

LM-79

Test Report

LM79_ULTIMA_4000K_CRI80_54DEG

General Discription

Item number	U-X-X-X-03-4
Date and time	17-2-2017 14:46:06
CCT (Kelvin)	3799 K
Beam angle	57°
Luminous flux	1804 lm
Efficiency	99 lm/watt
Weighted energy	18,1 kWh/1000h
Power factor	0,9
CRI (RA)	83,8
Fidelity index Rf	Rf 84,6
Gammut index Rg	Rg 96,9



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

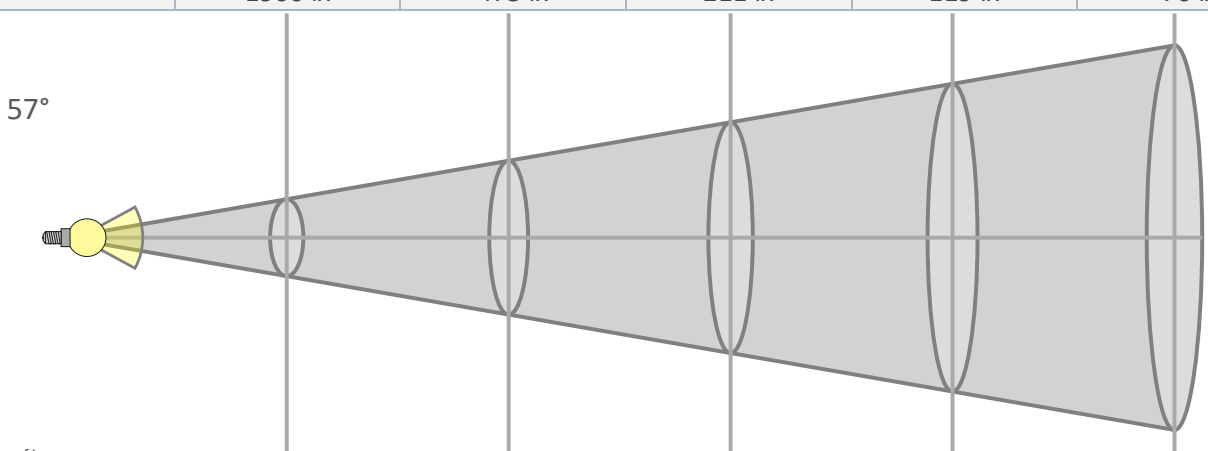
2017 CLS-LED BV. All rights reserved. Information subject to change without notice, CLS-LED BV and all affiliated companies disclaim liability for injury, damage direct or indirect loss, consequential or economic loss or any other loss occasioned by the use of, inability to use or reliance on the information 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_ULTIMA_4000K_CRI80_54DEG

Beam details	1m	2m	3m	4m	5m
Lux*	1900 lx	475 lx	211 lx	119 lx	76 lx



57°

*measured at center of beam

Footcandles*	176,6 fcd	44,1 fcd	19,6 fcd	11,0 fcd	7,1 fcd
Beam width (meter)	1,1 m	2,2 m	3,3 m	4,3 m	5,4 m
Beam width (Feet)	3,6 ft	7,1 ft	10,7 ft	14,3 ft	17,8 ft

Beam intensities																			
1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
1900lx	475lx	211lx	119lx	76lx	53lx	39lx	30lx	23lx	19lx	16lx	13lx	11lx	10lx	8lx	7lx	7lx	6lx	5lx	5lx
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
176,6fcd	44,1fcd	19,6fcd	11fcd	7,1fcd	4,9fcd	3,6fcd	2,8fcd	2,2fcd	1,8fcd	1,5fcd	1,2fcd	1fcd	0,9fcd	0,8fcd	0,7fcd	0,6fcd	0,5fcd	0,5fcd	0,4fcd

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°
1900	1907	1914	1916	1915	1909	1868	1826	1752	1660	1559	1427	1294	1149	1000	854	714	574	468	367
100%	100%	101%	101%	101%	100%	98%	96%	92%	87%	82%	75%	68%	60%	53%	45%	38%	30%	25%	19%

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°
1900	1900	1907	1915	1918	1901	1882	1824	1755	1668	1547	1426	1286	1141	994	849	704	579	459	360
100%	100%	100%	101%	101%	100%	99%	96%	92%	88%	81%	75%	68%	60%	52%	45%	37%	30%	24%	19%

