

LM-79

Test Report

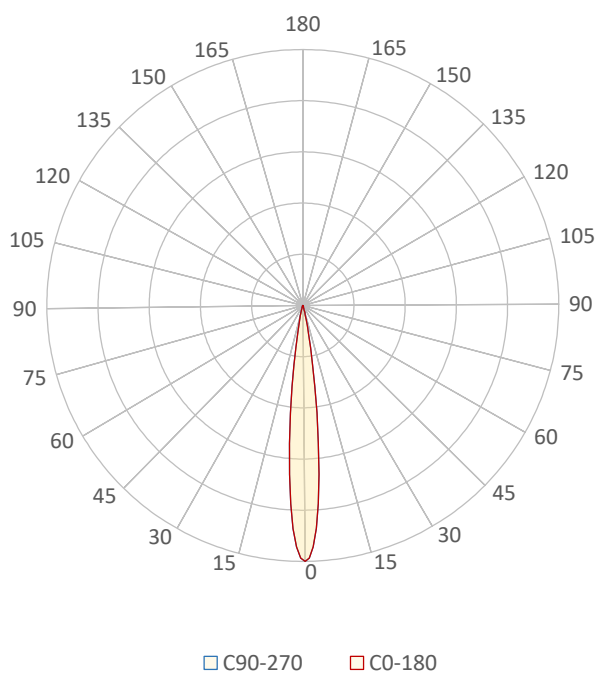
LM79-TOPAZ-EXPO-3000K-CRI90-NARROW

General Discription

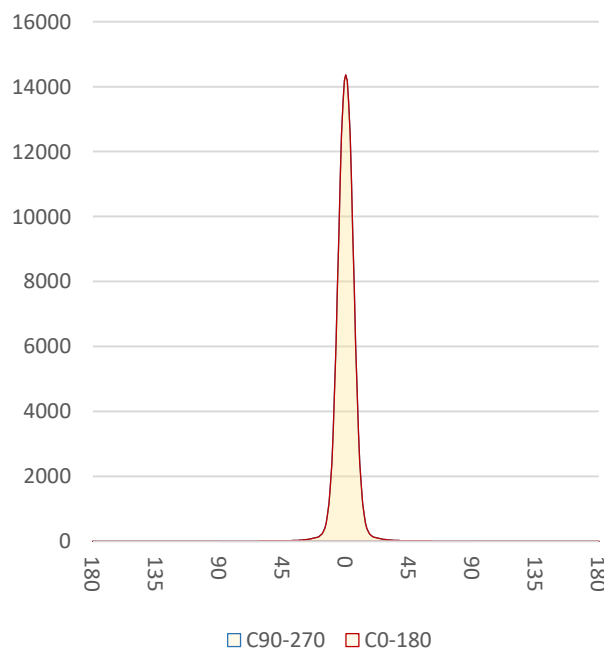
Item number	T-E-XLX-1B-3090-N
Date and time	16-2-2024 11:04:47
CCT (Kelvin)	3002 K
Beam angle	12,7°
Luminous flux	886 lm
Efficiency	82 lm/watt
Weighted energy	10,8 kWh/1000h
Power factor	0,99
CRI (RA)	93,6
Fidelity index Rf	Rf 91,1
Gammut index Rg	Rg 103,7
Peak	14363 cd



