

# LM-79

## Test Report

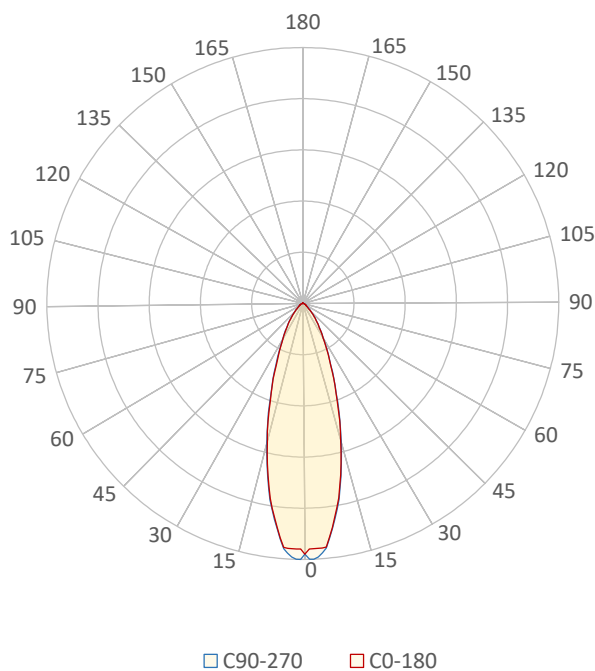
# LM79-JADE-EXPO-3000K-CRI90-SPOT+ 33° beamshaper

### General Description

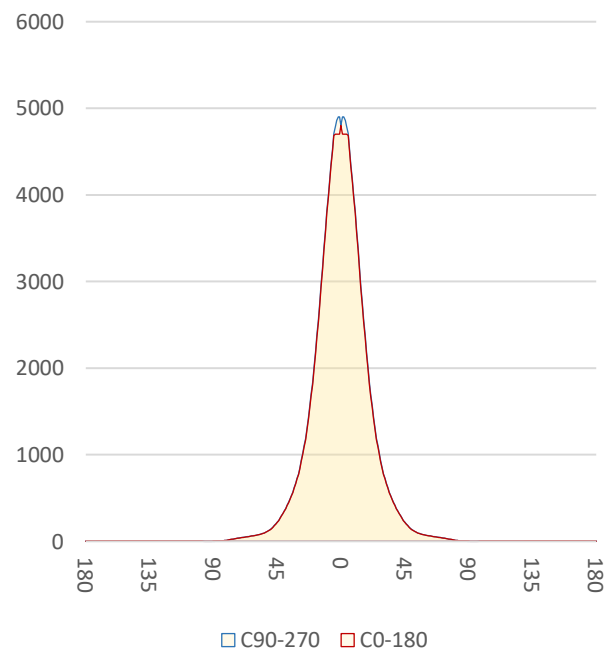
Item number	J-EX-X-3-1-30-90-1
Date and time	16-10-2017 13:48:30
CCT (Kelvin)	3080 K
Beam angle	33,6°
Luminous flux	2416 lm
Efficiency	88 lm/watt
Weighted energy	27,3 kWh/1000h
Power factor	0,94
CRI (RA)	91,9
Fidelity index Rf	Rf 90,9
Gammut index Rg	Rg 99,1
Peak	4901 cd



