

# LM-79

## Test Report

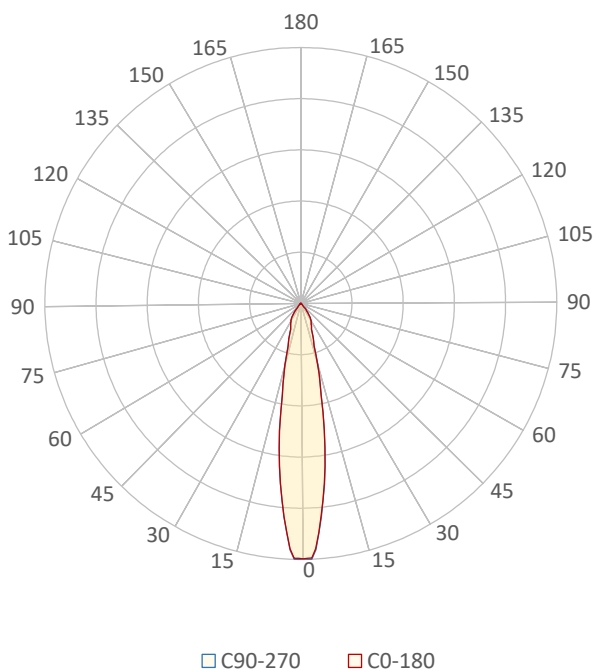
### LM79-JADE-EXPO-2700K-CRI90-SPOT-1

#### General Description

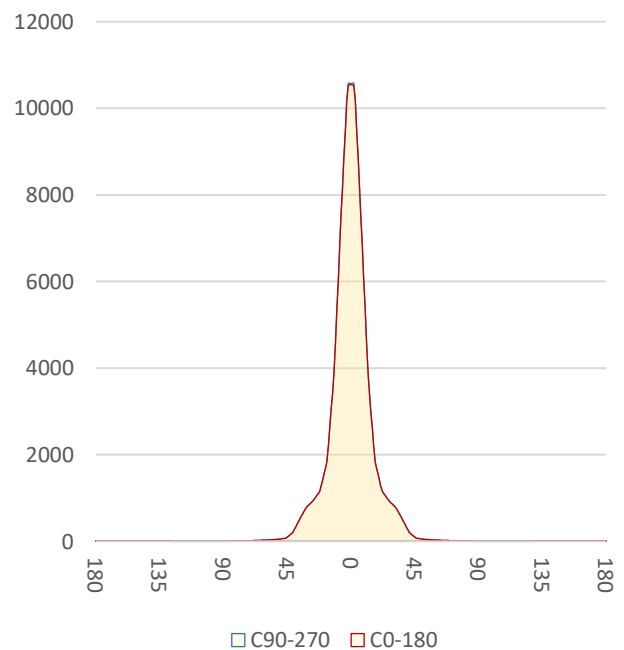
Item number	J-EX-X-3-1-27-90-1
Date and time	16-10-2017 13:17:54
CCT (Kelvin)	2787 K
Beam angle	20,1°
Luminous flux	2451 lm
Efficiency	88 lm/watt
Weighted energy	27,9 kWh/1000h
Power factor	0,93
CRI (RA)	93,2
Fidelity index Rf	Rf 91,4
Gammut index Rg	Rg 101,3
Peak	10582 cd



Polar diagram



Cartesian diagram



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### LM79-JADE-EXPO-2700K-CRI90-SPOT-1

