

# LM-79

## Test Report

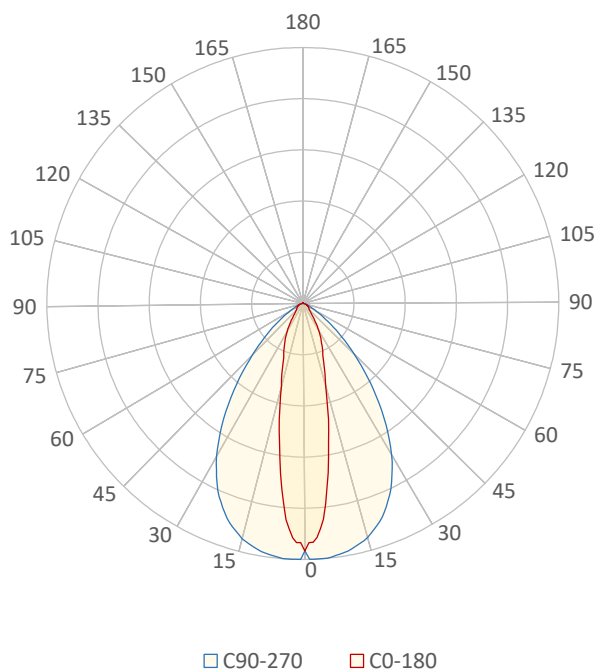
# LM79-JADE-EXPO-4000K-CRI90-SPOT+ 55x22° beamshaper

### General Description

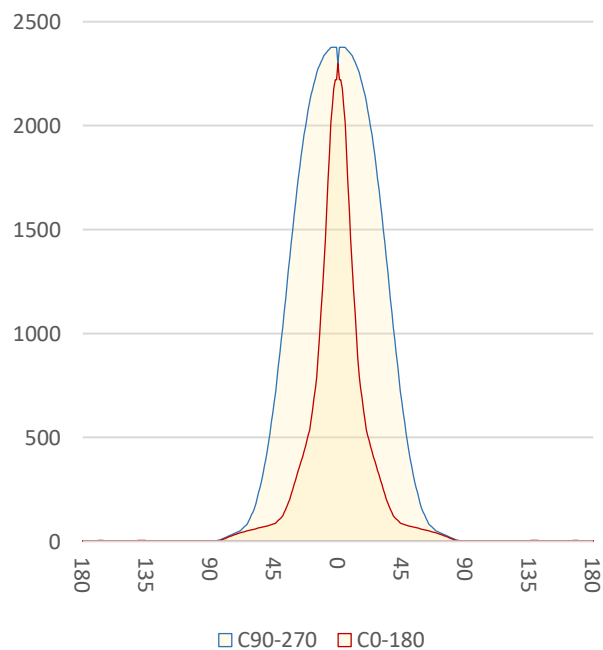
Item number	J-EX-X-3-1-40-90-1
Date and time	24-10-2017 10:39:59
CCT (Kelvin)	3931 K
Beam angle	48,6°
Luminous flux	2172 lm
Efficiency	78 lm/watt
Weighted energy	27,9 kWh/1000h
Power factor	0,97
CRI (RA)	92,9
Fidelity index Rf	Rf 89,8
Gammut index Rg	Rg 98,3
Peak	2377 cd



