

# LM-79

## Test Report

LM79\_ULTIMA\_2700K\_CRI80\_54DEG

### General Discription

Item number	U-X-X-X-01-4
Date and time	17-2-2017 15:40:23
CCT (Kelvin)	2701 K
Beam angle	55,9°
Luminous flux	1476 lm
Efficiency	81 lm/watt
Weighted energy	18,2 kWh/1000h
Power factor	0,9
CRI (RA)	81,5
Fidelity index Rf	Rf 79,1
Gammut index Rg	Rg 99,5



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Beam details	1m	2m	3m	4m	5m														
Lux*	1598 lx	400 lx	178 lx	100 lx	64 lx														
*measured at center of beam																			
Footcandles*	148,5 fcd	37,1 fcd	16,5 fcd	9,3 fcd	5,9 fcd														
Beam width (meter)	1,1 m	2,1 m	3,2 m	4,2 m	5,3 m														
Beam width (Feet)	3,5 ft	7 ft	10,4 ft	13,9 ft	17,4 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
1598lx	400lx	178lx	100lx	64lx	44lx	33lx	25lx	20lx	16lx	13lx	11lx	9lx	8lx	7lx	6lx	6lx	5lx	4lx	4lx
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
148,5fcd	37,1fcd	16,5fcd	9,3fcd	5,9fcd	4,1fcd	3fcd	2,3fcd	1,8fcd	1,5fcd	1,2fcd	1fcd	0,9fcd	0,8fcd	0,7fcd	0,6fcd	0,5fcd	0,5fcd	0,4fcd	0,4fcd
<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°
1598	1602	1607	1609	1604	1593	1556	1512	1446	1360	1270	1157	1041	922	801	679	571	465	375	297
100%	100%	101%	101%	100%	100%	97%	95%	90%	85%	79%	72%	65%	58%	50%	42%	36%	29%	23%	19%
<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°
1598	1603	1608	1610	1604	1596	1557	1515	1449	1365	1277	1162	1046	926	804	680	570	460	372	293
100%	100%	101%	101%	100%	100%	97%	95%	91%	85%	80%	73%	65%	58%	50%	43%	36%	29%	23%	18%
<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°
1598	1602	1607	1609	1604	1593	1556	1512	1446	1360	1270	1157	1041	922	801	679	571	465	375	297
100%	100%	101%	101%	100%	100%	97%	95%	90%	85%	79%	72%	65%	58%	50%	42%	36%	29%	23%	19%
<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°
1598	1603	1608	1610	1604	1596	1557	1515	1449	1365	1277	1162	1046	926	804	680	570	460	372	293
100%	100%	101%	101%	100%	100%	97%	95%	91%	85%	80%	73%	65%	58%	50%	43%	36%	29%	23%	18%
Beam angle 50%		Field angle 10%				Cutoff angle 2,5%				Intensity ratio in 120° cone				Intensity ratio in 90° cone					
55,9°		85,4°				{C_ANG}°				94,7%				90,5%					



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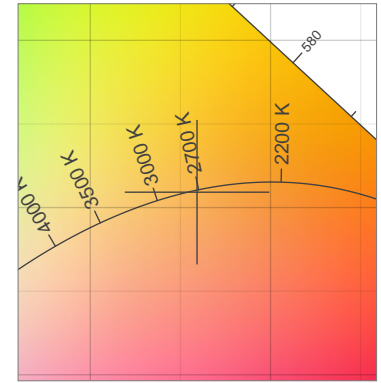
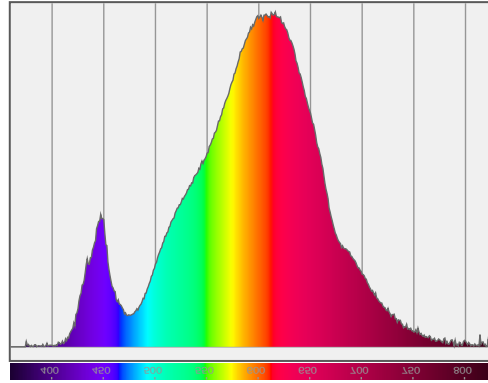
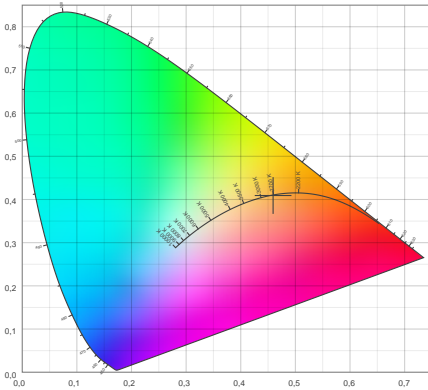
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### Color details