Beam details	1m	2m	3m	4m	5m																			
Lux*	10558 lx	2640 lx	1173 lx	660 lx	422 lx																			
*measured at center of beam																								
Footcandles*	980,9 fcd	245,2 fcd	109,0 fcd	61,3 fcd	39,2 fcd																			
Beam width (meter)	0,4 m	0,7 m	1,1 m	1,4 m	1,8 m																			
Beam width (Feet)	1,2 ft	2,3 ft	3,5 ft	4,7 ft	5,8 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					
10558lx	2640lx	1173lx	660lx	422lx	293lx	215lx	165lx	130lx	106lx	87lx	73lx	62lx	54lx	47lx	41lx	37lx	33lx	29lx	26lx					
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					
980,9fcd	245,2fcd	109fcd	61,3fcd	39,2fcd	27,2fcd	20fcd	15,3fcd	12,1fcd	9,8fcd	8,1fcd	6,8fcd	5,8fcd	5fcd	4,4fcd	3,8fcd	3,4fcd	3fcd	2,7fcd	2,5fcd					
<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°					
10,6K	10,5K	9,5K	8,2K	6,8K	5,3K	3,9K	3,0K	2,2K	1,7K	1,4K	1,2K	1,1K	1,0K	0,9K	0,8K	0,8K	0,6K	0,5K	0,4K					
100%	100%	90%	77%	64%	50%	37%	29%	21%	16%	13%	11%	10%	9%	8%	8%	7%	6%	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°					
10,6K	10,6K	9,5K	8,2K	6,8K	5,3K	3,9K	3,0K	2,2K	1,7K	1,4K	1,2K	1,1K	1,0K	0,9K	0,8K	0,8K	0,6K	0,5K	0,4K					
100%	100%	90%	78%	64%	50%	37%	29%	21%	16%	13%	11%	10%	9%	8%	8%	7%	6%	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°					
10,6K	10,5K	9,5K	8,2K	6,8K	5,3K	3,9K	3,0K	2,2K	1,7K	1,4K	1,2K	1,1K	1,0K	0,9K	0,8K	0,8K	0,6K	0,5K	0,4K					
100%	100%	90%	77%	64%	50%	37%	29%	21%	16%	13%	11%	10%	9%	8%	8%	7%	6%	5%	4%					
<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°					
10,6K	10,6K	9,5K	8,2K	6,8K	5,3K	3,9K	3,0K	2,2K	1,7K	1,4K	1,2K	1,1K	1,0K	0,9K	0,8K	0,8K	0,6K	0,5K	0,4K					
100%	100%	90%	78%	64%	50%	37%	29%	21%	16%	13%	11%	10%	9%	8%	8%	7%	6%	5%	4%					
<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>				
20,1°					48,3°					80,2°					98,0%					95,5%				



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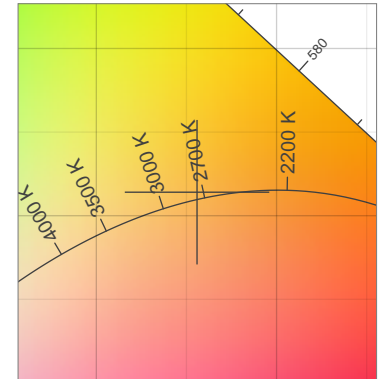
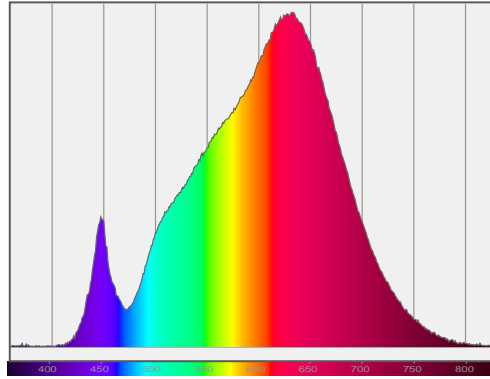
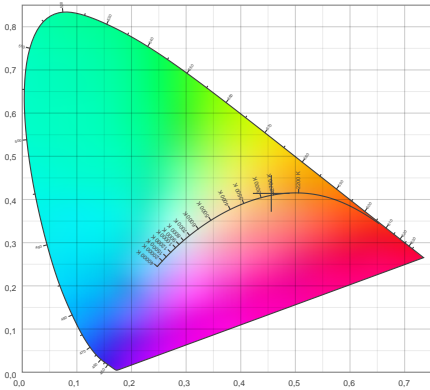
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### Color details



CIE 1931

x: 0,456



Spectra

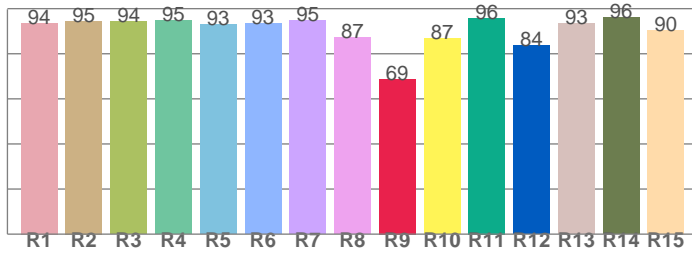
CIE 1931 ZOOM

2787 K

y: 0,414

$\Delta uv$ : 0,0016

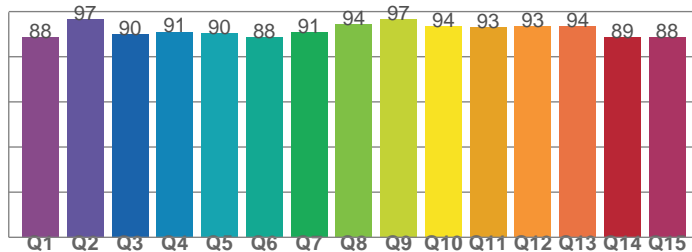
CRI: 93,2 (R1-R8)



