

LM-79

Test Report

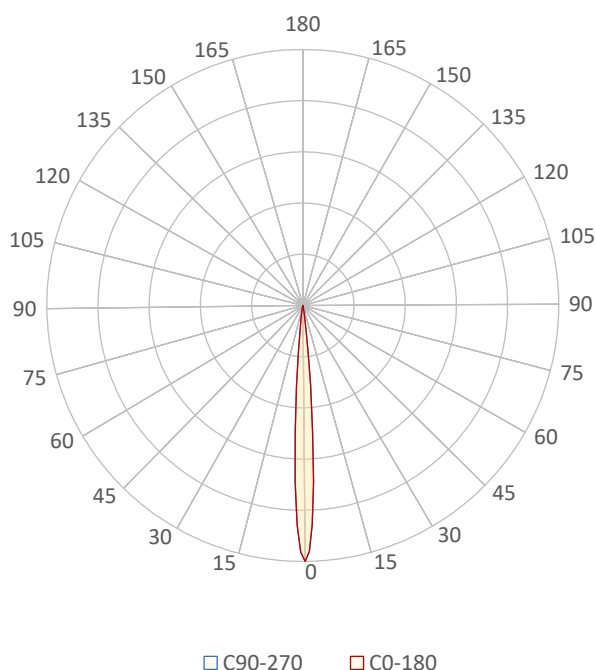
LM79-TOPAZ-ZOOM-4000K-CRI90 [SPOT]

General Discription

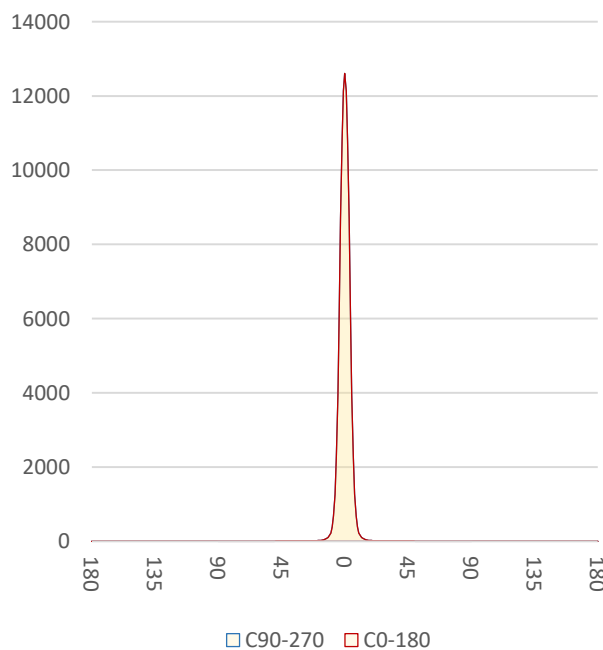
Item number	T-Z-XLX-1B-4090-Z
Date and time	16-2-2024 12:03:10
CCT (Kelvin)	3960 K
Beam angle	7,9°
Luminous flux	295 lm
Efficiency	28 lm/watt
Weighted energy	10,7 kWh/1000h
Power factor	0,99
CRI (RA)	94,4
Fidelity index Rf	Rf 92,0
Gammut index Rg	Rg 100,3
Peak	12607 cd



Polar diagram



Cartesian diagram



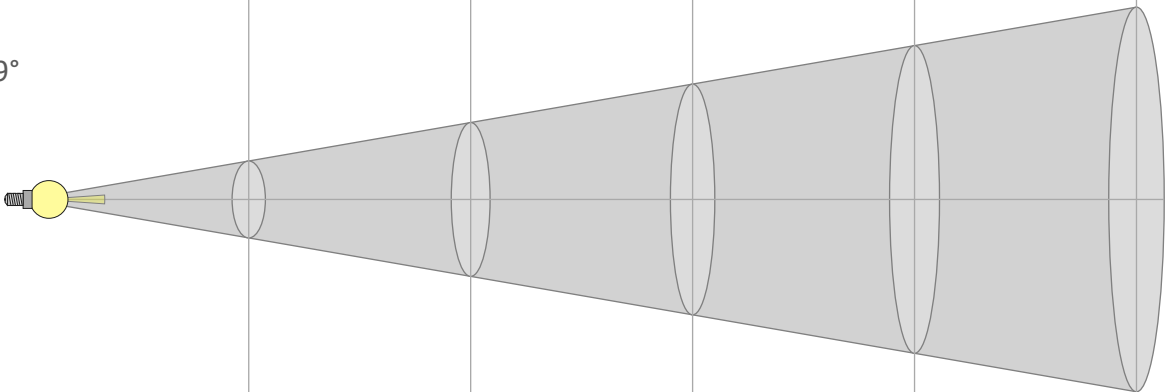
CLS LED BV
info@cls-led.com
www.cls-led.com

