

LM-79

Test Report

LM79-REVO-2700K-CRI80-DEG12

General Discription

Item number	R-X-X-X-04-1
Date and time	22-4-2016 15:54:21
CCT (Kelvin)	2721 K
Beam angle	14,6°
Luminous flux	1351 lm
Efficiency	70 lm/watt
Weighted energy	19,2 kWh/1000h
Power factor	0,94
CRI (RA)	83,2
Fidelity index Rf	Rf 84,7
Gammut index Rg	Rg 95,7



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-2700K-CRI80-DEG12

Beam details	1m	2m	3m	4m	5m																			
Lux*	15160 lx	3790 lx	1684 lx	947 lx	606 lx																			
<i>*measured at center of beam</i>																								
Footcandles*	1408,4 fcd	352,1 fcd	156,5 fcd	88,0 fcd	56,3 fcd																			
Beam width (meter)	0,3 m	0,5 m	0,8 m	1 m	1,3 m																			
Beam width (Feet)	0,8 ft	1,7 ft	2,5 ft	3,4 ft	4,2 ft																			
Beam intensities																								
1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m					
15160lx	3790lx	1684lx	947lx	606lx	421lx	309lx	237lx	187lx	152lx	125lx	105lx	90lx	77lx	67lx	59lx	52lx	47lx	42lx	38lx					
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					
1408,4fcd	352,1fcd	156,5fcd	88fcd	56,3fcd	39,1fcd	28,7fcd	22fcd	17,4fcd	14,1fcd	11,6fcd	9,8fcd	8,3fcd	7,2fcd	6,3fcd	5,5fcd	4,9fcd	4,3fcd	3,9fcd	3,5fcd					
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°					
15,2K	14,5K	13,8K	13,0K	12,1K	10,7K	9,2K	7,8K	6,6K	5,5K	4,4K	3,3K	2,7K	2,2K	1,7K	1,3K	1,0K	0,8K	0,6K	0,5K					
100%	96%	91%	86%	80%	70%	61%	52%	44%	36%	29%	22%	18%	14%	11%	8%	7%	6%	4%	3%					
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°					
15,2K	14,9K	14,2K	13,4K	12,3K	10,9K	9,5K	8,1K	6,8K	5,6K	4,5K	3,5K	2,8K	2,2K	1,7K	1,3K	1,0K	0,8K	0,6K	0,5K					
100%	98%	93%	88%	81%	72%	63%	53%	45%	37%	30%	23%	18%	15%	11%	9%	7%	5%	4%	3%					
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°					
15,2K	14,5K	13,8K	13,0K	12,1K	10,7K	9,2K	7,8K	6,6K	5,5K	4,4K	3,3K	2,7K	2,2K	1,7K	1,3K	1,0K	0,8K	0,6K	0,5K					
100%	96%	91%	86%	80%	70%	61%	52%	44%	36%	29%	22%	18%	14%	11%	8%	7%	6%	4%	3%					
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°					
15,2K	14,9K	14,2K	13,4K	12,3K	10,9K	9,5K	8,1K	6,8K	5,6K	4,5K	3,5K	2,8K	2,2K	1,7K	1,3K	1,0K	0,8K	0,6K	0,5K					
100%	98%	93%	88%	81%	72%	63%	53%	45%	37%	30%	23%	18%	15%	11%	9%	7%	5%	4%	3%					
Beam angle 50%					Field angle 10%					Cutoff angle 2,5%					Intensity ratio in 120° cone					Intensity ratio in 90° cone				
14,6°					28,8°					40,5°					98,9%					97,9%				



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

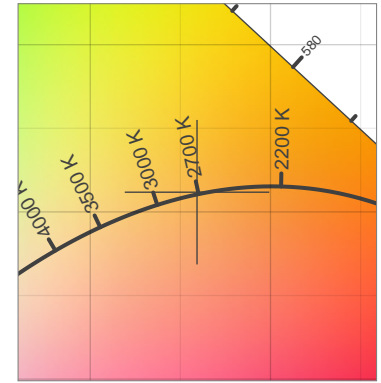
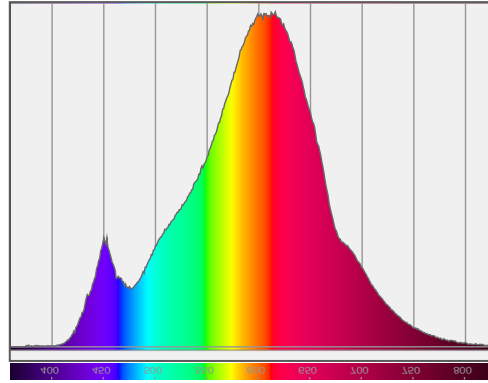
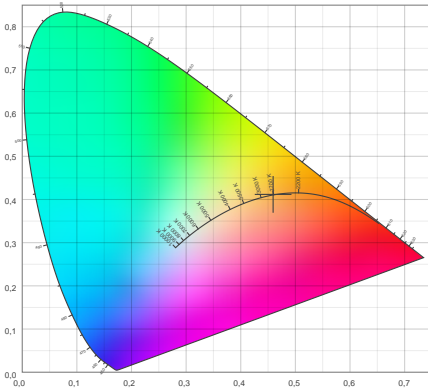
2017 CLS-LED BV. All rights reserved. Information subject to change without notice, CLS-LED BV and all affiliated companies disclaim liability for injury, damage direct or indirect loss, consequential or economic loss or any other loss occasioned by the use of, inability to use or reliance on the information 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-2700K-CRI80-DEG12

