	35%	27%	21%	16%	13%	11%	10%	10%	9%	8%	8%	7%	7%	5%	4%
<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°
9752	9228	7843	6441	4948	3456	2603	2006	1517	1313	1108	1008	929	864	822	779	719	659	531	343
100%	95%	80%	66%	51%	35%	27%	21%	16%	13%	11%	10%	10%	9%	8%	8%	7%	7%	5%	4%
<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°
9752	9064	8376	6670	4937	3664	2784	1960	1649	1338	1158	1044	944	892	840	804	772	709	587	465
100%	93%	86%	68%	51%	38%	29%	20%	17%	14%	12%	11%	10%	9%	9%	8%	8%	7%	6%	5%
<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°
9752	9064	8376	6670	4937	3664	2784	1960	1649	1338	1158	1044	944	892	840	804	772	709	587	465
100%	93%	86%	68%	51%	38%	29%	20%	17%	14%	12%	11%	10%	9%	9%	8%	8%	7%	6%	5%
Beam angle 50%		Field angle 10%				Cutoff angle 2,5%				Intensity ratio in 120° cone				Intensity ratio in 90° cone					
15,8°		44,8°				{C_ANG}°				99,3%				98,4%					



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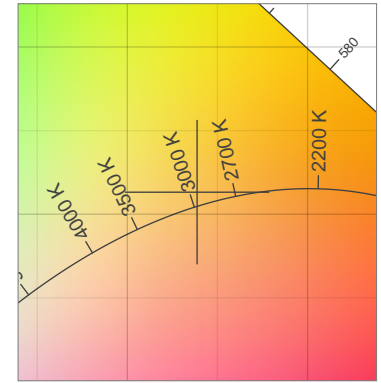
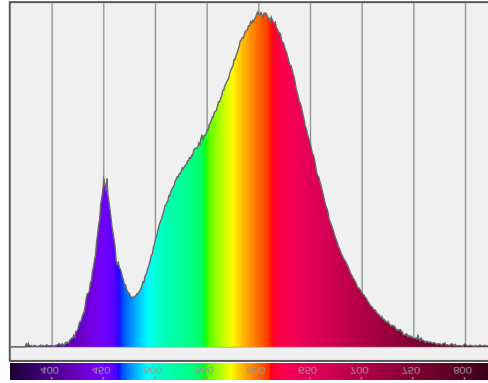
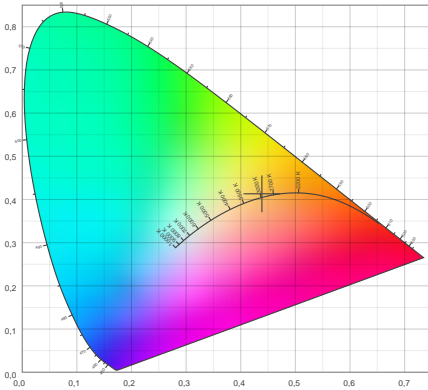
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### Color details



CIE 1931

x: 0,439



Spectra

CIE 1931 ZOOM

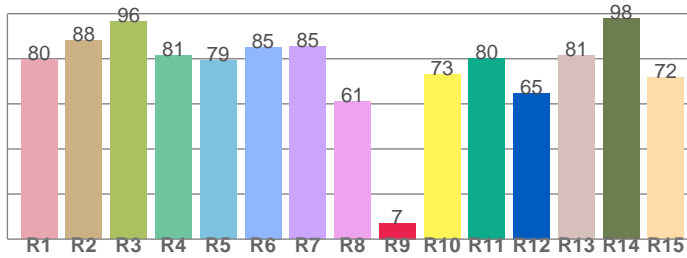
3047 K

y: 0,413

$\Delta uv$ : 0,0033

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

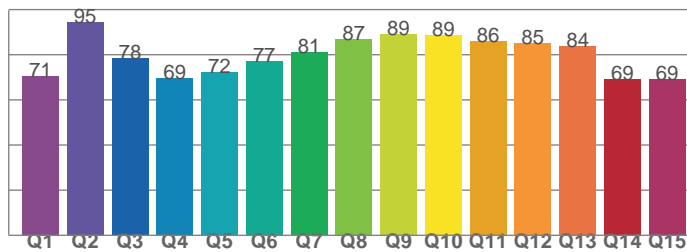
*CRI values, R1-R8 are used to calculate final CRI value*