2021 CLS-LED BV. All rights reserved. Information subject to change without notice, CLS-LED BV and all affiliated companies disclaim liability for injury, damage direct or indirect loss, consequential or economic loss or any other loss occasioned by the use of, inability to use or reliance on the information contained in this document. No part of this document may be reproduced, in any form or by any means, without permission in writing from CLS-LED BV. Other legal information can be found in our General conditions, found on the back of your CLS-LED BV invoice, inside the CLS catalogue or on our website www.cls-led.com/voorwaarden.pdf

LM-79

Test Report

LM79-TOPAZ-ZOOM-4000K-CRI90 [SPOT]

Beam details					1m		2m		3m		4m		5m						
Lux*					12607 lx		3152 lx		1401 lx		788 lx		504 lx						
7,9° 																			
*measured at center of beam																			
Footcandles*					1171,3 fcd		292,8 fcd		130,1 fcd		73,2 fcd		46,9 fcd						
Beam width (meter)					0,1 m		0,3 m		0,4 m		0,6 m		0,7 m						
Beam width (Feet)					0,5 ft		0,9 ft		1,4 ft		1,8 ft		2,3 ft						
Beam intensities																			
1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
12607lx	3152lx	1401lx	788lx	504lx	350lx	257lx	197lx	156lx	126lx	104lx	88lx	75lx	64lx	56lx	49lx	44lx	39lx	35lx	32lx
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
1171,3fcd	292,8fcd	130,1fcd	73,2fcd	46,9fcd	32,5fcd	23,9fcd	18,3fcd	14,5fcd	11,7fcd	9,7fcd	8,1fcd	6,9fcd	6fcd	5,2fcd	4,6fcd	4,1fcd	3,6fcd	3,2fcd	2,9fcd
Intensities in 0° c-plane																			
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
12,6K	12,2K	10,8K	8,7K	6,2K	3,9K	2,3K	1,3K	0,7K	0,4K	0,2K	0,2K	0,1K	0,1K	0,1K	0,0K	0,0K	0,0K	0,0K	0,0K
100%	97%	86%	69%	49%	31%	18%	10%	5%	3%	2%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Intensities in 90° c-plane																			
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
12,6K	12,2K	10,8K	8,7K	6,2K	3,9K	2,3K	1,3K	0,7K	0,4K	0,2K	0,2K	0,1K	0,1K	0,1K	0,0K	0,0K	0,0K	0,0K	0,0K
100%	97%	86%	69%	49%	31%	18%	10%	5%	3%	2%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Intensities in 180° c-plane																			
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
12,6K	12,2K	10,8K	8,7K	6,2K	3,9K	2,3K	1,3K	0,7K	0,4K	0,2K	0,2K	0,1K	0,1K	0,1K	0,0K	0,0K	0,0K	0,0K	0,0K
100%	97%	86%	69%	49%	31%	18%	10%	5%	3%	2%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Intensities in 270° c-plane																			
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
12,6K	12,2K	10,8K	8,7K	6,2K	3,9K	2,3K	1,3K	0,7K	0,4K	0,2K	0,2K	0,1K	0,1K	0,1K	0,0K	0,0K	0,0K	0,0K	0,0K
100%	97%	86%	69%	49%	31%	18%	10%	5%	3%	2%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Beam angle 50%				Field angle 10%				Cutoff angle 2,5%				Intensity ratio in 120° cone				Intensity ratio in 90° cone			
7,9°				14°				18,7°				98,8%				97,8%			