Polar diagram



Cartesian diagram



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Beam details	1m	2m	3m	4m	5m																			
Lux*	2299 lx	575 lx	255 lx	144 lx	92 lx																			
*measured at center of beam																								
Footcandles*	213,6 fcd	53,4 fcd	23,7 fcd	13,3 fcd	8,5 fcd																			
Beam width (meter)	0,9 m	1,8 m	2,7 m	3,6 m	4,5 m																			
Beam width (Feet)	3 ft	5,9 ft	8,9 ft	11,8 ft	14,8 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					
2299lx	575lx	255lx	144lx	92lx	64lx	47lx	36lx	28lx	23lx	19lx	16lx	14lx	12lx	10lx	9lx	8lx	7lx	6lx	6lx					
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					
213,6fcd	53,4fcd	23,7fcd	13,3fcd	8,5fcd	5,9fcd	4,4fcd	3,3fcd	2,6fcd	2,1fcd	1,8fcd	1,5fcd	1,3fcd	1,1fcd	0,9fcd	0,8fcd	0,7fcd	0,7fcd	0,6fcd	0,5fcd					
<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°					
2299	2221	2097	1872	1591	1316	1100	884	738	633	536	484	432	385	340	295	249	204	170	139					
100%	97%	91%	81%	69%	57%	48%	38%	32%	28%	23%	21%	19%	17%	15%	13%	11%	9%	7%	6%					
<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°					
2299	2377	2377	2369	2353	2337	2305	2274	2228	2175	2116	2035	1954	1853	1744	1629	1499	1368	1234	1099					
100%	103%	103%	103%	102%	102%	100%	99%	97%	95%	92%	89%	85%	81%	76%	71%	65%	60%	54%	48%					
<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°					
2299	2221	2097	1872	1591	1316	1100	884	738	633	536	484	432	385	340	295	249	204	170	139					
100%	97%	91%	81%	69%	57%	48%	38%	32%	28%	23%	21%	19%	17%	15%	13%	11%	9%	7%	6%					
<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°					
2299	2377	2377	2369	2353	2337	2305	2274	2228	2175	2116	2035	1954	1853	1744	1629	1499	1368	1234	1099					
100%	103%	103%	103%	102%	102%	100%	99%	97%	95%	92%	89%	85%	81%	76%	71%	65%	60%	54%	48%					
<b>Beam angle 50%</b>					<b>Field angle 10%</b>					<b>Cutoff angle 2,5%</b>					<b>Intensity ratio in 120° cone</b>					<b>Intensity ratio in 90° cone</b>				
48,6°					89°					128,5°					94,8%					82,2%				



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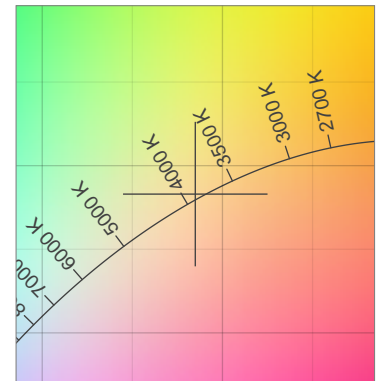
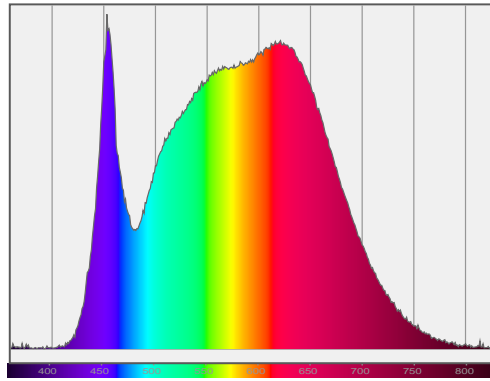
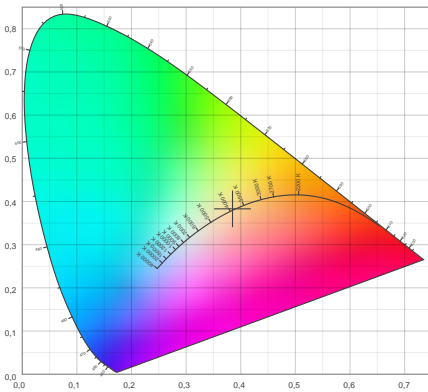
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### Color details



CIE 1931

x: 0,385



Spectra

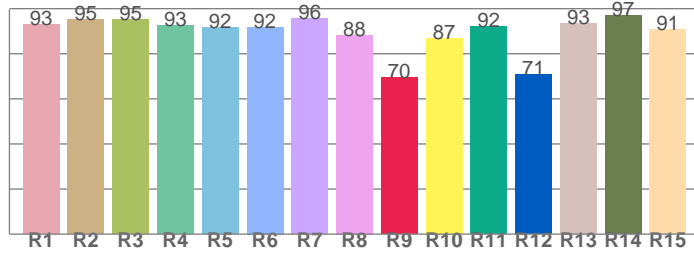
CIE 1931 ZOOM

3931 K

y: 0,383

Δuv: 0,0016

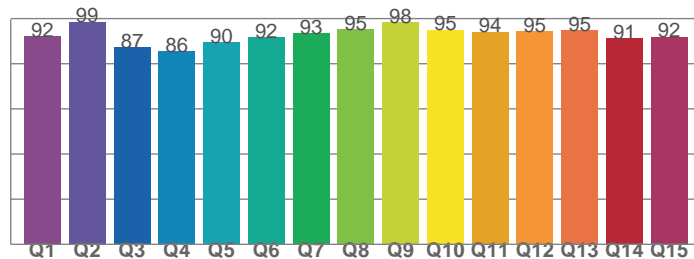
**CRI: 92,9 (R1-R8)**



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

R1	R2	R3	R4	R5	R6	R7	R8
92,9	95,1	95,3	92,7	91,6	91,9	95,8	88,3
R9	R10	R11	R12	R13	R14	R15	
69,6	87,0	92,1	70,7	93,5	97,0	90,9	