Polar diagram



Cartesian diagram



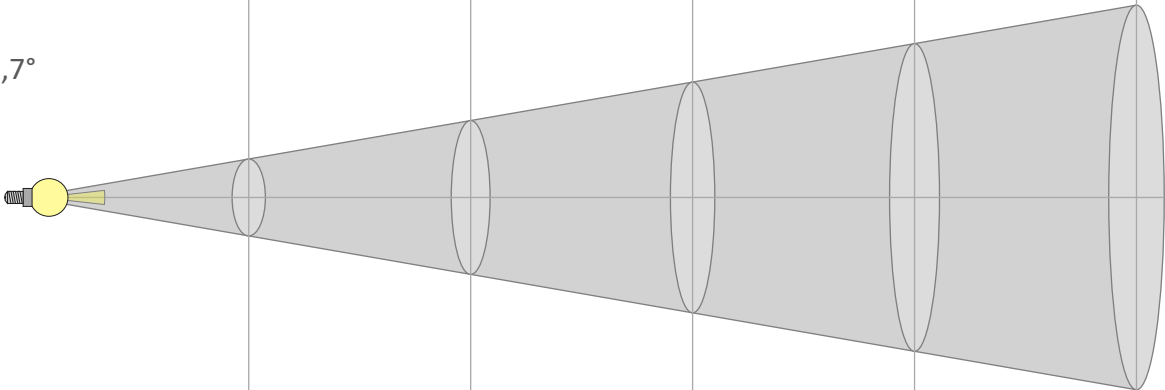
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Beam details				1m		2m		3m		4m		5m							
Lux*				14363 lx		3591 lx		1596 lx		898 lx		575 lx							
12,7° 																			
*measured at center of beam																			
Footcandles*				1334,4 fcd		333,6 fcd		148,3 fcd		83,4 fcd		53,4 fcd							
Beam width (meter)				0,2 m		0,4 m		0,7 m		0,9 m		1,1 m							
Beam width (Feet)				0,7 ft		1,5 ft		2,2 ft		2,9 ft		3,6 ft							
Beam intensities																			
1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
14363lx	3591lx	1596lx	898lx	575lx	399lx	293lx	224lx	177lx	144lx	119lx	100lx	85lx	73lx	64lx	56lx	50lx	44lx	40lx	36lx
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
1334,4fcd	333,6fcd	148,3fcd	83,4fcd	53,4fcd	37,1fcd	27,2fcd	20,8fcd	16,5fcd	13,3fcd	11fcd	9,3fcd	7,9fcd	6,8fcd	5,9fcd	5,2fcd	4,6fcd	4,1fcd	3,7fcd	3,3fcd
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°
14,4K	14,2K	13,6K	12,5K	11,2K	9,5K	7,8K	6,1K	4,6K	3,4K	2,4K	1,7K	1,2K	0,8K	0,6K	0,4K	0,3K	0,2K	0,2K	0,2K
100%	99%	94%	87%	78%	66%	54%	42%	32%	23%	17%	12%	8%	6%	4%	3%	2%	2%	1%	1%
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°
14,4K	14,2K	13,6K	12,5K	11,2K	9,5K	7,8K	6,1K	4,6K	3,4K	2,4K	1,7K	1,2K	0,8K	0,6K	0,4K	0,3K	0,2K	0,2K	0,2K
100%	99%	94%	87%	78%	66%	54%	42%	32%	23%	17%	12%	8%	6%	4%	3%	2%	2%	1%	1%
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°
14,4K	14,2K	13,6K	12,5K	11,2K	9,5K	7,8K	6,1K	4,6K	3,4K	2,4K	1,7K	1,2K	0,8K	0,6K	0,4K	0,3K	0,2K	0,2K	0,2K
100%	99%	94%	87%	78%	66%	54%	42%	32%	23%	17%	12%	8%	6%	4%	3%	2%	2%	1%	1%
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°
14,4K	14,2K	13,6K	12,5K	11,2K	9,5K	7,8K	6,1K	4,6K	3,4K	2,4K	1,7K	1,2K	0,8K	0,6K	0,4K	0,3K	0,2K	0,2K	0,2K
100%	99%	94%	87%	78%	66%	54%	42%	32%	23%	17%	12%	8%	6%	4%	3%	2%	2%	1%	1%
Beam angle 50%				Field angle 10%				Cutoff angle 2,5%				Intensity ratio in 120° cone				Intensity ratio in 90° cone			
12,7°				22,9°				30,7°				99,4%				98,4%			



