

# LM-79

## Test Report

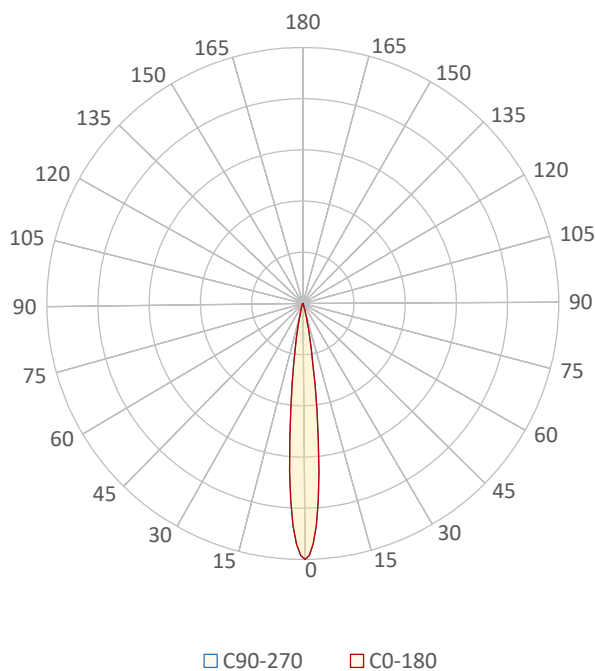
# LM79-QUARTZ-3000K-CRI90-SPOT

### General Discription

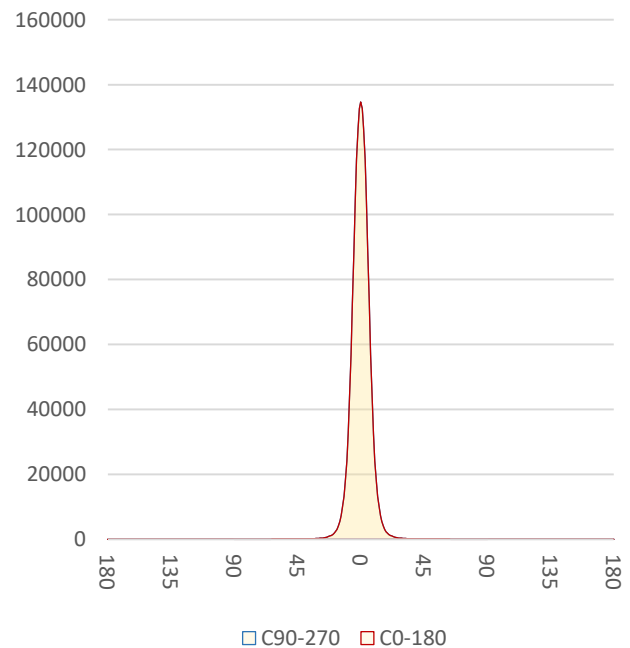
Item number	Q-X-X-3090-S
Date and time	30-9-2022 14:10:48
CCT (Kelvin)	2972 K
Beam angle	12,6°
Luminous flux	8556 lm
Efficiency	102 lm/watt
Weighted energy	84,2 kWh/1000h
Power factor	0,99
CRI (RA)	87,5
Fidelity index Rf	Rf 87,5
Gammut index Rg	Rg 95,5
Peak	134681 cd



