

LM-79

Test Report

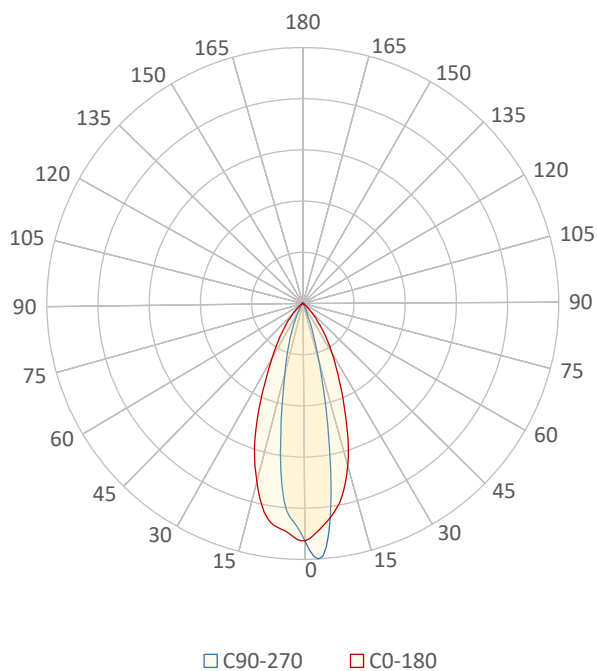
LM79-REVO-MICRO-BASIC-3000K-CRI80-20x42DEG

General Discription

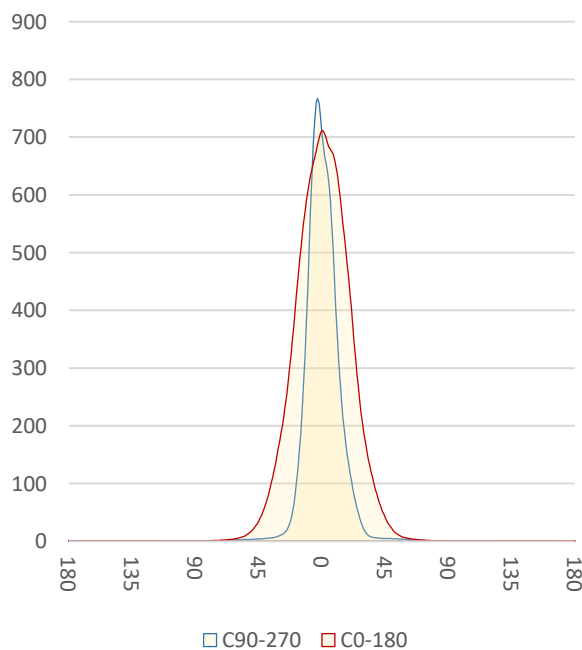
Item number	RM-2-X-03-2
Date and time	12-11-2018 13:40:54
CCT (Kelvin)	2925 K
Beam angle	21,3 x 43,3°
Luminous flux	305 lm
Efficiency	58 lm/watt
Weighted energy	5,2 kWh/1000h
Power factor	0,46
CRI (RA)	84,4
Fidelity index Rf	Rf 83,9
Gammut index Rg	Rg 98,4
Peak	768 cd



Polar diagram



Cartesian diagram



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

2017 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-REVO-MICRO-BASIC-3000K-CRI80-20x42DEG

Beam details	1m	2m	3m	4m	5m
Lux*	711 lx	178 lx	79 lx	44 lx	28 lx

32,3°

*measured at center of beam

Footcandles*	66,1 fcd	16,5 fcd	7,3 fcd	4,1 fcd	2,6 fcd
Beam width (meter)	0,6 m	1,2 m	1,7 m	2,3 m	2,9 m
Beam width (Feet)	1,9 ft	3,8 ft	5,7 ft	7,6 ft	9,5 ft

Beam intensities																			
1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
711lx	178lx	79lx	44lx	28lx	20lx	15lx	11lx	9lx	7lx	6lx	5lx	4lx	4lx	3lx	3lx	2lx	2lx	2lx	2lx
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
66,1fcd	16,5fcd	7,3fcd	4,1fcd	2,6fcd	1,8fcd	1,3fcd	1fcd	0,8fcd	0,7fcd	0,5fcd	0,5fcd	0,4fcd	0,3fcd	0,3fcd	0,3fcd	0,2fcd	0,2fcd	0,2fcd	0,2fcd

Intensities in 0° c-plane																			
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
711	698	676	656	633	607	571	528	481	428	373	321	274	235	202	174	147	122	100	81
100%	98%	95%	92%	89%	85%	80%	74%	68%	60%	52%	45%	39%	33%	28%	24%	21%	17%	14%	11%