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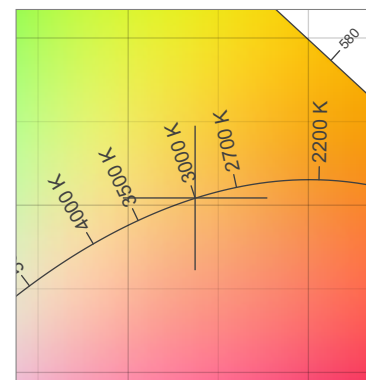
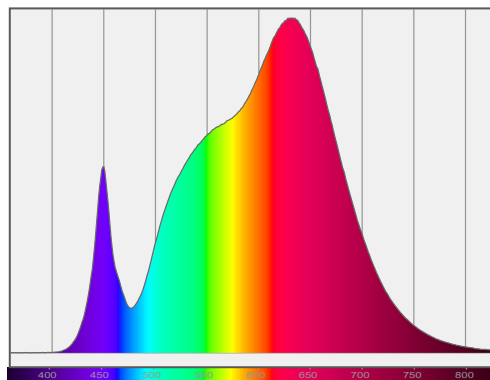
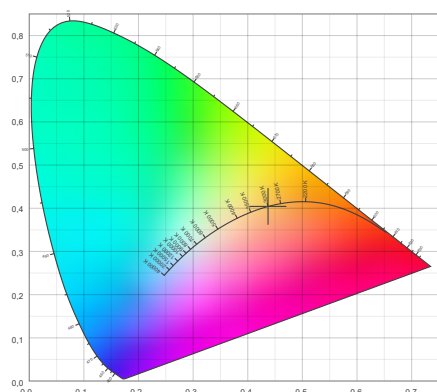
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Color details



CIE 1931

x: 0,437



Spectra

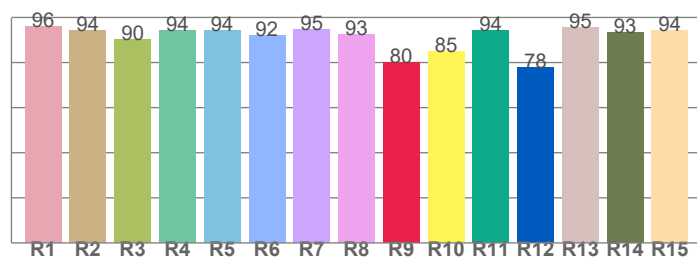
CIE 1931 ZOOM

3002 K

y: 0,404

 $\Delta uv: 0,0001$

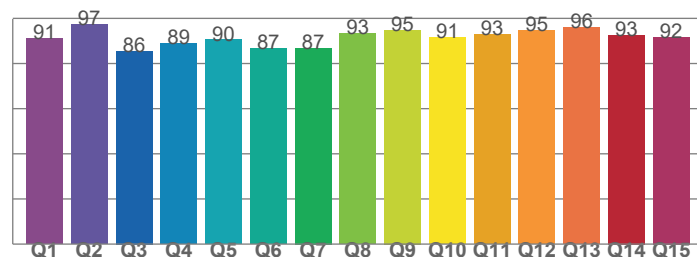
CRI: 93,6 (R1-R8)



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

R1	R2	R3	R4	R5	R6	R7	R8
96,2	94,4	90,1	94,3	94,4	91,9	94,8	92,6
R9	R10	R11	R12	R13	R14	R15	
80,1	84,9	94,2	77,7	95,4	93,4	94,4	

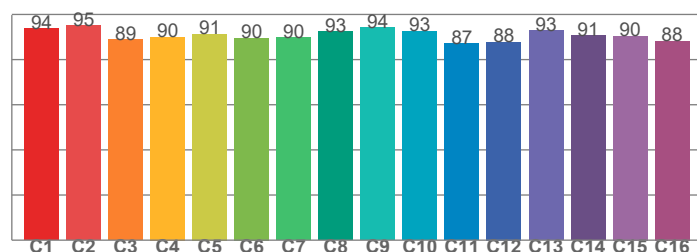
CQS: 90,8



CQS values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
91,0	97,2	85,5	88,8	90,5	86,8	86,9	93,4
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
94,8	91,4	93,0	94,7	95,9	92,6	91,7	

