

LM-79

Test Report

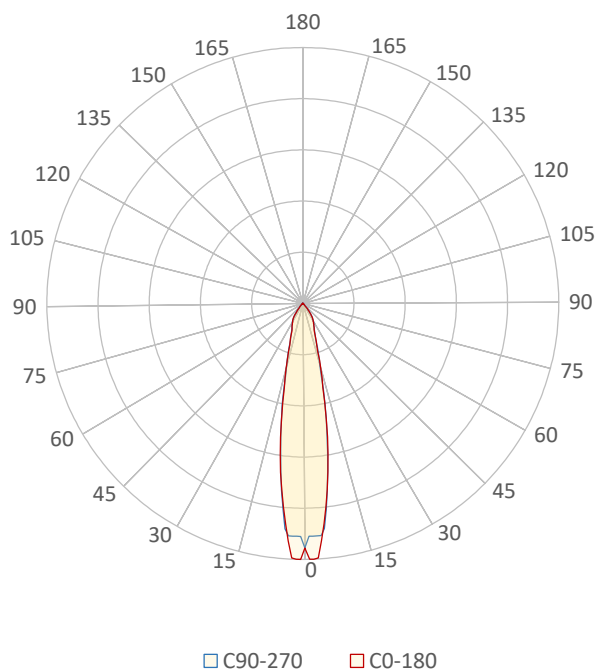
LM79-MIKA-4000K-CRI80-SPOT

General Discription

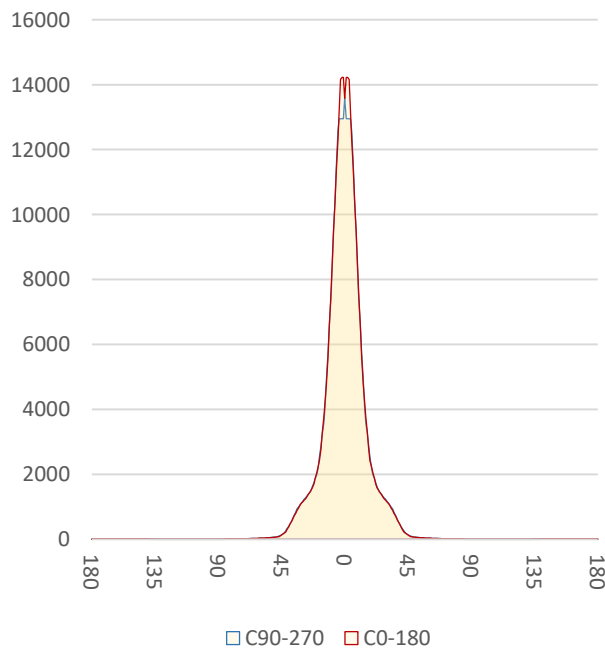
Item number	M-XXX-3-1-4080-1
Date and time	28-11-2016 09:25:03
CCT (Kelvin)	3921 K
Beam angle	22,2°
Luminous flux	3444 lm
Efficiency	121 lm/watt
Weighted energy	28,5 kWh/1000h
Power factor	0,95
CRI (RA)	82,4
Fidelity index Rf	Rf 82,5
Gammut index Rg	Rg 97,9
Peak	14224 cd