CLS LED BV
 info@cls-led.com
 www.cls-led.com

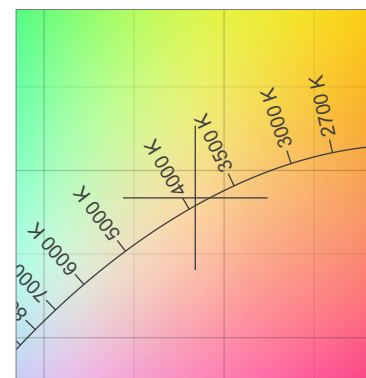
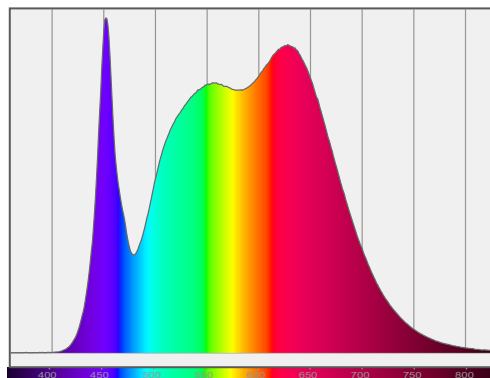
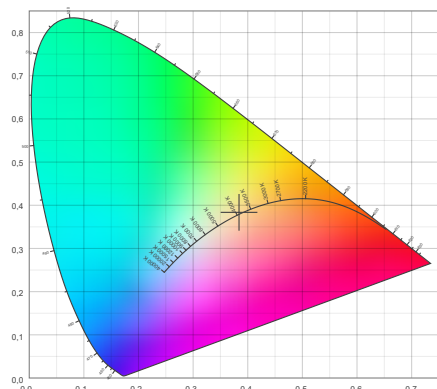
2021 CLS-LED BV. All rights reserved. Information subject to change without notice, CLS-LED BV and all affiliated companies disclaim liability for injury, damage direct or indirect loss, consequential or economic loss or any other loss occasioned by the use of, inability to use or reliance on the information contained in this document. No part of this document may be reproduced, in any form or by any means, without permission in writing from CLS-LED BV. Other legal information can be found in our General conditions, found on the back of your CLS-LED BV invoice, inside the CLS catalogue or on our website www.cls-led.com/voorwaarden.pdf

LM-79

Test Report

LM79-TOPAZ-ZOOM-4000K-CRI90 [SPOT]

Color details



CIE 1931

x: 0,384

3960 K

y: 0,384

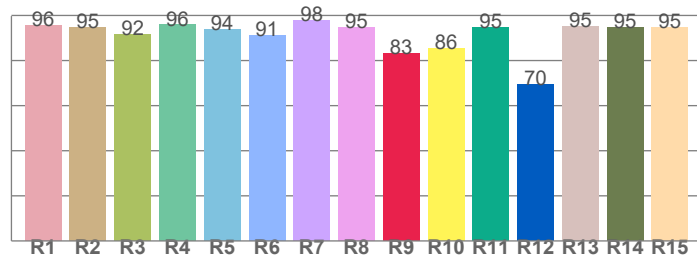


Spectra

CIE 1931 ZOOM

Δuv : 0,0022

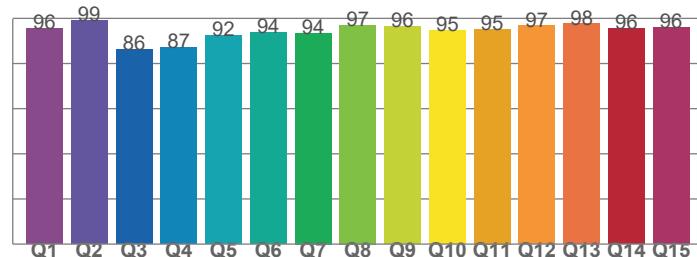
CRI: 94,4 (R1-R8)



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

R1	R2	R3	R4	R5	R6	R7	R8
95,6	94,6	91,6	95,8	93,8	91,1	97,6	94,8
R9	R10	R11	R12	R13	R14	R15	
83,3	85,6	94,7	69,6	95,1	94,7	94,6	

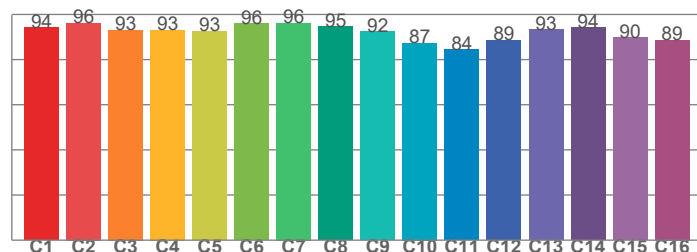
CQS: 93,5



CQS values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
95,6	99,2	86,2	87,2	92,3	93,7	93,5	97,0
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
96,5	94,6	95,3	96,7	97,6	95,6	95,8	

TM30: 92,0



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

C1	C2	C3	C4	C5	C6	C7	C8
94,1	96,2	93,1	93,1	92,6	96,0	96,2	94,6
C9	C10	C11	C12	C13	C14	C15	
92,3	87,4	84,4	88,6	93,4	94,2	89,9	