TM30: 91,1



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

C1	C2	C3	C4	C5	C6	C7	C8
93,8	95,1	88,9	90,0	91,3	89,6	89,7	92,5
C9	C10	C11	C12	C13	C14	C15	
94,1	92,6	87,1	87,8	92,8	90,5	90,4	

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
3002 K	93,6	80,1	91,1	103,7	90,8	0,437	0,404	0,251	0,348	0,0001



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TM30 details

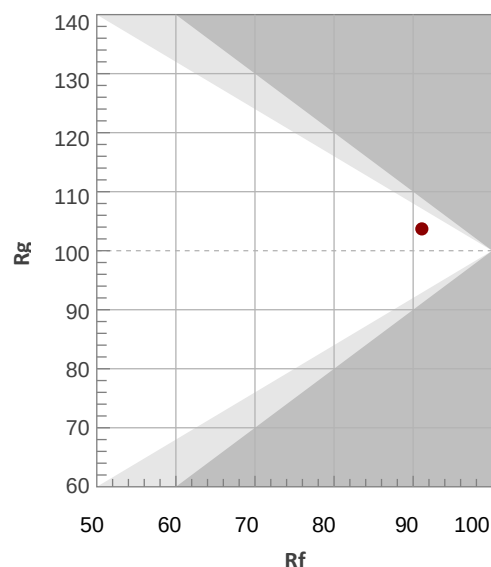
Rf 91,1

Fidelity index Rf

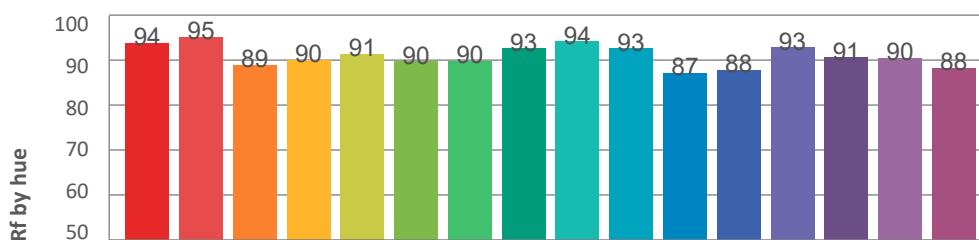
Rg 103,7

Gamut index Rg

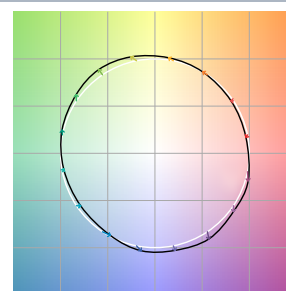
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	94	-2%	-2%
2	95	-2%	2%
3	89	0%	6%
4	90	2%	5%
5	91	5%	5%
6	90	7%	0%
7	90	4%	-5%
8	93	1%	-5%
9	94	-2%	-3%
10	93	-4%	3%
11	87	-1%	9%
12	88	4%	6%
13	93	5%	1%
14	91	7%	-3%
15	90	4%	-5%
16	88	3%	-9%