Polar diagram



Cartesian diagram



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Beam details	1m	2m	3m	4m	5m																			
Lux*	134681 lx	33670 lx	14965 lx	8418 lx	5387 lx																			
*measured at center of beam																								
Footcandles*	12512,2 fcd	3128,1 fcd	1390,2 fcd	782,0 fcd	500,5 fcd																			
Beam width (meter)	0,2 m	0,4 m	0,7 m	0,9 m	1,1 m																			
Beam width (Feet)	0,7 ft	1,5 ft	2,2 ft	2,9 ft	3,6 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					
134681lx	33670lx	14965lx	8418lx	5387lx	3741lx	2749lx	2104lx	1663lx	1347lx	1113lx	935lx	797lx	687lx	599lx	526lx	466lx	416lx	373lx	337lx					
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					
12512,2 fcd	3128,1 fcd	1390,2 fcd	782 fcd	500,5 fcd	347,6 fcd	255,4 fcd	195,5 fcd	154,5 fcd	125,1 fcd	103,4 fcd	86,9 fcd	74 fcd	63,8 fcd	55,6 fcd	48,9 fcd	43,3 fcd	38,6 fcd	34,7 fcd	31,3 fcd					
<b>Intensities in 0° c-plane</b>																								
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°					
135K	133K	127K	117K	104K	89K	73K	57K	43K	33K	24K	18K	13K	10K	7K	5K	4K	3K	2K	2K					
100%	99%	94%	87%	77%	66%	54%	42%	32%	24%	18%	13%	10%	7%	5%	4%	3%	2%	2%	1%					
<b>Intensities in 90° c-plane</b>																								
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°					
135K	133K	127K	117K	104K	89K	73K	57K	43K	33K	24K	18K	13K	10K	7K	5K	4K	3K	2K	2K					
100%	99%	94%	87%	77%	66%	54%	42%	32%	24%	18%	13%	10%	7%	5%	4%	3%	2%	2%	1%					
<b>Intensities in 180° c-plane</b>																								
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°					
135K	133K	127K	117K	104K	89K	73K	57K	43K	33K	24K	18K	13K	10K	7K	5K	4K	3K	2K	2K					
100%	99%	94%	87%	77%	66%	54%	42%	32%	24%	18%	13%	10%	7%	5%	4%	3%	2%	2%	1%					
<b>Intensities in 270° c-plane</b>																								
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°					
135K	133K	127K	117K	104K	89K	73K	57K	43K	33K	24K	18K	13K	10K	7K	5K	4K	3K	2K	2K					
100%	99%	94%	87%	77%	66%	54%	42%	32%	24%	18%	13%	10%	7%	5%	4%	3%	2%	2%	1%					
Beam angle 50%					Field angle 10%					Cutoff angle 2,5%					Intensity ratio in 120° cone					Intensity ratio in 90° cone				
12,6°					23,8°					33,3°					99,5%					98,7%				



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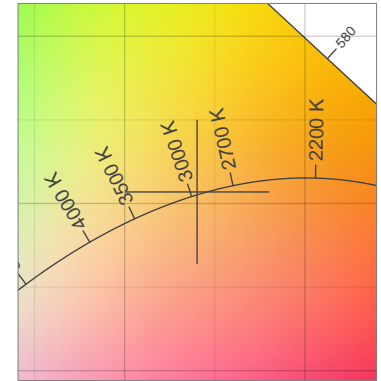
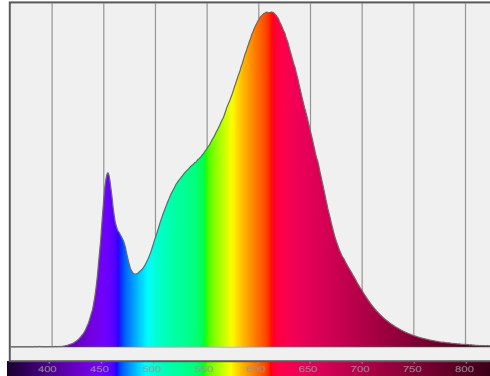
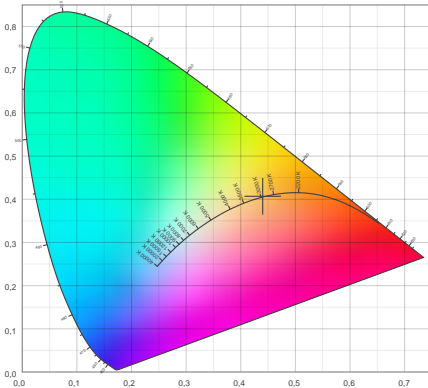
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### Color details



CIE 1931

x: 0,440



Spectra

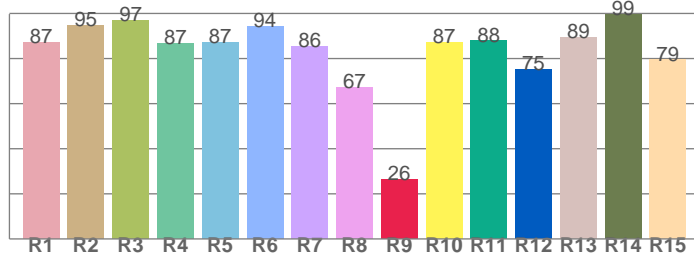
CIE 1931 ZOOM

2972 K

y: 0,407

$\Delta uv$ : 0,0007

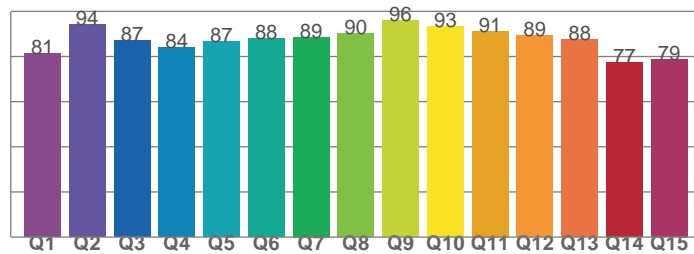
CRI: 87,5 (R1-R8)