Intensities in 90° c-plane																			
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
711	759	760	691	575	441	320	226	155	101	63	37	24	16	12	10	8	7	6	5
100%	107%	107%	97%	81%	62%	45%	32%	22%	14%	9%	5%	3%	2%	2%	1%	1%	1%	1%	1%

Intensities in 180° c-plane																			
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
711	706	690	679	670	651	618	574	529	483	432	375	318	266	222	186	157	132	111	91
100%	99%	97%	96%	94%	91%	87%	81%	74%	68%	61%	53%	45%	37%	31%	26%	22%	19%	16%	13%

Intensities in 270° c-plane																			
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
711	668	641	594	506	403	312	244	192	152	120	92	68	49	32	20	13	9	7	6
100%	94%	90%	84%	71%	57%	44%	34%	27%	21%	17%	13%	10%	7%	5%	3%	2%	1%	1%	1%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
32,3°	61°	78,1°	97,0%	92,8%



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

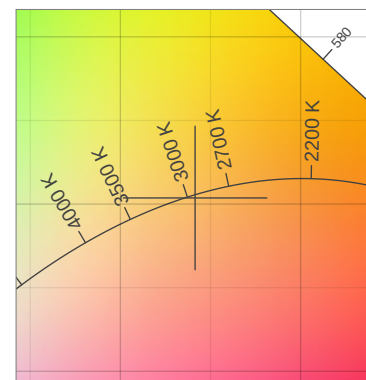
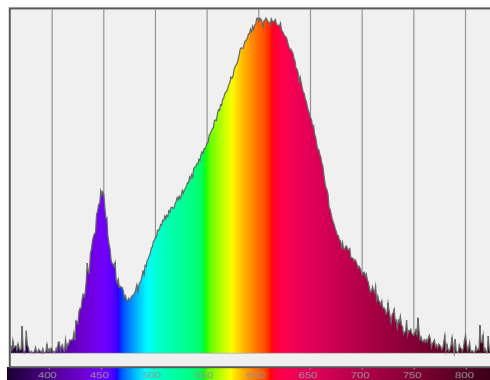
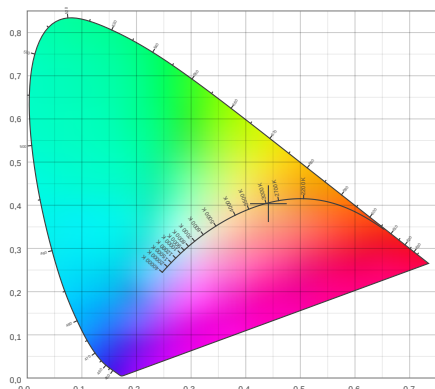
2017 CLS-LED BV. All rights reserved. Information subject to change without notice, CLS-LED BV and all affiliated companies disclaim liability for injury, damage direct or indirect loss, consequential or economic loss or any other loss occasioned by the use of, inability to use or reliance on the information 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-REVO-MICRO-BASIC-3000K-CRI80-20x42DEG

Color details



CIE 1931

x: 0,441

2925 K

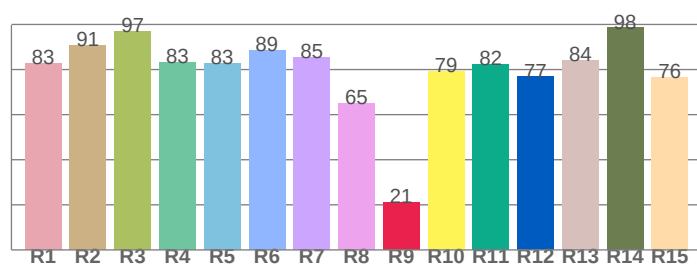
y: 0,404

Spectra

CIE 1931 ZOOM

 $\Delta uv: -0,0008$

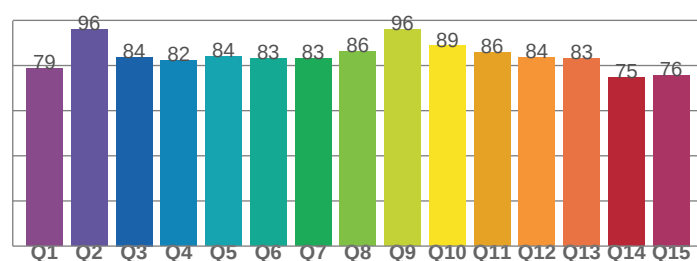
CRI: 84,4 (R1-R8)



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

R1	R2	R3	R4	R5	R6	R7	R8
82,6	90,8	97,1	83,0	82,7	88,7	85,2	65,1
R9	R10	R11	R12	R13	R14	R15	
21,2	79,1	82,3	76,7	84,2	98,5	76,4	