Color details



CIE 1931

x: 0,459



Spectra

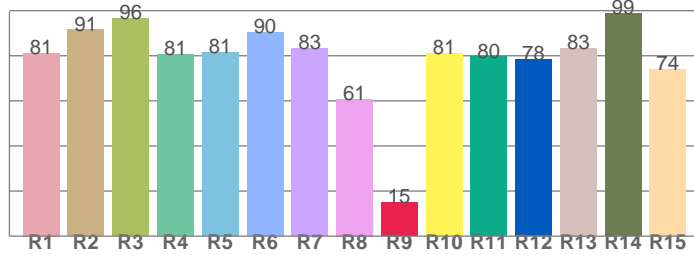
CIE 1931 ZOOM

2721 K

y: 0,412

Δuv : 0,0005

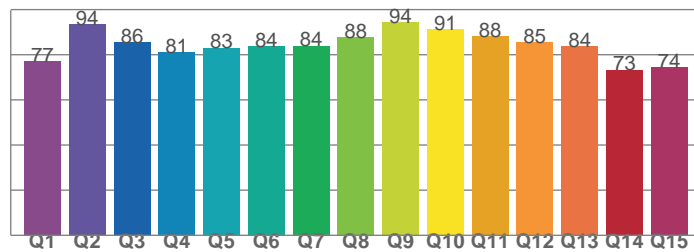
CRI: **83,2** (R1-R8)



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

R1	R2	R3	R4	R5	R6	R7	R8
81,2	91,5	96,5	80,7	81,4	90,3	83,3	60,9
R9	R10	R11	R12	R13	R14	R15	
15,0	81,1	79,5	78,3	83,4	98,7	74,1	

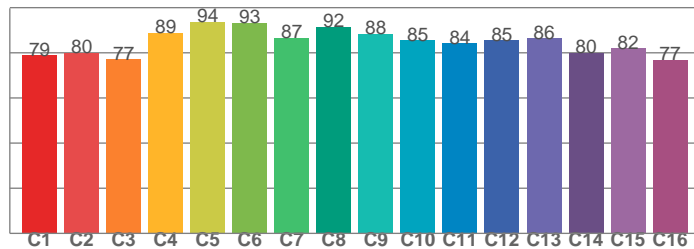
CQS: **83,2**



CQS values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
77,2	93,6	85,6	81,1	83,1	83,9	84,0	87,7
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
94,4	91,4	88,2	85,5	83,9	73,3	74,4	

TM30: **84,7**



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

C1	C2	C3	C4	C5	C6	C7	C8
78,8	79,9	77,1	88,8	93,6	93,4	86,6	91,5
C9	C10	C11	C12	C13	C14	C15	
88,4	85,4	84,1	85,5	86,3	79,8	82,0	

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	Δuv
2721 K	83,2	15,0	84,7	95,7	83,2	0,459	0,412	0,262	0,352	0,0005