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°
1900	1907	1914	1916	1915	1909	1868	1826	1752	1660	1559	1427	1294	1149	1000	854	714	574	468	367
100%	100%	101%	101%	101%	100%	98%	96%	92%	87%	82%	75%	68%	60%	53%	45%	38%	30%	25%	19%

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°
1900	1900	1907	1915	1918	1901	1882	1824	1755	1668	1547	1426	1286	1141	994	849	704	579	459	360
100%	100%	100%	101%	101%	100%	99%	96%	92%	88%	81%	75%	68%	60%	52%	45%	37%	30%	24%	19%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
57°	85,8°	{C_ANG}°	94,4%	90,2%



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

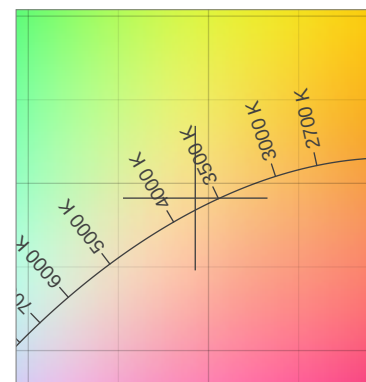
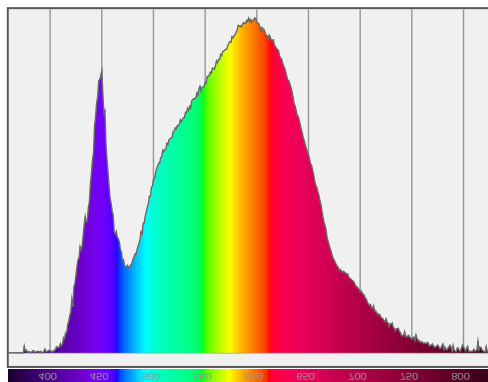
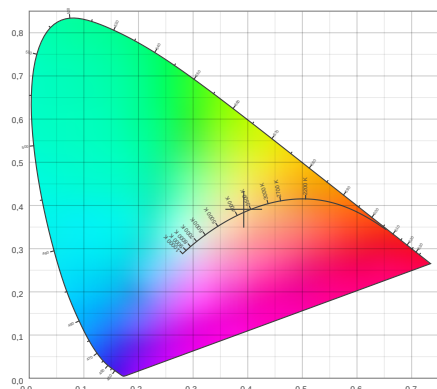
2017 CLS-LED BV. All rights reserved. Information subject to change without notice, CLS-LED BV and all affiliated companies disclaim liability for injury, damage direct or indirect loss, consequential or economic loss or any other loss occasioned by the use of, inability to use or reliance on the information 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_ULTIMA_4000K_CRI80_54DEG

Color details



CIE 1931

x: 0,393

3799 K

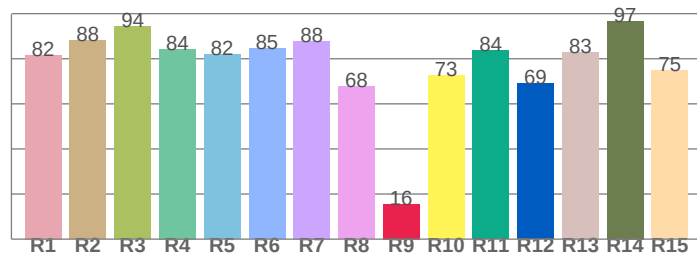
y: 0,391

Spectra

CIE 1931 ZOOM

Δuv : 0,0032

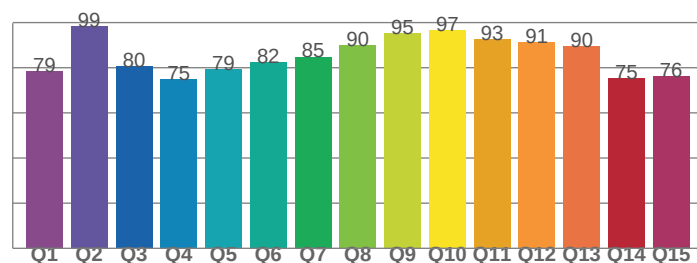
CRI: **83,8** (R1-R8)



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

R1	R2	R3	R4	R5	R6	R7	R8
81,6	88,1	94,3	84,3	81,9	84,7	87,9	67,7
R9	R10	R11	R12	R13	R14	R15	
15,6	72,7	83,6	69,0	82,8	96,7	74,7	