R1	R2	R3	R4	R5	R6	R7	R8
79,8	88,2	96,4	81,4	79,3	85,2	85,3	60,9
R9	R10	R11	R12	R13	R14	R15	
7,2	73,1	80,4	64,8	81,5	97,8	71,6	

**CQS: 78,3**

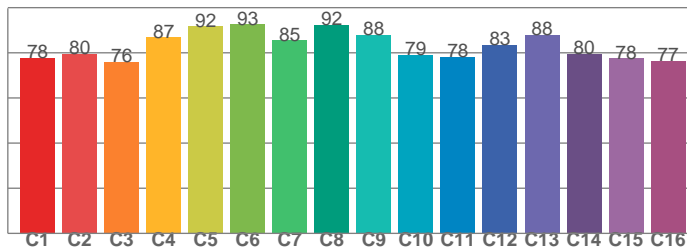
*CQS values*



Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
70,6	94,5	78,4	69,5	72,4	77,1	81,0	86,8
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
88,9	88,8	85,9	84,9	83,7	69,1	69,2	

**TM30: 83,2**

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



C1	C2	C3	C4	C5	C6	C7	C8
77,8	79,5	75,9	86,9	91,7	92,6	85,4	92,3
C9	C10	C11	C12	C13	C14	C15	
87,8	79,1	78,2	83,5	87,9	79,6	77,5	

### 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	$\Delta uv$
3047 K	82,1	7,2	83,2	95,7	78,3	0,439	0,413	0,248	0,350	0,0033



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### TM30 details

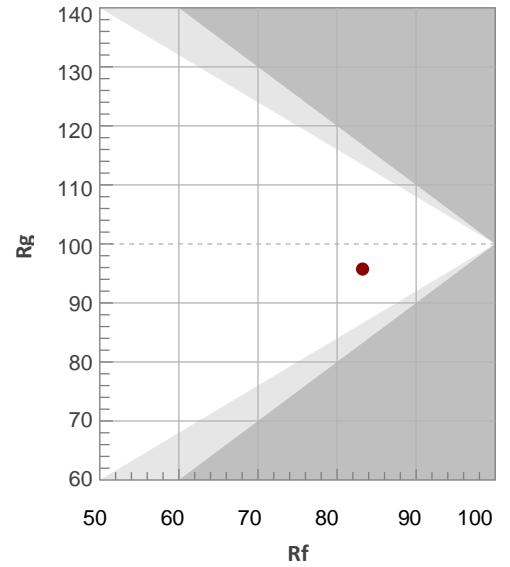
Rf 83,2

Fidelity index Rf

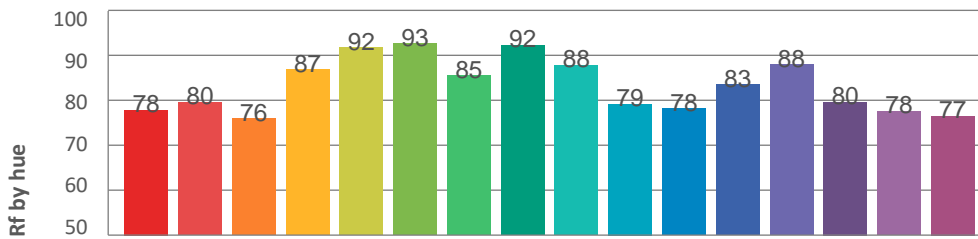
Rg 95,7

Gamut index Rg

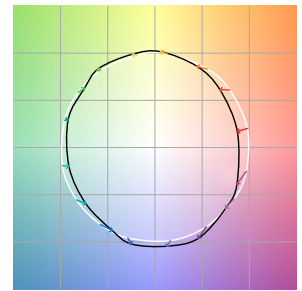
Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	78	-11%	-1%
2	80	-8%	6%
3	76	-4%	11%
4	87	1%	7%
5	92	2%	5%
6	93	3%	-2%
7	85	-3%	-7%
8	92	-4%	-2%
9	88	-7%	2%
10	79	-6%	9%
11	78	-2%	14%
12	83	6%	5%
13	88	5%	-5%
14	80	6%	-14%
15	78	-2%	-13%
16	77	-7%	-15%