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

R1	R2	R3	R4	R5	R6	R7	R8
87,3	94,7	97,1	86,7	87,2	94,2	85,5	67,1
R9	R10	R11	R12	R13	R14	R15	
26,3	87,2	87,8	75,3	89,4	99,4	79,4	

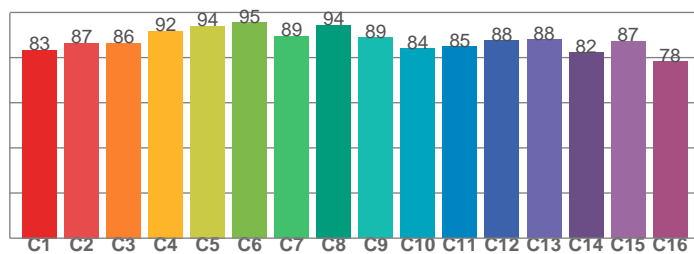
CQS: 86,4



CQS values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
81,2	94,1	87,2	84,1	86,6	88,0	88,7	90,1
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
95,9	93,4	91,3	89,2	87,6	77,3	78,8	

TM30: 87,5



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

C1	C2	C3	C4	C5	C6	C7	C8
83,4	86,5	86,4	91,9	94,0	95,5	89,5	94,4
C9	C10	C11	C12	C13	C14	C15	
88,9	83,9	85,0	87,5	88,0	82,1	87,3	

### 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	$\Delta uv$
2972 K	87,5	26,3	87,5	95,5	86,4	0,440	0,407	0,251	0,349	0,0007



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### TM30 details

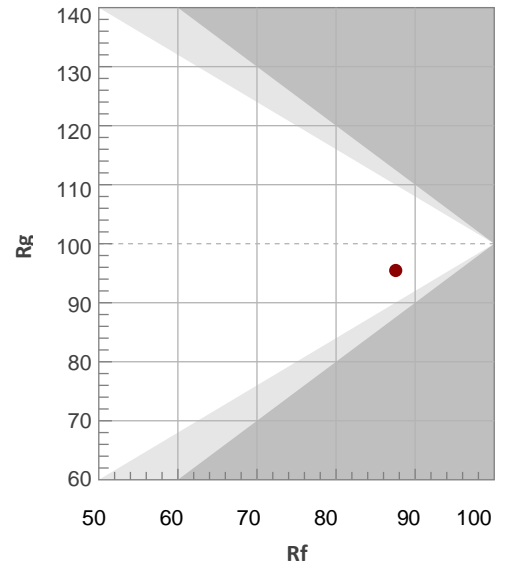
Rf 87,5

Fidelity index Rf

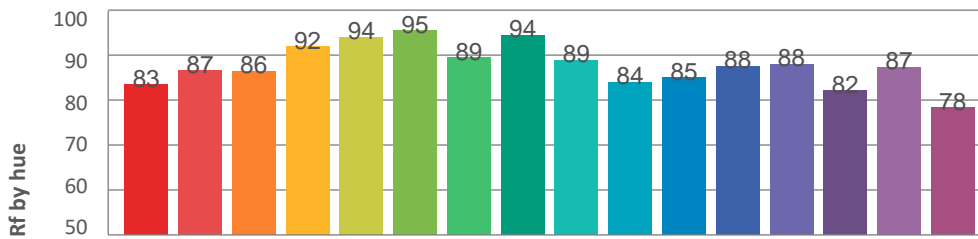
Rg 95,5

Gammut index Rg

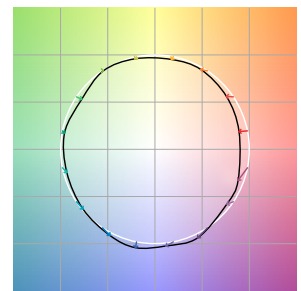
Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	83	-9%	1%
2	87	-6%	5%
3	86	-3%	6%
4	92	-3%	1%
5	94	-2%	2%
6	95	-1%	-1%
7	89	-6%	-1%
8	94	-3%	2%
9	89	-4%	6%
10	84	-1%	10%
11	85	2%	11%
12	88	6%	0%
13	88	3%	-9%
14	82	3%	-14%
15	87	-4%	-6%
16	78	-7%	-15%