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
3960 K	94,4	83,3	92,0	100,3	93,5	0,384	0,384	0,225	0,337	0,0022



CLS LED BV
info@cls-led.com
www.cls-led.com

2021 CLS-LED BV. All rights reserved. Information subject to change without notice, CLS-LED BV and all affiliated companies disclaim liability for injury, damage direct or indirect loss, consequential or economic loss or any other loss occasioned by the use of, inability to use or reliance on the information contained in this document. No part of this document may be reproduced, in any form or by any means, without permission in writing from CLS-LED BV. Other legal information can be found in our General conditions, found on the back of your CLS-LED BV invoice, inside the CLS catalogue or on our website www.cls-led.com/voorwaarden.pdf

LM-79

Test Report

LM79-TOPAZ-ZOOM-4000K-CRI90 [SPOT]

TM30 details

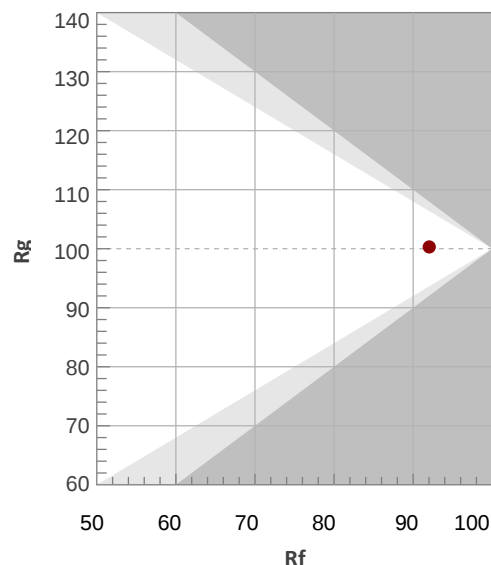
Rf 92,0

Fidelity index Rf

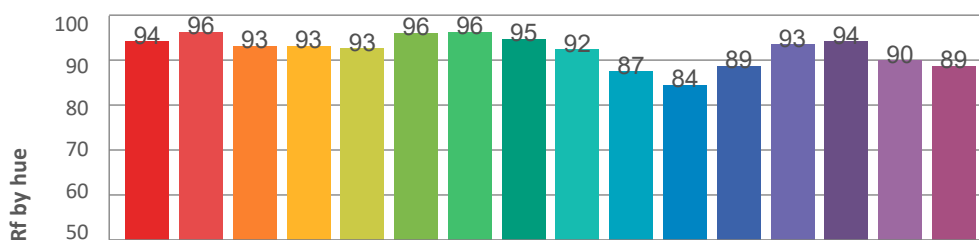
Rg 100,3

Gamut index Rg

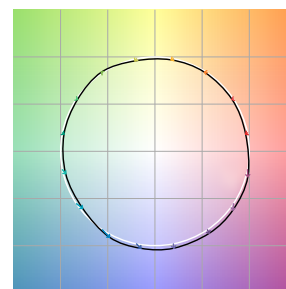
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	94	-2%	-1%
2	96	-2%	0%
3	93	-1%	3%
4	93	-2%	2%
5	93	-2%	2%
6	96	1%	1%
7	96	-1%	0%
8	95	-2%	1%
9	92	-3%	5%
10	87	-3%	7%
11	84	2%	10%
12	89	4%	5%
13	93	5%	0%
14	94	4%	0%
15	90	3%	-6%
16	89	2%	-7%