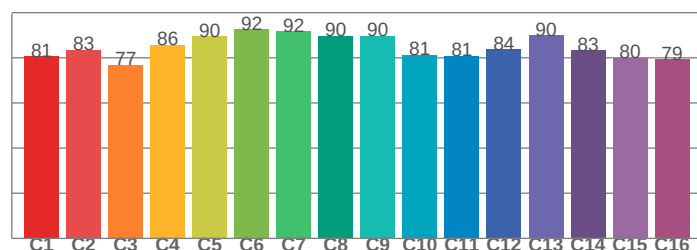
CQS: **83,7**



CQS values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
78,5	98,6	80,5	74,9	79,2	82,4	84,9	89,8
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
95,2	96,5	92,6	91,3	89,6	75,3	76,1	

TM30: **84,6**



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

C1	C2	C3	C4	C5	C6	C7	C8
80,6	83,3	76,9	85,8	89,5	92,5	91,6	89,6
C9	C10	C11	C12	C13	C14	C15	
89,6	81,3	80,7	83,7	89,9	83,3	80,1	

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
3799 K	83,8	15,6	84,6	96,9	83,7	0,393	0,391	0,227	0,340	0,0032



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

Test Report

LM79 ULTIMA 4000K CRI80 54DEG

TM30 details

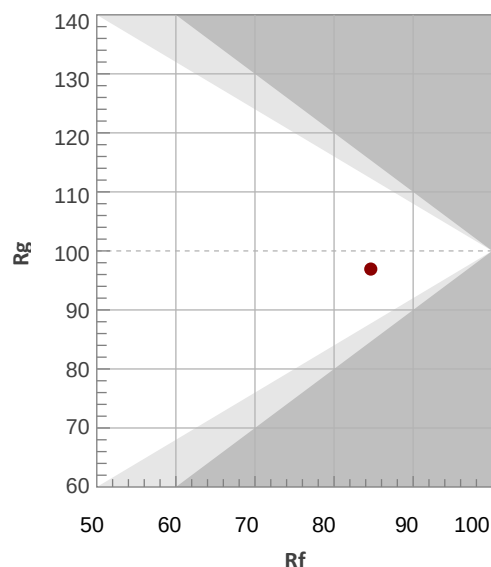
Rf 84,6

Fidelity index R_f

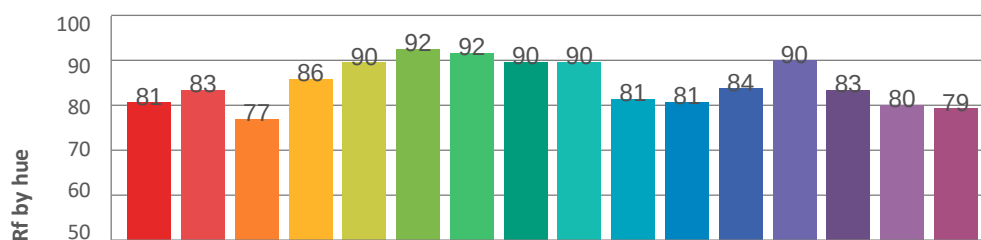
Rg 96,9

Gammut index Rg

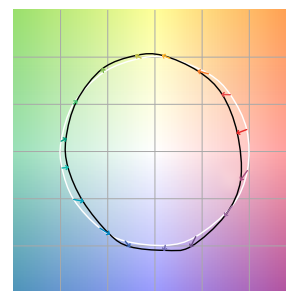
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	81	-11%	-2%
2	83	-7%	5%
3	77	-4%	11%
4	86	1%	8%
5	90	4%	5%
6	92	4%	-1%
7	92	-1%	-5%
8	90	-4%	-4%
9	90	-6%	1%
10	81	-7%	7%
11	81	0%	12%
12	84	5%	6%
13	90	5%	-2%
14	83	6%	-10%
15	80	-1%	-13%
16	79	-5%	-11%