CIE 1931

x: 0,459



Spectra

CIE 1931 ZOOM

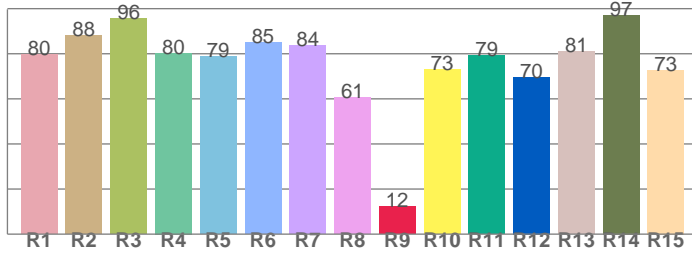
2701 K

y: 0,409

Δuv: 0,0005

CRI: 81,5 (R1-R8)

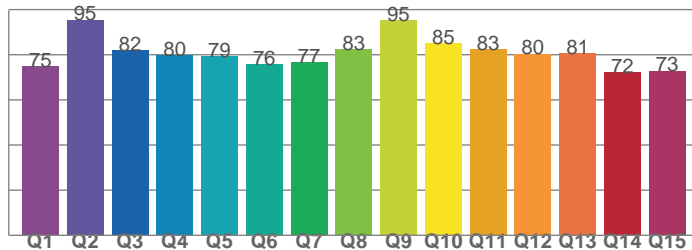
CRI values, R1-R8 are used to calculate final CRI value



R1	R2	R3	R4	R5	R6	R7	R8
79,6	88,2	95,7	80,3	78,9	85,1	83,6	60,7
R9	R10	R11	R12	R13	R14	R15	
12,3	73,0	79,1	69,7	81,1	97,2	72,8	

CQS: 79,8

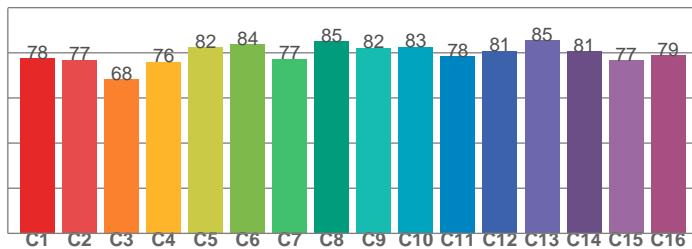
CQS values



Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
74,7	95,5	82,1	79,8	79,2	75,9	76,8	82,6
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
95,5	85,1	82,5	80,4	80,7	72,4	72,9	

TM30: 79,1

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



C1	C2	C3	C4	C5	C6	C7	C8
77,5	76,7	68,2	76,0	82,3	83,7	77,1	85,1
C9	C10	C11	C12	C13	C14	C15	
82,2	82,6	78,3	80,7	85,4	80,7	76,6	

### 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
2701 K	81,5	12,3	79,1	99,5	79,8	0,459	0,409	0,263	0,351	0,0005



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### TM30 details

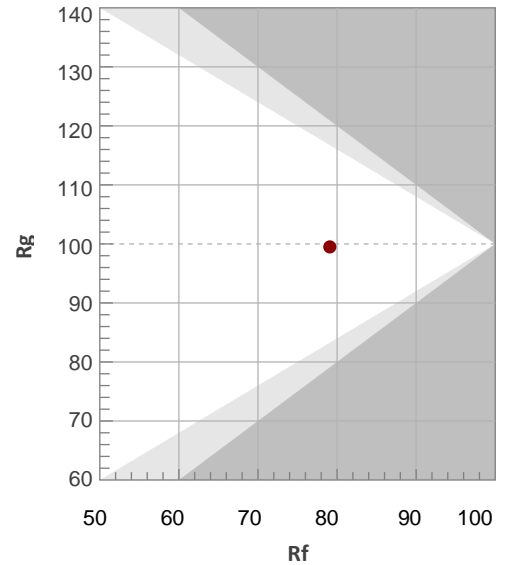
Rf 79,1

Fidelity index Rf

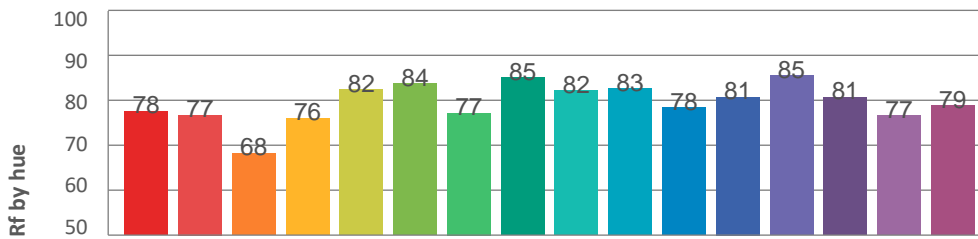
Rg 99,5

Gamut index Rg

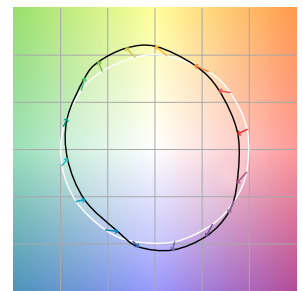
Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	78	-11%	-3%
2	77	-9%	8%
3	68	-2%	15%
4	76	8%	13%
5	82	11%	7%
6	84	10%	-2%
7	77	4%	-12%
8	85	-2%	-8%
9	82	-7%	-6%
10	83	-8%	3%
11	78	-6%	11%
12	81	5%	6%
13	85	8%	-4%
14	81	7%	-12%
15	77	2%	-13%
16	79	-8%	-13%