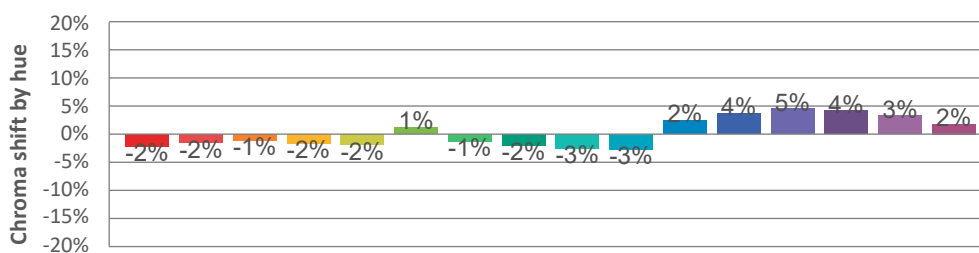
Hue binH



Color vector graphics



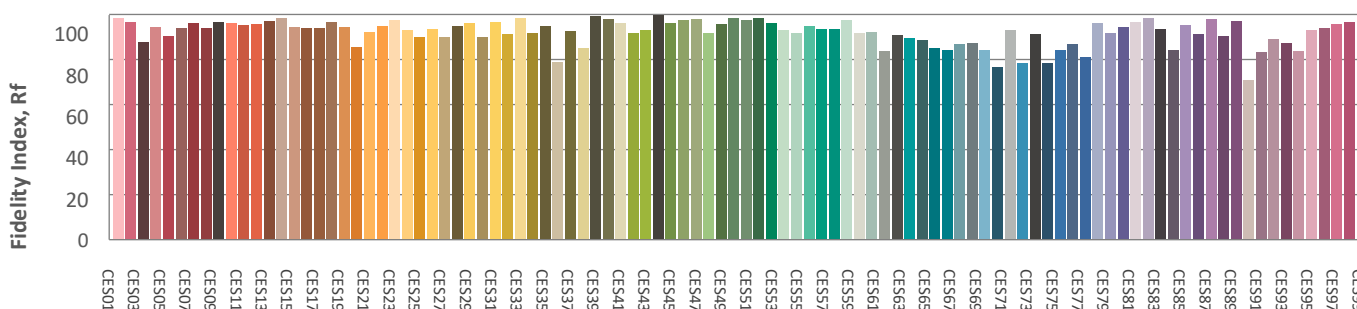
Hue bin



Color distortion graphics



Color Evaluation Sample



CLS LED BV
info@cls-led.com
www.cls-led.com

2021 CLS-LED BV. All rights reserved. Information subject to change without notice, CLS-LED BV and all affiliated companies disclaim liability for injury, damage direct or indirect loss, consequential or economic loss or any other loss occasioned by the use of, inability to use or reliance on the information contained in this document. No part of this document may be reproduced, in any form or by any means, without permission in writing from CLS-LED BV. Other legal information can be found in our General conditions, found on the back of your CLS-LED BV invoice, inside the CLS catalogue or on our website www.cls-led.com/voorwaarden.pdf

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	-1,5	-1,3	-1,5	-1,1	-0,9	-1,5	-1,3	-1,5	-1,1	-0,9
	3H	-0,9	-0,5	-0,6	-0,3	-0,1	-0,9	-0,5	-0,6	-0,3	-0,1
	4H	-0,3	0,1	0,0	0,3	0,5	-0,3	0,1	0,0	0,3	0,5
	6H	0,3	0,7	0,6	1,0	1,3	0,3	0,7	0,6	1,0	1,3
	8H	0,7	1,0	1,0	1,3	1,7	0,7	1,0	1,0	1,3	1,7
	12H	1,0	1,3	1,3	1,7	2,1	1,0	1,3	1,3	1,7	2,1
4H	2H	-1,4	-1,0	-1,0	-0,8	-0,5	-1,4	-1,0	-1,0	-0,8	-0,5
	3H	-0,3	0,0	0,0	0,3	0,7	-0,3	0,0	0,0	0,3	0,7
	4H	0,4	0,7	0,8	1,1	1,6	0,4	0,7	0,8	1,1	1,6
	6H	1,2	1,6	1,7	1,9	2,2	1,2	1,6	1,7	1,9	2,2
	8H	1,7	2,0	2,2	2,3	2,7	1,7	2,0	2,2	2,3	2,7
	12H	2,1	2,3	2,6	2,7	3,2	2,1	2,3	2,6	2,7	3,2
8H	4H	0,7	1,0	1,2	1,3	1,7	0,7	1,0	1,2	1,3	1,7
	6H	1,7	1,9	2,2	2,4	2,9	1,7	1,9	2,2	2,4	2,9
	8H	2,4	2,6	2,9	3,1	3,7	2,4	2,6	2,9	3,1	3,7
	12H	3,0	3,1	3,6	3,6	4,2	3,0	3,1	3,6	3,6	4,2
12H	4H	0,7	0,9	1,2	1,3	1,8	0,7	0,9	1,2	1,3	1,8
	6H	1,9	2,1	2,4	2,6	3,2	1,9	2,1	2,4	2,6	3,2
	8H	2,6	2,7	3,2	3,2	3,8	2,6	2,7	3,2	3,2	3,8
Variation of the observer position for the luminaire distance S											
S = 1.0H		0,2 / -0,2					0,2 / -0,2				
S = 1.5H		0,5 / -0,3					0,5 / -0,3				
S = 2.0H		1,0 / -0,8					1,0 / -0,8				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 295lm total luminous flux											