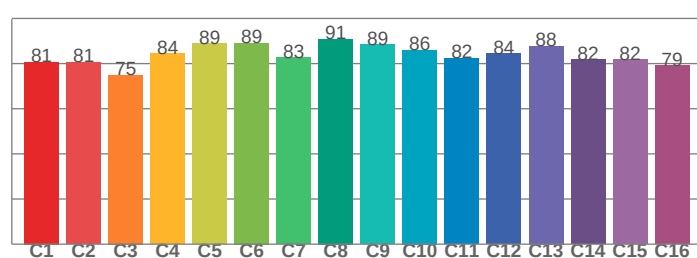
CQS: 83,2



CQS values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
78,5	96,1	83,7	82,1	84,0	83,1	83,2	86,3
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
95,9	88,7	85,7	83,7	83,3	74,8	75,8	

TM30: 83,9



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

C1	C2	C3	C4	C5	C6	C7	C8
80,7	80,6	74,9	84,3	89,0	89,2	82,6	91,0
C9	C10	C11	C12	C13	C14	C15	
88,5	86,0	82,4	84,4	87,8	81,8	81,7	

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
2925 K	84,4	21,2	83,9	98,4	83,2	0,441	0,404	0,254	0,348	-0,0008

CLS

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

2017 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-REVO-MICRO-BASIC-3000K-CRI80-20x42DEG

TM30 details

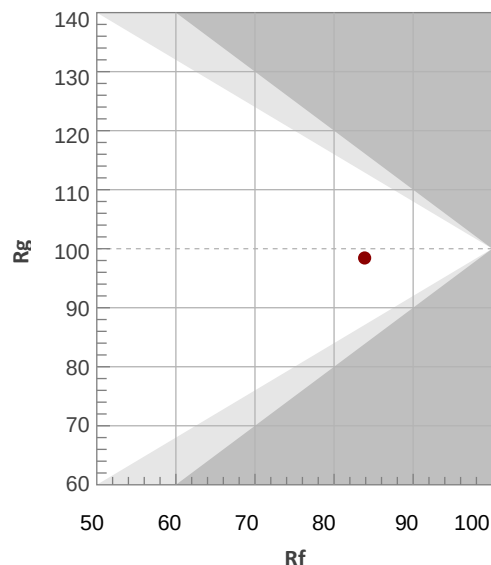
Rf 83,9

Fidelity index Rf

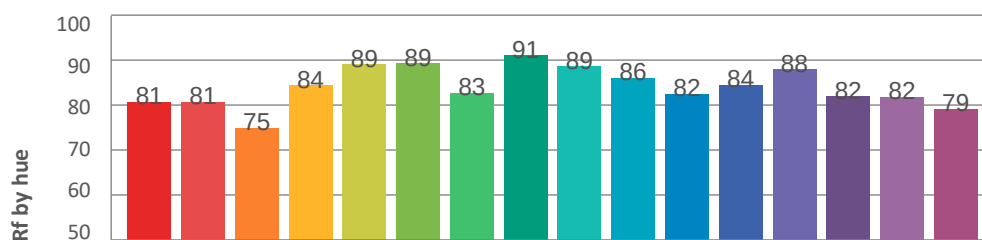
Rg 98,4

Gamut index Rg

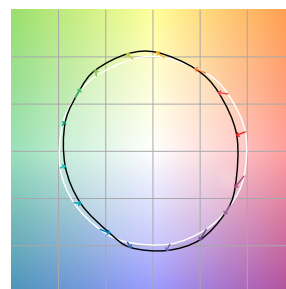
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	81	-10%	-2%
2	81	-7%	7%
3	75	-2%	12%
4	84	4%	9%
5	89	6%	5%
6	89	6%	-3%
7	83	1%	-10%
8	91	-3%	-4%
9	89	-6%	-1%
10	86	-6%	5%
11	82	-3%	10%
12	84	5%	4%
13	88	6%	-5%
14	82	6%	-12%
15	82	0%	-10%
16	79	-7%	-13%