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

R1	R2	R3	R4	R5	R6	R7	R8
93,6	94,6	94,3	94,8	92,9	93,3	94,8	87,1
R9	R10	R11	R12	R13	R14	R15	
68,8	86,8	95,9	83,5	93,5	96,0	90,4	

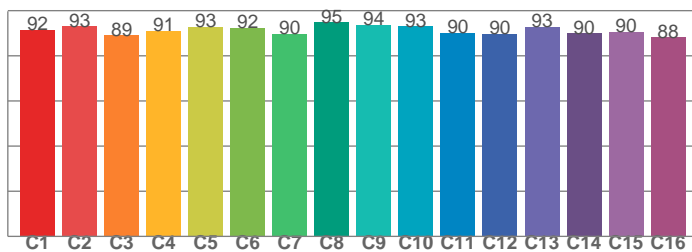
CQS: 91,3



CQS values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
88,5	96,6	90,1	91,0	90,4	88,5	90,8	94,2
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
96,6	93,5	93,2	93,5	93,7	88,6	88,5	

TM30: 91,4



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

C1	C2	C3	C4	C5	C6	C7	C8
91,5	93,0	89,0	91,1	92,7	92,3	89,5	94,8
C9	C10	C11	C12	C13	C14	C15	
93,6	93,1	90,1	89,8	92,8	89,9	90,5	

### 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	$\Delta uv$
2787 K	93,2	68,8	91,4	101,3	91,3	0,456	0,414	0,258	0,352	0,0016



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### TM30 details

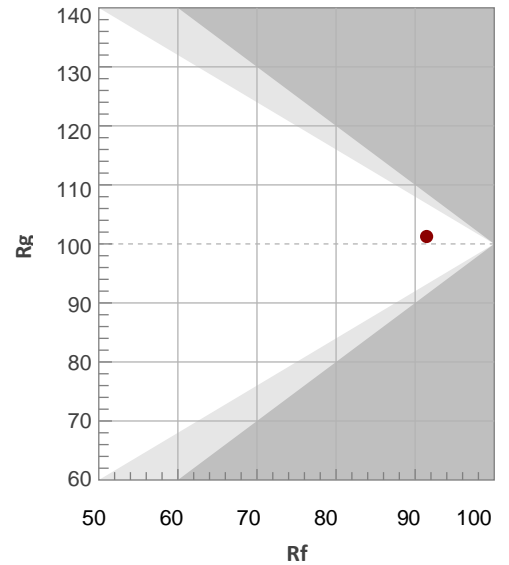
Rf 91,4

Fidelity index Rf

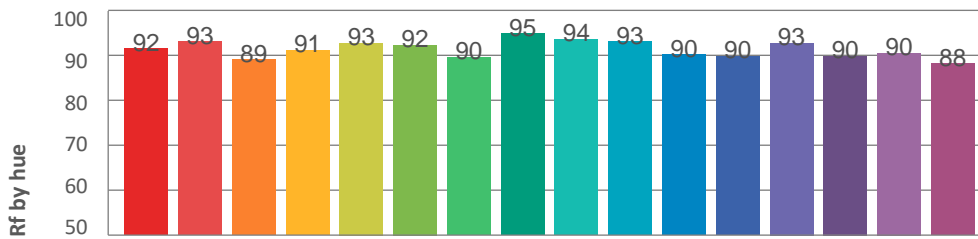
Rg 101,3

Gamut index Rg

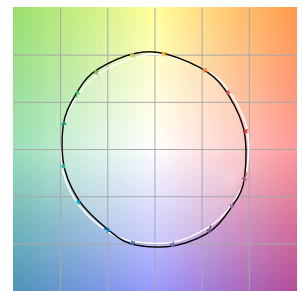
Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	92	-4%	-2%
2	93	-3%	2%
3	89	-1%	5%
4	91	2%	4%
5	93	4%	4%
6	92	4%	0%
7	90	2%	-5%
8	95	1%	-3%
9	94	-2%	-2%
10	93	-3%	1%
11	90	-2%	6%
12	90	3%	3%
13	93	4%	-2%
14	90	5%	-5%
15	90	1%	-5%
16	88	-1%	-8%