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-2700K-CRI80-DEG12

TM30 details

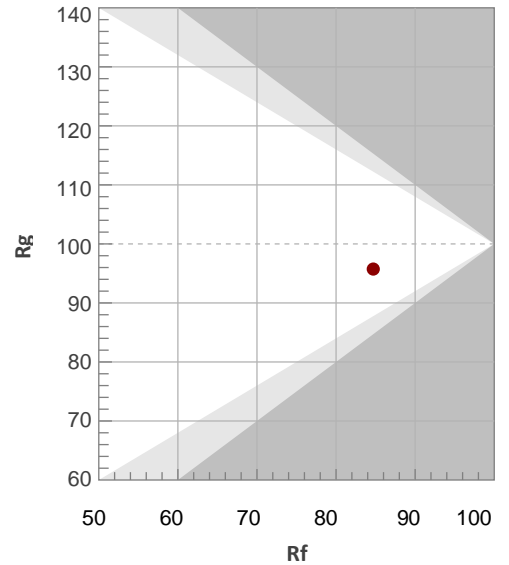
Rf 84,7

Fidelity index Rf

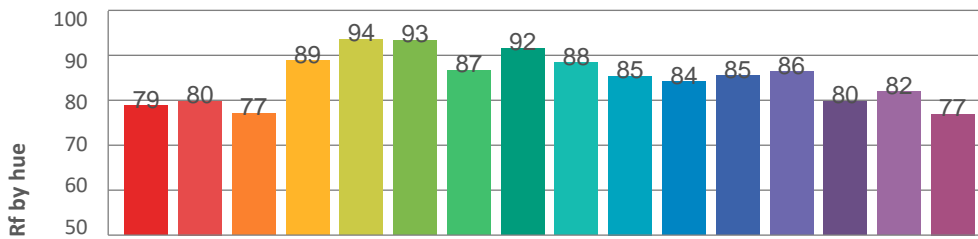
Rg 95,7

Gamut index Rg

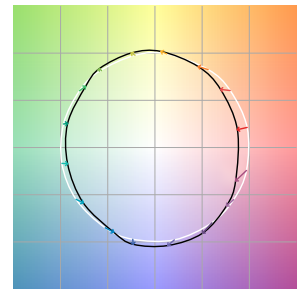
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	79	-11%	0%
2	80	-8%	7%
3	77	-3%	10%
4	89	1%	6%
5	94	3%	4%
6	93	2%	-2%
7	87	-3%	-7%
8	92	-4%	-1%
9	88	-6%	2%
10	85	-4%	7%
11	84	-1%	10%
12	85	5%	1%
13	86	5%	-8%
14	80	4%	-14%
15	82	-3%	-10%
16	77	-9%	-13%



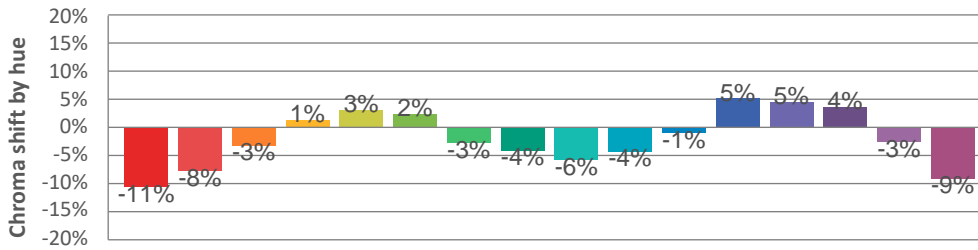
Hue binH



Color vector graphics



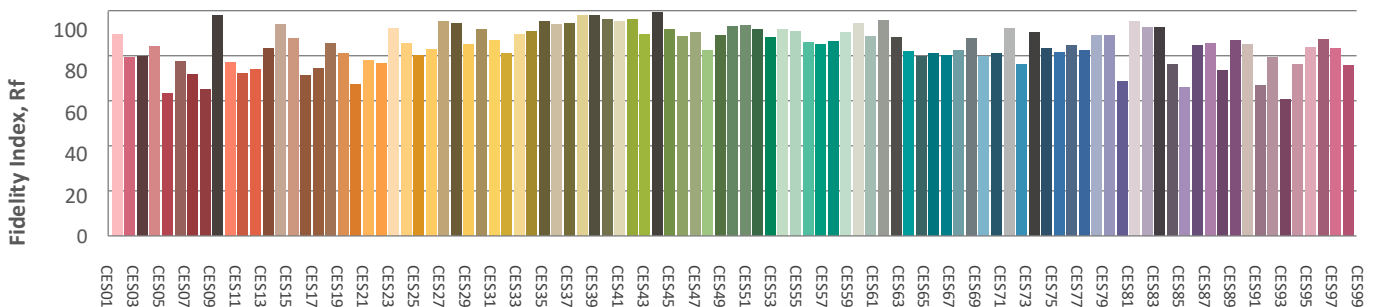
Hue bin



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

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

Variation of the observer position for the luminaire distance S

S = 1,0H	+0,7 / -0,4	+0,6 / -0,5
S = 1,5H	+1,4 / -0,9	+1,4 / -0,7
S = 2,0H	+2,4 / -1,3	+2,4 / -1,3
Standard table	BK04	BK04
Correction summand	-9,6	-9,8

Corrected glare indices referring to 1351lm total luminous flux