Polar diagram



Cartesian diagram



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Beam details	1m	2m	3m	4m	5m																			
Lux*	4801 lx	1200 lx	533 lx	300 lx	192 lx																			
<i>*measured at center of beam</i>																								
Footcandles*	446,1 fcd	111,5 fcd	49,6 fcd	27,9 fcd	17,8 fcd																			
Beam width (meter)	0,6 m	1,2 m	1,8 m	2,4 m	3 m																			
Beam width (Feet)	2 ft	4 ft	6 ft	7,9 ft	9,9 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					
4801lx	1200lx	533lx	300lx	192lx	133lx	98lx	75lx	59lx	48lx	40lx	33lx	28lx	24lx	21lx	19lx	17lx	15lx	13lx	12lx					
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					
446,1fcd	111,5fcd	49,6fcd	27,9fcd	17,8fcd	12,4fcd	9,1fcd	7fcd	5,5fcd	4,5fcd	3,7fcd	3,1fcd	2,6fcd	2,3fcd	2fcd	1,7fcd	1,5fcd	1,4fcd	1,2fcd	1,1fcd					
<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°					
4801	4701	4701	4506	4148	3783	3356	2929	2537	2165	1811	1546	1281	1087	921	771	667	562	484	412					
100%	98%	98%	94%	86%	79%	70%	61%	53%	45%	38%	32%	27%	23%	19%	16%	14%	12%	10%	9%					
<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°					
4801	4901	4789	4530	4175	3813	3388	2963	2570	2195	1839	1570	1301	1103	933	780	674	568	489	416					
100%	102%	100%	94%	87%	79%	71%	62%	54%	46%	38%	33%	27%	23%	19%	16%	14%	12%	10%	9%					
<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°					
4801	4701	4701	4506	4148	3783	3356	2929	2537	2165	1811	1546	1281	1087	921	771	667	562	484	412					
100%	98%	98%	94%	86%	79%	70%	61%	53%	45%	38%	32%	27%	23%	19%	16%	14%	12%	10%	9%					
<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°					
4801	4901	4789	4530	4175	3813	3388	2963	2570	2195	1839	1570	1301	1103	933	780	674	568	489	416					
100%	102%	100%	94%	87%	79%	71%	62%	54%	46%	38%	33%	27%	23%	19%	16%	14%	12%	10%	9%					
<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>				
33,6°					72,3°					102,9°					95,4%					89,1%				



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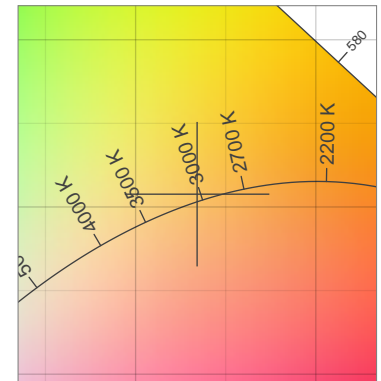
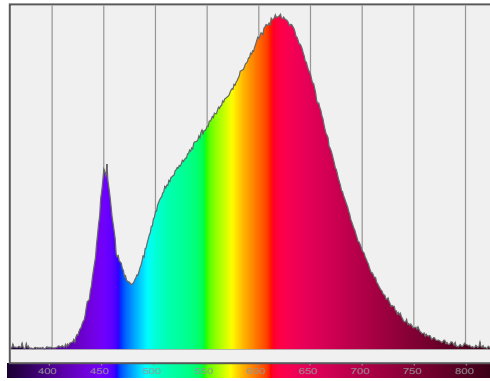
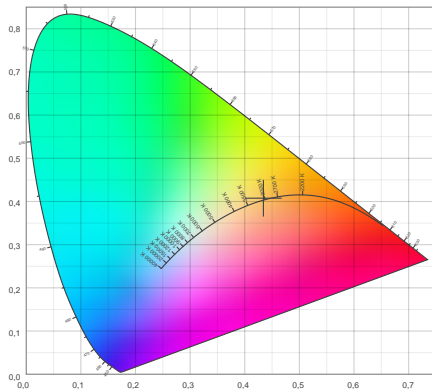
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### Color details