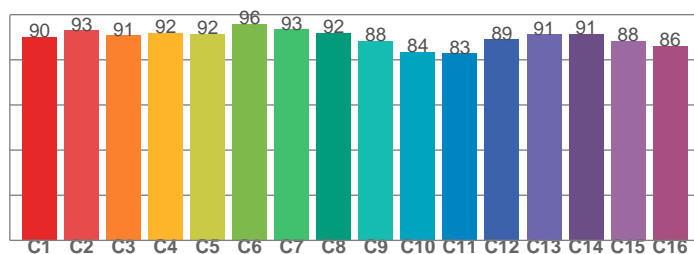
**CQS: 92,1**



*CQS values*

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
92,2	98,6	87,1	85,5	89,6	91,5	93,5	95,5
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
98,2	95,1	94,1	94,5	94,9	91,2	91,9	

**TM30: 89,8**



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

C1	C2	C3	C4	C5	C6	C7	C8
90,2	93,0	90,9	91,8	91,6	96,0	93,5	92,0
C9	C10	C11	C12	C13	C14	C15	
88,4	83,6	82,9	89,0	91,2	91,5	88,4	

### 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	Δuv
3931 K	92,9	69,6	89,8	98,3	92,1	0,385	0,383	0,226	0,337	0,0016



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### TM30 details

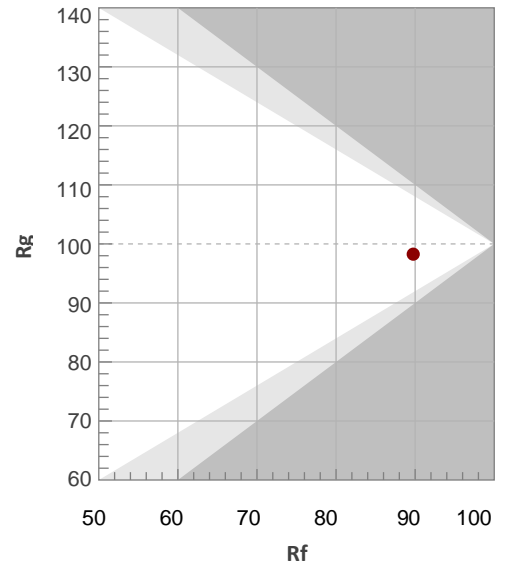
Rf 89,8

Fidelity index Rf

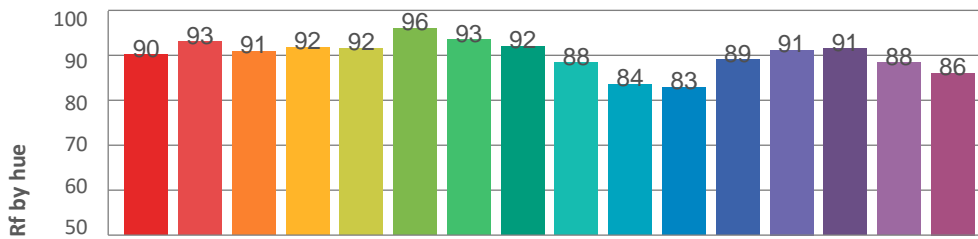
Rg 98,3

Gamut index Rg

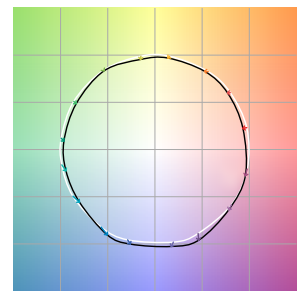
Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	90	-4%	0%
2	93	-3%	1%
3	91	-2%	3%
4	92	-2%	1%
5	92	-3%	1%
6	96	-1%	0%
7	93	-4%	0%
8	92	-3%	2%
9	88	-3%	7%
10	84	-2%	9%
11	83	3%	10%
12	89	4%	4%
13	91	4%	-3%
14	91	6%	-3%
15	88	1%	-6%
16	86	-1%	-7%