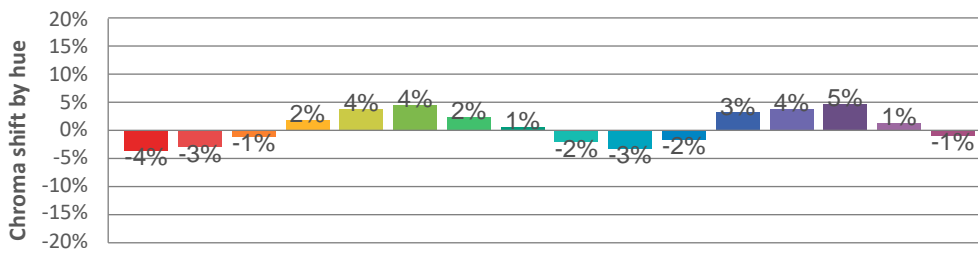
### Hue binH



### Color vector graphics



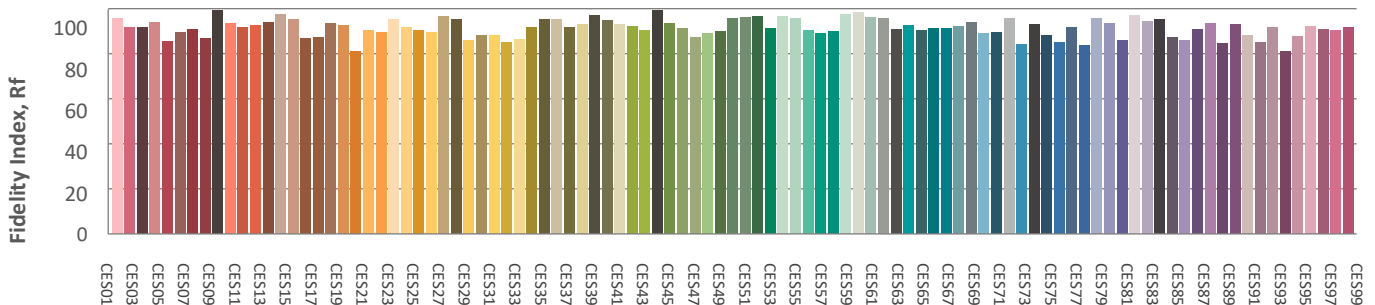
### Hue bin



### 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	20,4	21,1	20,7	21,3	21,5	20,4	21,1	20,7	21,3	21,5
	3H	20,5	21,2	20,8	21,4	21,7	20,5	21,2	20,8	21,4	21,7
	4H	20,6	21,2	20,9	21,5	21,7	20,6	21,2	20,9	21,5	21,7
	6H	20,6	21,2	20,9	21,4	21,7	20,6	21,2	20,9	21,4	21,7
	8H	20,6	21,1	20,9	21,4	21,7	20,6	21,1	20,9	21,4	21,7
	12H	20,6	21,1	20,9	21,4	21,7	20,6	21,1	20,9	21,4	21,7
4H	2H	20,4	20,9	20,7	21,2	21,5	20,4	20,9	20,7	21,2	21,5
	3H	20,5	21,0	20,9	21,4	21,7	20,5	21,0	20,9	21,4	21,7
	4H	20,7	21,1	21,1	21,4	21,8	20,7	21,1	21,1	21,4	21,8
	6H	20,7	21,1	21,1	21,4	21,8	20,7	21,1	21,1	21,4	21,8
	8H	20,7	21,0	21,1	21,4	21,8	20,7	21,0	21,1	21,4	21,8
	12H	20,7	21,0	21,1	21,4	21,8	20,7	21,0	21,1	21,4	21,8
8H	4H	20,7	21,0	21,1	21,4	21,8	20,7	21,0	21,1	21,4	21,8
	6H	20,7	21,0	21,2	21,4	21,9	20,7	21,0	21,2	21,4	21,9
	8H	20,7	20,9	21,2	21,4	21,9	20,7	20,9	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	20,6	20,9	21,1	21,3	21,7	20,6	20,9	21,1	21,3	21,7
	6H	20,7	20,9	21,2	21,3	21,8	20,7	20,9	21,2	21,3	21,8
	8H	20,7	20,9	21,2	21,3	21,8	20,7	20,9	21,2	21,3	21,8

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

S = 1,0H	+3,8 / -3,6	+3,8 / -3,6
S = 1,5H	+6,4 / -4,0	+6,4 / -4,0
S = 2,0H	+8,3 / -4,5	+8,3 / -4,5
Standard table	BK01	BK01
Correction summand	2,6	2,6

Corrected glare indices referring to 2451lm total luminous flux