CIE 1931

x: 0,434



Spectra

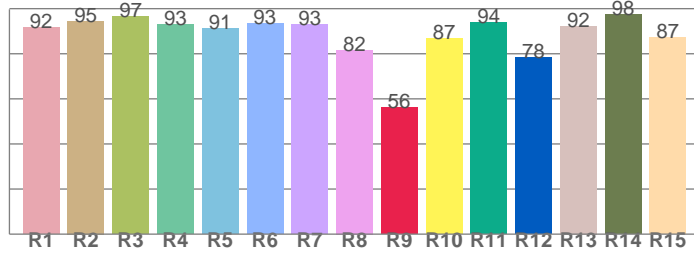
CIE 1931 ZOOM

3080 K

y: 0,408

$\Delta uv$ : 0,0018

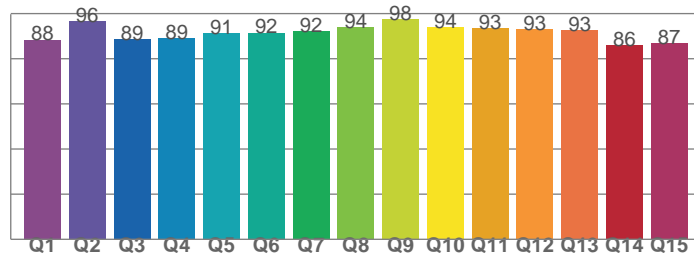
**CRI: 91,9 (R1-R8)**



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

R1	R2	R3	R4	R5	R6	R7	R8
91,7	94,6	96,7	92,9	91,2	93,4	93,1	81,7
R9	R10	R11	R12	R13	R14	R15	
56,3	86,9	93,7	78,5	92,3	97,6	87,1	

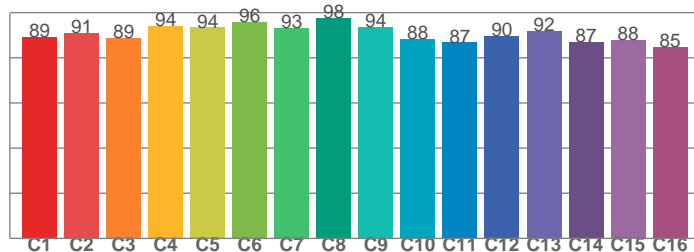
**CQS: 90,9**



*CQS values*

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
88,4	96,4	88,7	89,0	91,4	91,5	92,0	93,8
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
97,6	94,1	93,4	93,0	92,5	85,9	86,8	

**TM30: 90,9**



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

C1	C2	C3	C4	C5	C6	C7	C8
89,4	91,1	88,9	94,0	93,5	95,9	93,2	97,7
C9	C10	C11	C12	C13	C14	C15	
93,8	88,4	86,8	89,6	92,0	87,0	88,0	

### 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	$\Delta uv$
3080 K	91,9	56,3	90,9	99,1	90,9	0,434	0,408	0,247	0,348	0,0018