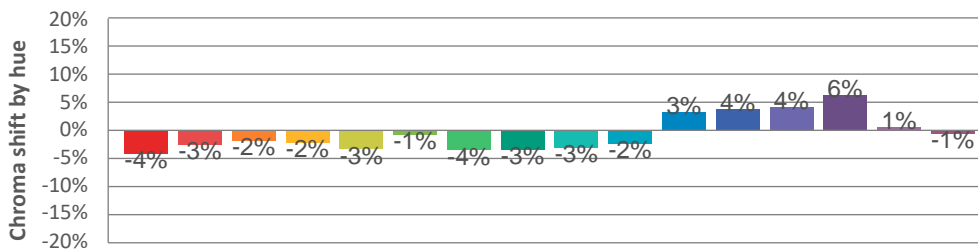
### Hue binH



### Color vector graphics



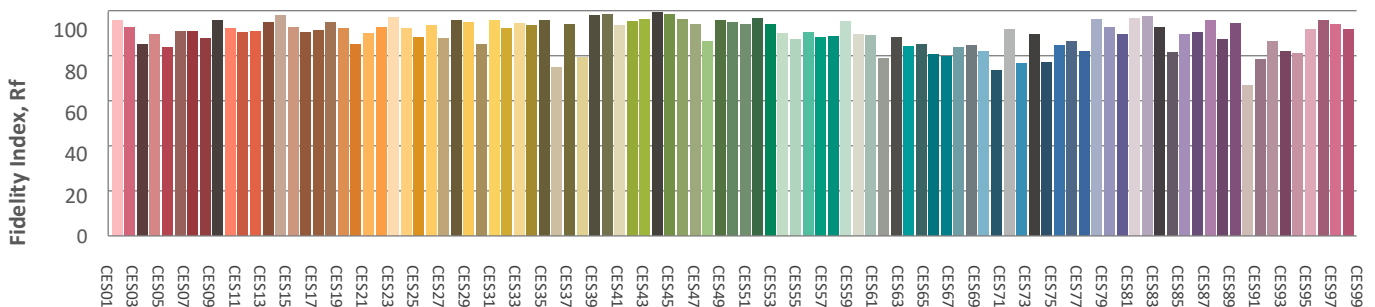
### Hue bin



### 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	21,8	22,7	22,1	22,9	23,1	21,8	22,7	22,1	22,9	23,1
	3H	23,4	24,2	23,7	24,5	24,8	23,4	24,2	23,7	24,5	24,8
	4H	24,1	24,8	24,4	25,1	25,4	24,1	24,8	24,4	25,1	25,4
	6H	24,4	25,1	24,8	25,4	25,8	24,4	25,1	24,8	25,4	25,8
	8H	24,5	25,2	24,8	25,5	25,8	24,5	25,2	24,8	25,5	25,8
	12H	24,5	25,1	24,8	25,4	25,8	24,5	25,1	24,8	25,4	25,8
4H	2H	22,5	23,2	22,8	23,5	23,8	22,5	23,2	22,8	23,5	23,8
	3H	24,3	25,0	24,7	25,3	25,6	24,3	25,0	24,7	25,3	25,6
	4H	25,1	25,6	25,5	26,0	26,4	25,1	25,6	25,5	26,0	26,4
	6H	25,5	26,0	25,9	26,4	26,8	25,5	26,0	25,9	26,4	26,8
	8H	25,6	26,0	26,0	26,4	26,9	25,6	26,0	26,0	26,4	26,9
	12H	25,6	26,0	26,0	26,4	26,8	25,6	26,0	26,0	26,4	26,8
8H	4H	25,4	25,8	25,8	26,2	26,6	25,4	25,8	25,8	26,2	26,6
	6H	25,9	26,2	26,3	26,7	27,1	25,9	26,2	26,3	26,7	27,1
	8H	25,9	26,2	26,4	26,7	27,2	25,9	26,2	26,4	26,7	27,2
	12H	26,0	26,2	26,5	26,7	27,2	26,0	26,2	26,5	26,7	27,2
12H	4H	25,4	25,7	25,8	26,2	26,6	25,4	25,7	25,8	26,2	26,6
	6H	25,9	26,2	26,4	26,6	27,1	25,9	26,2	26,4	26,6	27,1
	8H	26,0	26,2	26,5	26,7	27,2	26,0	26,2	26,5	26,7	27,2

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

S = 1,0H	+0,3 / -0,2	+0,3 / -0,2
S = 1,5H	+0,7 / -0,4	+0,7 / -0,4
S = 2,0H	+1,2 / -0,7	+1,2 / -0,7
Standard table	BK05	BK05
Correction summand	5,4	5,4

Corrected glare indices referring to 2172lm total luminous flux



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