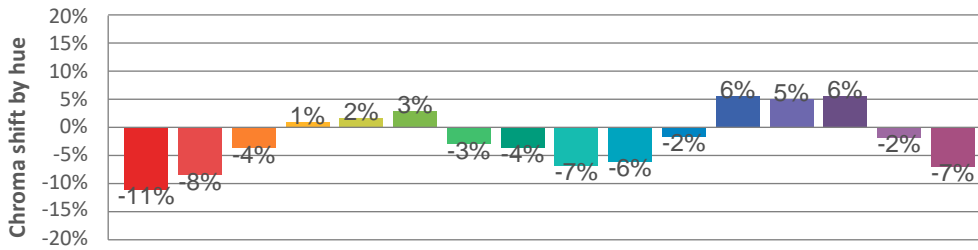
### Hue binH



### Color vector graphics



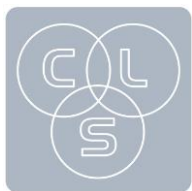
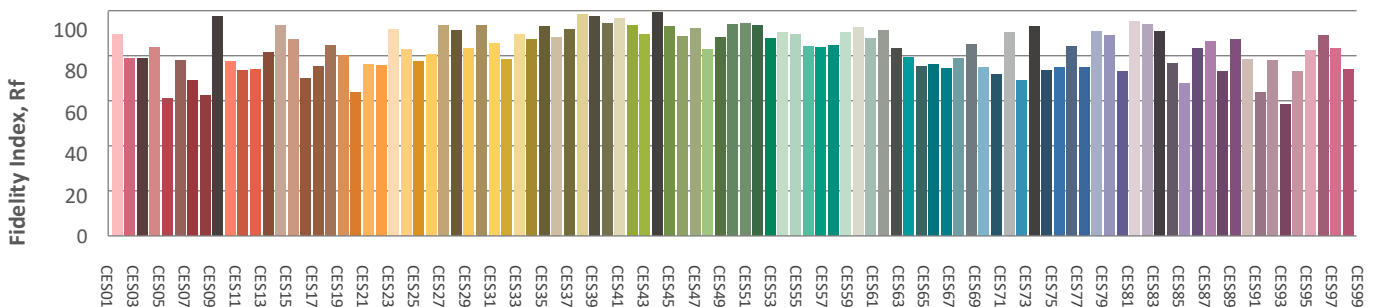
### Hue bin



### 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	17,2	17,9	17,5	18,1	18,3	17,5	18,2	17,8	18,4	18,6
	3H	17,1	17,7	17,4	17,9	18,1	17,4	18,0	17,7	18,2	18,5
	4H	17,0	17,5	17,3	17,8	18,1	17,3	17,9	17,6	18,2	18,4
	6H	16,9	17,4	17,2	17,7	18,0	17,3	17,8	17,6	18,1	18,4
	8H	16,9	17,4	17,2	17,7	18,0	17,2	17,7	17,6	18,0	18,3
	12H	16,8	17,3	17,2	17,6	17,9	17,2	17,7	17,5	18,0	18,3
4H	2H	17,0	17,5	17,3	17,8	18,1	17,3	17,9	17,6	18,2	18,4
	3H	16,8	17,3	17,2	17,6	17,9	17,2	17,7	17,5	18,0	18,3
	4H	16,8	17,2	17,2	17,5	17,9	17,1	17,5	17,5	17,9	18,2
	6H	16,7	17,0	17,1	17,4	17,8	17,0	17,4	17,4	17,7	18,1
	8H	16,7	17,0	17,1	17,3	17,8	17,0	17,3	17,4	17,7	18,1
	12H	16,6	16,9	17,1	17,3	17,7	17,0	17,2	17,4	17,6	18,1
8H	4H	16,7	16,9	17,1	17,3	17,7	17,0	17,3	17,4	17,7	18,1
	6H	16,6	16,8	17,0	17,2	17,7	16,9	17,1	17,4	17,6	18,0
	8H	16,5	16,7	17,0	17,2	17,6	16,9	17,1	17,3	17,5	18,0
	12H	16,5	16,6	17,0	17,1	17,6	16,8	17,0	17,3	17,4	17,9
12H	4H	16,6	16,9	17,1	17,3	17,7	17,0	17,2	17,4	17,6	18,0
	6H	16,5	16,7	17,0	17,2	17,6	16,9	17,0	17,3	17,5	18,0
	8H	16,5	16,6	17,0	17,1	17,6	16,8	17,0	17,3	17,4	17,9
Variation of the observer position for the luminaire distance S											
S = 1,0H	+5,2 / -16,1					+5,1 / -16,0					
S = 1,5H	+8,0 / -17,1					+7,9 / -17,6					
S = 2,0H	+10,0 / -18,5					+9,9 / -18,7					
Standard table	BK00					BK00					
Correction summand	-1,4					-1,1					
Corrected glare indices referring to 1931lm total luminous flux											



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