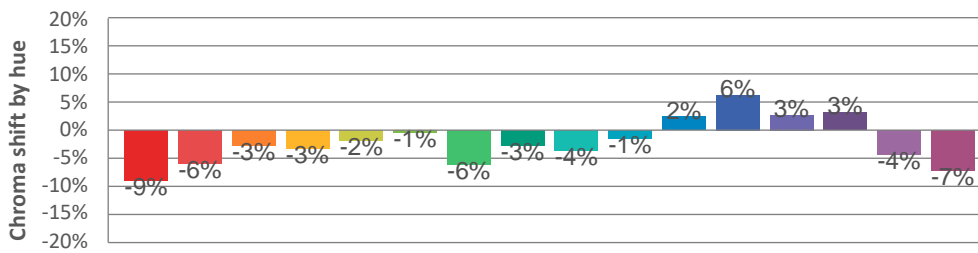
### Hue binH



### Color vector graphics



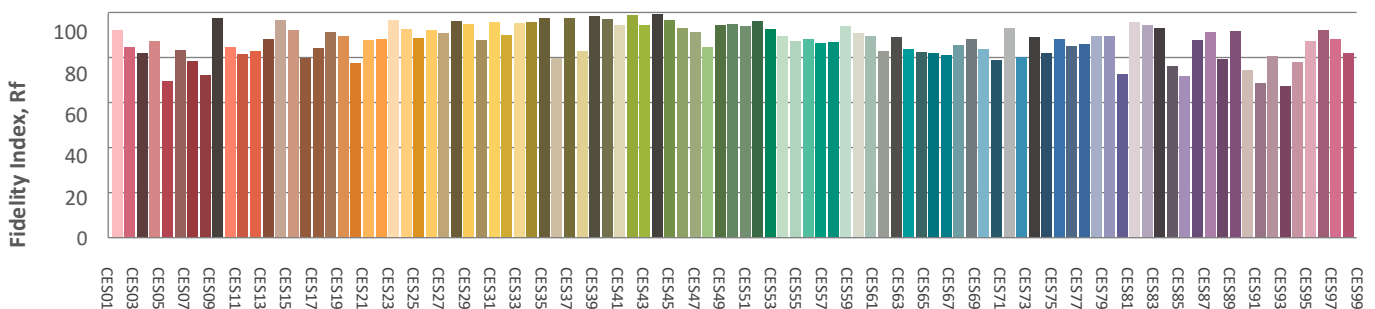
### Hue bin



### 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	3,4	3,6	3,4	3,8	4,0	3,4	3,6	3,4	3,8	4,0
	3H	3,8	4,3	4,2	4,4	4,6	3,8	4,3	4,2	4,4	4,6
	4H	4,0	4,4	4,3	4,6	4,8	4,0	4,4	4,3	4,6	4,8
	6H	4,0	4,4	4,3	4,7	5,0	4,0	4,4	4,3	4,7	5,0
	8H	4,0	4,3	4,3	4,7	5,0	4,0	4,3	4,3	4,7	5,0
	12H	3,9	4,3	4,3	4,6	5,0	3,9	4,3	4,3	4,6	5,0
4H	2H	3,5	3,9	3,8	4,1	4,3	3,5	3,9	3,8	4,1	4,3
	3H	4,3	4,6	4,6	5,0	5,4	4,3	4,6	4,6	5,0	5,4
	4H	4,4	4,7	4,8	5,1	5,6	4,4	4,7	4,8	5,1	5,6
	6H	4,4	4,8	4,9	5,1	5,5	4,4	4,8	4,9	5,1	5,5
	8H	4,4	4,7	4,9	5,1	5,4	4,4	4,7	4,9	5,1	5,4
	12H	4,3	4,6	4,8	5,0	5,4	4,3	4,6	4,8	5,0	5,4
8H	4H	4,4	4,7	4,9	5,1	5,4	4,4	4,7	4,9	5,1	5,4
	6H	4,4	4,6	4,9	5,1	5,6	4,4	4,6	4,9	5,1	5,6
	8H	4,4	4,6	4,9	5,1	5,7	4,4	4,6	4,9	5,1	5,7
	12H	4,4	4,5	5,0	5,0	5,6	4,4	4,5	5,0	5,0	5,6
12H	4H	4,3	4,6	4,8	5,0	5,4	4,3	4,6	4,8	5,0	5,4
	6H	4,4	4,6	4,9	5,1	5,7	4,4	4,6	4,9	5,1	5,7
	8H	4,4	4,5	5,0	5,0	5,6	4,4	4,5	5,0	5,0	5,6
Variation of the observer position for the luminaire distance S											
S = 1.0H	1,4 / -0,8					1,4 / -0,8					
S = 1.5H	2,9 / -1,5					2,9 / -1,5					
S = 2.0H	4,2 / -2,5					4,2 / -2,5					
Standard table	n/a					n/a					
Correction summand	n/a					n/a					
Corrected glare indices referring to 8556lm total luminous flux											



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