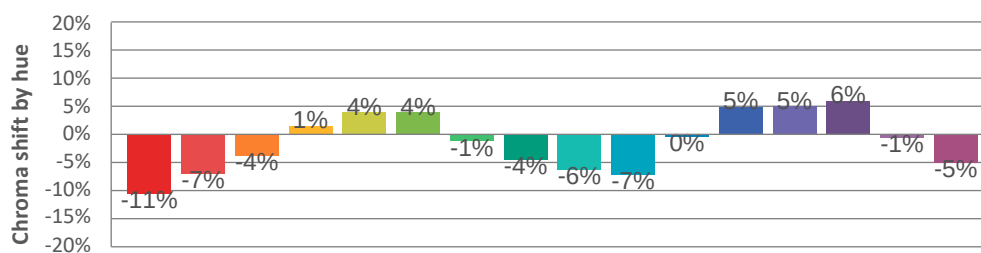
Hue binH



Color vector graphics



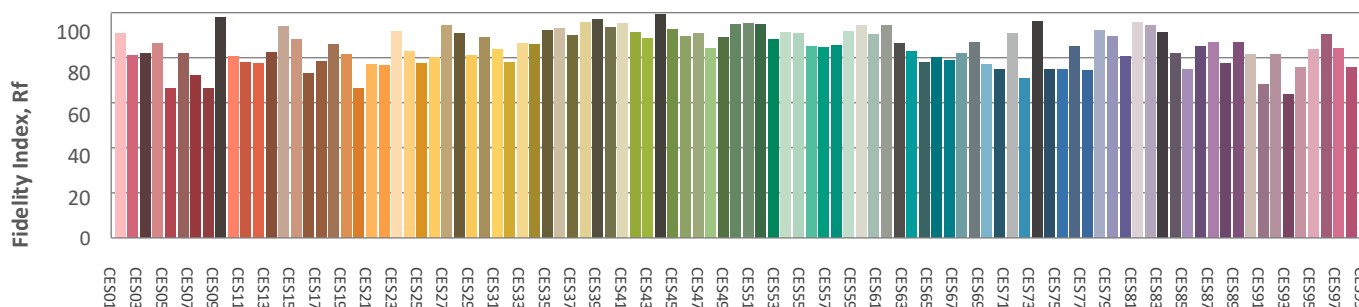
Hue bin



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	16,8	17,5	17,1	17,8	18,0	16,7	17,5	17,0	17,7	18,0
	3H	16,7	17,3	17,0	17,6	17,9	16,6	17,3	17,0	17,6	17,9
	4H	16,6	17,3	17,0	17,6	17,9	16,6	17,2	16,9	17,5	17,8
	6H	16,7	17,3	17,1	17,6	18,0	16,7	17,2	17,0	17,6	17,9
	8H	16,9	17,4	17,3	17,8	18,1	16,9	17,4	17,3	17,8	18,1
	12H	17,3	17,8	17,7	18,1	18,5	17,4	17,9	17,8	18,2	18,6
4H	2H	16,6	17,2	17,0	17,5	17,9	16,5	17,2	16,9	17,5	17,8
	3H	16,5	17,0	16,9	17,4	17,8	16,4	17,0	16,8	17,3	17,7
	4H	16,5	17,0	16,9	17,3	17,8	16,4	16,9	16,9	17,3	17,7
	6H	16,6	17,0	17,1	17,5	17,9	16,6	17,0	17,1	17,4	17,9
	8H	17,0	17,3	17,5	17,8	18,2	17,0	17,4	17,5	17,8	18,3
	12H	17,7	18,0	18,2	18,4	18,9	17,9	18,2	18,4	18,6	19,1
8H	4H	16,4	16,8	16,9	17,2	17,7	16,4	16,7	16,8	17,2	17,6
	6H	16,7	17,0	17,2	17,5	18,0	16,7	17,0	17,2	17,5	18,0
	8H	17,3	17,5	17,8	18,0	18,6	17,3	17,6	17,9	18,1	18,6
	12H	18,3	18,5	18,9	19,1	19,6	18,6	18,8	19,1	19,3	19,9
12H	4H	16,4	16,7	16,9	17,2	17,7	16,4	16,7	16,9	17,1	17,6
	6H	16,8	17,0	17,3	17,5	18,1	16,8	17,0	17,3	17,5	18,1
	8H	17,5	17,7	18,0	18,2	18,8	17,6	17,8	18,1	18,3	18,9
Variation of the observer position for the luminaire distance S											
S = 1,0H		+2,6 / -2,1					+2,5 / -1,9				
S = 1,5H		+5,0 / -2,8					+4,8 / -2,6				
S = 2,0H		+7,0 / -3,6					+6,8 / -3,4				
Standard table		---					---				
Correction summand		---					---				
Corrected glare indices referring to 1804lm total luminous flux											