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### TM30 details

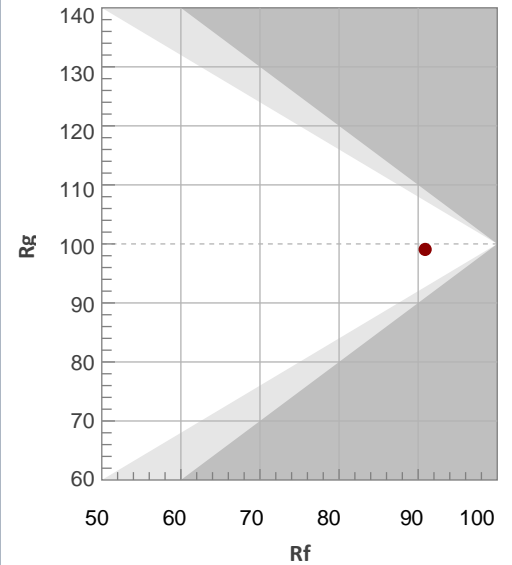
Rf 90,9

Fidelity index Rf

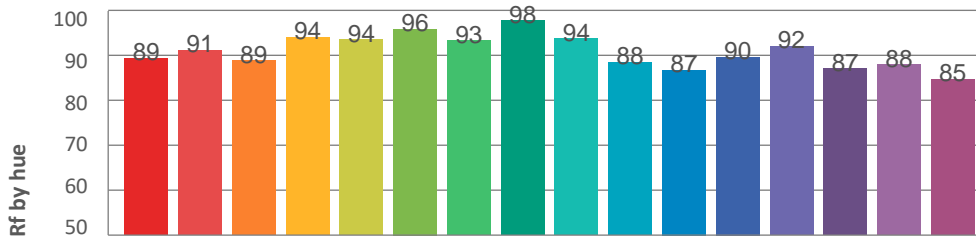
Rg 99,1

Gamut index Rg

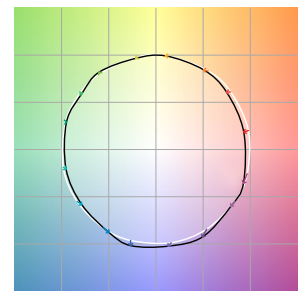
Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	89	-5%	-1%
2	91	-4%	2%
3	89	-2%	5%
4	94	0%	3%
5	94	-1%	3%
6	96	2%	0%
7	93	-2%	-2%
8	98	-1%	0%
9	94	-3%	2%
10	88	-2%	5%
11	87	1%	8%
12	90	5%	1%
13	92	3%	-4%
14	87	4%	-8%
15	88	-1%	-7%
16	85	-2%	-11%



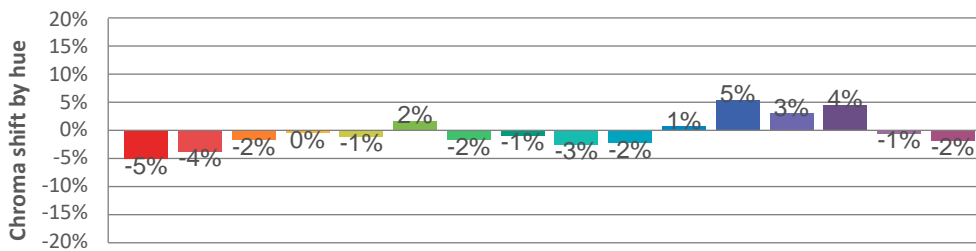
### Hue binH



### Color vector graphics



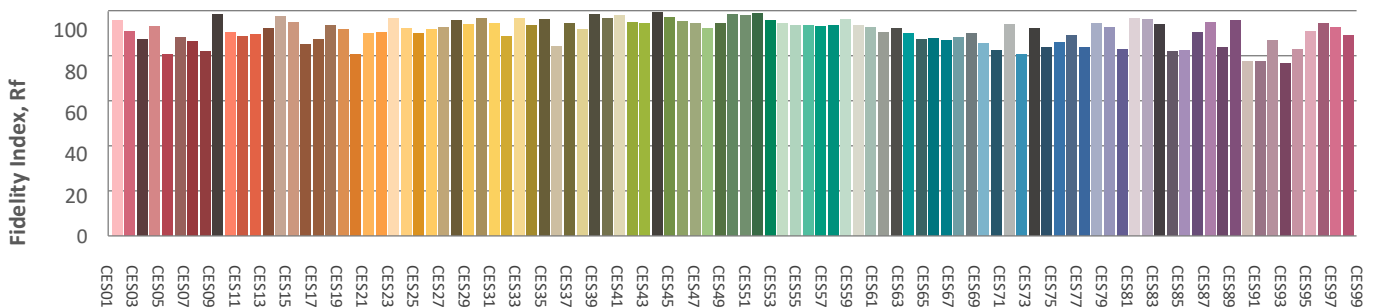
### Hue bin



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

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

S = 1,0H	+1,2 / -1,1	+1,2 / -1,1
S = 1,5H	+2,6 / -1,5	+2,6 / -1,5
S = 2,0H	+4,1 / -1,9	+4,1 / -1,9
Standard table	BK03	BK03
Correction summand	6,8	6,8

Corrected glare indices referring to 2416lm total luminous flux



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