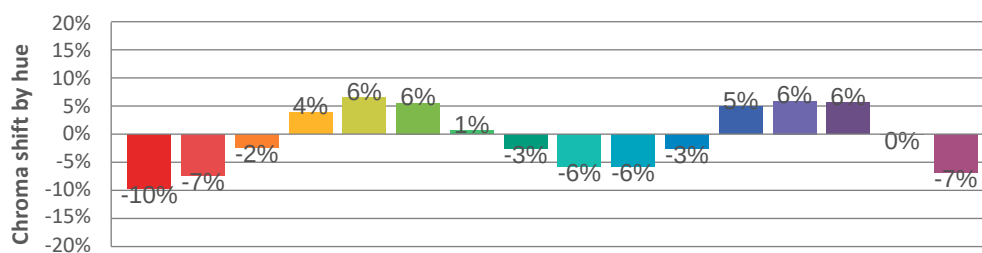
Hue binH



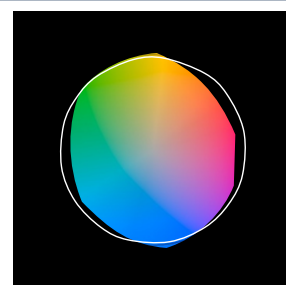
Color vector graphics



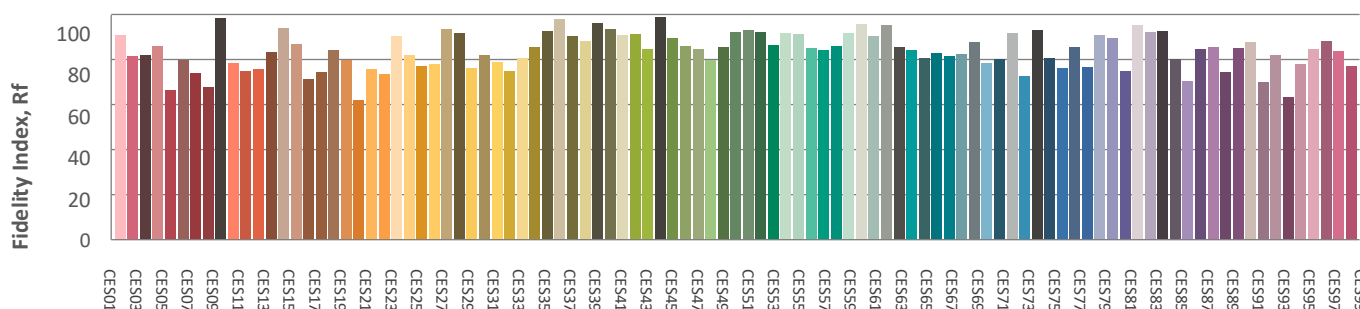
Hue bin



Color distortion graphics



Color Evaluation Sample



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

2017 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-REVO-MICRO-BASIC-3000K-CRI80-20x42DEG

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	14,1	14,8	14,4	15,0	15,3	8,2	9,0	8,5	9,2	9,4
	3H	14,1	14,7	14,4	15,0	15,3	8,5	9,2	8,8	9,4	9,7
	4H	14,1	14,7	14,4	15,0	15,2	8,6	9,3	9,0	9,5	9,8
	6H	14,1	14,6	14,4	14,9	15,3	8,8	9,4	9,1	9,7	10,0
	8H	14,1	14,6	14,4	14,9	15,3	8,9	9,4	9,2	9,7	10,1
	12H	14,1	14,6	14,4	14,9	15,3	9,0	9,5	9,3	9,8	10,1
4H	2H	13,9	14,6	14,3	14,8	15,1	8,5	9,1	8,8	9,3	9,6
	3H	14,0	14,5	14,3	14,8	15,2	8,9	9,4	9,2	9,7	10,0
	4H	14,0	14,4	14,4	14,8	15,2	9,1	9,5	9,5	9,9	10,2
	6H	14,1	14,4	14,5	14,8	15,2	9,3	9,7	9,8	10,1	10,5
	8H	14,1	14,4	14,5	14,8	15,3	9,5	9,8	9,9	10,2	10,6
	12H	14,1	14,4	14,6	14,8	15,3	9,6	9,9	10,1	10,3	10,8
8H	4H	13,9	14,3	14,4	14,7	15,1	9,2	9,5	9,6	9,9	10,3
	6H	14,0	14,3	14,5	14,7	15,2	9,6	9,8	10,0	10,3	10,7
	8H	14,1	14,3	14,6	14,8	15,3	9,8	10,0	10,3	10,5	11,0
	12H	14,2	14,3	14,7	14,8	15,3	10,0	10,2	10,5	10,7	11,2
12H	4H	13,9	14,2	14,4	14,6	15,1	9,2	9,5	9,6	9,9	10,3
	6H	14,0	14,2	14,5	14,7	15,2	9,6	9,8	10,1	10,3	10,8
	8H	14,1	14,3	14,6	14,7	15,3	9,9	10,0	10,4	10,5	11,1
Variation of the observer position for the luminaire distance S											
S = 1,0H		+3,6 / -3,6					+2,6 / -1,6				
S = 1,5H		+6,1 / -4,7					+3,4 / -2,0				
S = 2,0H		+8,1 / -5,4					+4,9 / -2,4				
Standard table		BK01					BK03				
Correction summand		-3,9					-8,0				
Corrected glare indices referring to 305lm total luminous flux											



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

2017 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