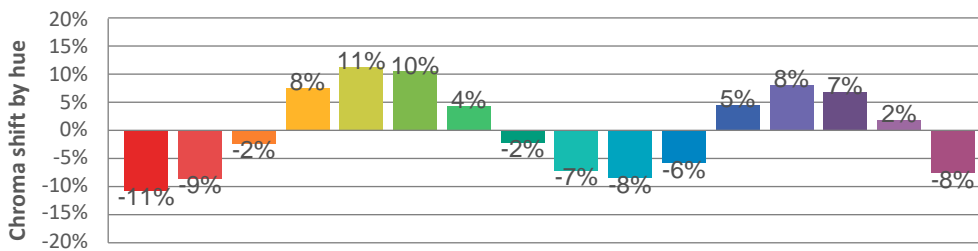
### Hue binH



### Color vector graphics



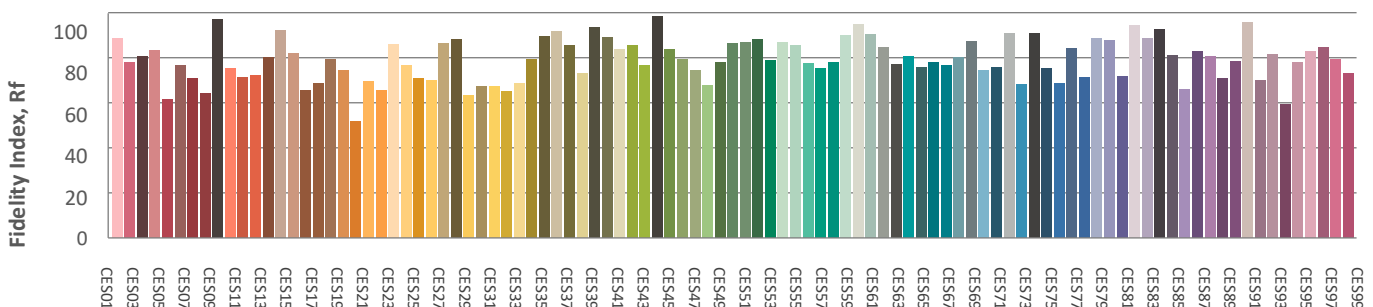
### Hue bin



### 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	16,0	16,8	16,3	17,0	17,3	16,0	16,7	16,3	17,0	17,2
	3H	15,9	16,6	16,3	16,9	17,2	15,9	16,5	16,2	16,8	17,1
	4H	15,9	16,5	16,2	16,8	17,1	15,8	16,4	16,2	16,8	17,1
	6H	16,0	16,6	16,4	16,9	17,3	15,9	16,5	16,3	16,8	17,2
	8H	16,2	16,7	16,6	17,1	17,4	16,1	16,6	16,5	17,0	17,3
	12H	16,5	17,0	16,9	17,4	17,8	16,4	16,9	16,8	17,3	17,7
4H	2H	15,8	16,5	16,2	16,8	17,1	15,8	16,4	16,2	16,7	17,1
	3H	15,7	16,3	16,2	16,6	17,0	15,7	16,2	16,1	16,6	17,0
	4H	15,7	16,2	16,2	16,6	17,0	15,7	16,1	16,1	16,5	16,9
	6H	16,0	16,4	16,5	16,8	17,3	15,9	16,3	16,4	16,7	17,2
	8H	16,3	16,7	16,8	17,1	17,6	16,2	16,6	16,7	17,0	17,5
	12H	16,9	17,2	17,4	17,7	18,2	16,8	17,1	17,3	17,6	18,1
8H	4H	15,7	16,0	16,2	16,5	16,9	15,6	16,0	16,1	16,4	16,9
	6H	16,1	16,4	16,6	16,9	17,4	16,0	16,3	16,5	16,8	17,3
	8H	16,7	16,9	17,2	17,4	17,9	16,5	16,8	17,1	17,3	17,8
	12H	17,5	17,7	18,1	18,3	18,8	17,4	17,6	18,0	18,1	18,7
12H	4H	15,7	16,0	16,2	16,4	16,9	15,6	15,9	16,1	16,4	16,9
	6H	16,2	16,4	16,7	16,9	17,5	16,1	16,3	16,6	16,8	17,4
	8H	16,8	17,0	17,4	17,6	18,1	16,7	16,9	17,3	17,4	18,0
Variation of the observer position for the luminaire distance S											
S = 1,0H	+2,6 / -2,1					+2,7 / -2,2					
S = 1,5H	+4,9 / -2,8					+5,0 / -2,8					
S = 2,0H	+6,9 / -3,4					+7,0 / -3,5					
Standard table	---					---					
Correction summand	---					---					
Corrected glare indices referring to 1476lm total luminous flux											



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