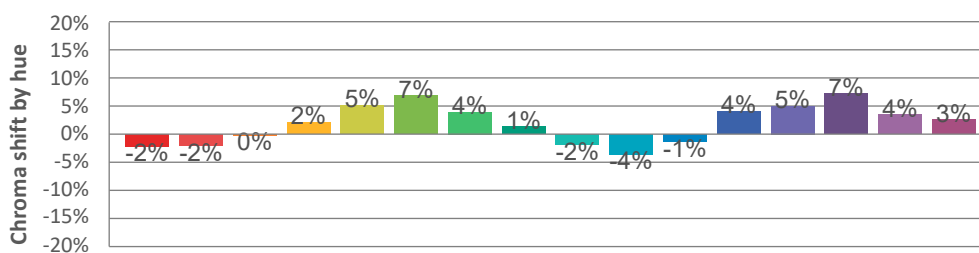
Hue binH



Color vector graphics



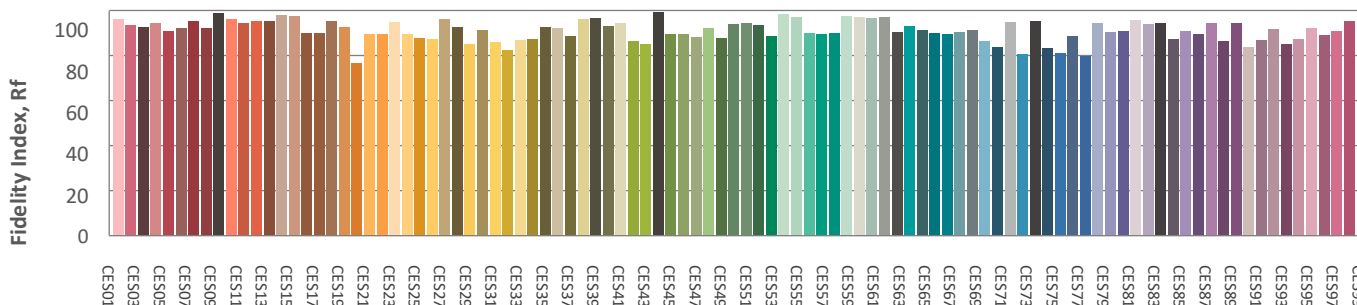
Hue bin



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	4,0	4,2	4,0	4,4	4,6	4,0	4,2	4,0	4,4	4,6
	3H	3,9	4,4	4,2	4,5	4,7	3,9	4,4	4,2	4,5	4,7
	4H	3,9	4,4	4,3	4,6	4,8	3,9	4,4	4,3	4,6	4,8
	6H	4,1	4,4	4,3	4,7	5,1	4,1	4,4	4,3	4,7	5,1
	8H	4,1	4,5	4,4	4,8	5,2	4,1	4,5	4,4	4,8	5,2
	12H	4,1	4,5	4,5	4,8	5,2	4,1	4,5	4,5	4,8	5,2
4H	2H	3,7	4,2	4,1	4,4	4,6	3,7	4,2	4,1	4,4	4,6
	3H	4,0	4,3	4,3	4,7	5,1	4,0	4,3	4,3	4,7	5,1
	4H	4,0	4,3	4,4	4,8	5,3	4,0	4,3	4,4	4,8	5,3
	6H	4,1	4,5	4,6	4,8	5,2	4,1	4,5	4,6	4,8	5,2
	8H	4,2	4,6	4,7	4,9	5,3	4,2	4,6	4,7	4,9	5,3
	12H	4,3	4,6	4,8	5,0	5,4	4,3	4,6	4,8	5,0	5,4
8H	4H	3,9	4,3	4,5	4,7	5,0	3,9	4,3	4,5	4,7	5,0
	6H	4,2	4,4	4,7	4,9	5,4	4,2	4,4	4,7	4,9	5,4
	8H	4,4	4,6	4,9	5,1	5,7	4,4	4,6	4,9	5,1	5,7
	12H	4,6	4,7	5,2	5,2	5,8	4,6	4,7	5,2	5,2	5,8
12H	4H	3,9	4,2	4,4	4,6	5,0	3,9	4,2	4,4	4,6	5,0
	6H	4,3	4,4	4,8	4,9	5,5	4,3	4,4	4,8	4,9	5,5
	8H	4,4	4,6	5,0	5,1	5,7	4,4	4,6	5,0	5,1	5,7
Variation of the observer position for the luminaire distance S											
S = 1.0H		2,2 / -2,0					2,2 / -2,0				
S = 1.5H		4,2 / -2,6					4,2 / -2,6				
S = 2.0H		5,9 / -3,3					5,9 / -3,3				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 886lm total luminous flux											