Polar diagram



Cartesian diagram



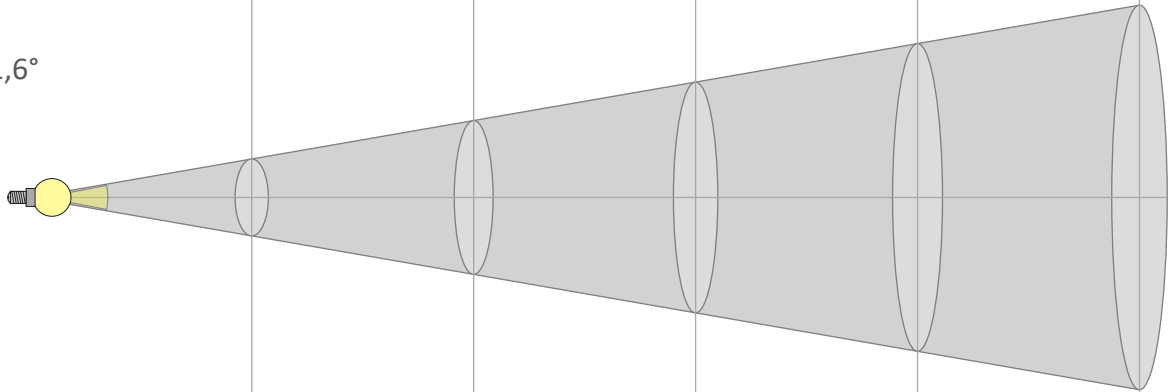
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Beam details			1m			2m			3m			4m			5m				
Lux*			13586 lx			3396 lx			1510 lx			849 lx			543 lx				
21,6° 																			
*measured at center of beam																			
Footcandles*			1262,2 fcd			315,5 fcd			140,2 fcd			78,9 fcd			50,5 fcd				
Beam width (meter)			0,4 m			0,8 m			1,1 m			1,5 m			1,9 m				
Beam width (Feet)			1,2 ft			2,5 ft			3,7 ft			5 ft			6,2 ft				
Beam intensities																			
1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
13586lx	3396lx	1510lx	849lx	543lx	377lx	277lx	212lx	168lx	136lx	112lx	94lx	80lx	69lx	60lx	53lx	47lx	42lx	38lx	34lx
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
1262,2fcd	315,5fcd	140,2fcd	78,9fcd	50,5fcd	35,1fcd	25,8fcd	19,7fcd	15,6fcd	12,6fcd	10,4fcd	8,8fcd	7,5fcd	6,4fcd	5,6fcd	4,9fcd	4,4fcd	3,9fcd	3,5fcd	3,2fcd
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°
13,6K	14,2K	13,2K	11,4K	9,5K	7,5K	5,6K	4,3K	3,3K	2,4K	2,1K	1,7K	1,5K	1,4K	1,3K	1,1K	1,0K	0,9K	0,7K	0,6K
100%	105%	97%	84%	70%	56%	41%	31%	24%	18%	15%	13%	11%	10%	9%	8%	8%	7%	5%	4%
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°
13,6K	12,9K	12,9K	11,5K	9,4K	7,4K	5,7K	4,1K	3,2K	2,5K	2,0K	1,7K	1,5K	1,4K	1,3K	1,2K	1,1K	0,9K	0,7K	0,5K
100%	95%	95%	85%	69%	54%	42%	30%	24%	19%	15%	13%	11%	10%	9%	9%	8%	7%	5%	4%
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°
13,6K	14,2K	13,2K	11,4K	9,5K	7,5K	5,6K	4,3K	3,3K	2,4K	2,1K	1,7K	1,5K	1,4K	1,3K	1,1K	1,0K	0,9K	0,7K	0,6K
100%	105%	97%	84%	70%	56%	41%	31%	24%	18%	15%	13%	11%	10%	9%	8%	8%	7%	5%	4%
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°
13,6K	12,9K	12,9K	11,5K	9,4K	7,4K	5,7K	4,1K	3,2K	2,5K	2,0K	1,7K	1,5K	1,4K	1,3K	1,2K	1,1K	0,9K	0,7K	0,5K
100%	95%	95%	85%	69%	54%	42%	30%	24%	19%	15%	13%	11%	10%	9%	9%	8%	7%	5%	4%
Beam angle 50%				Field angle 10%				Cutoff angle 2,5%				Intensity ratio in 120° cone				Intensity ratio in 90° cone			
21,6°				53,1°				81,5°				98,2%				96,0%			



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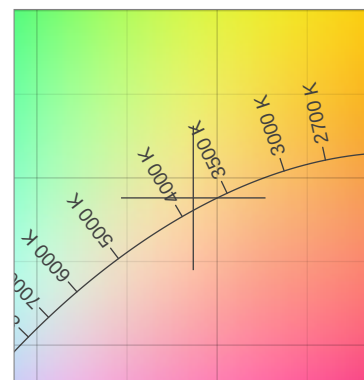
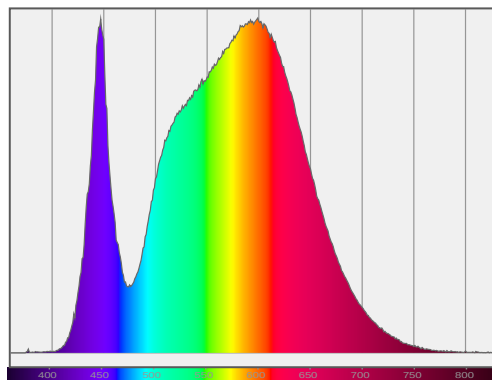
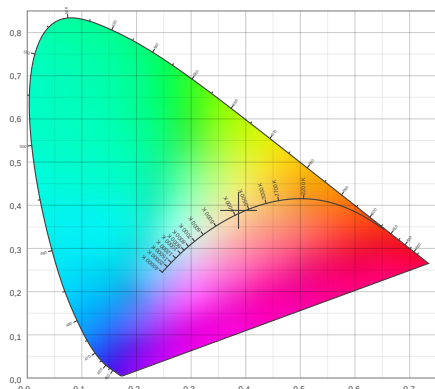
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Color details



CIE 1931

x: 0,387

3921 K

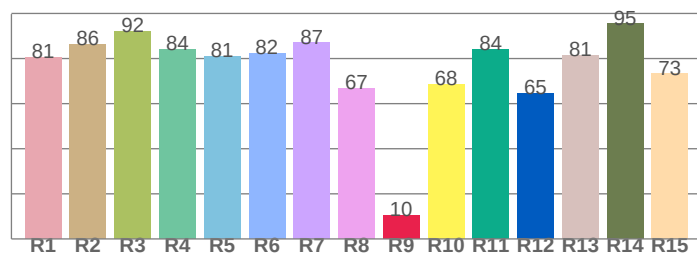
y: 0,388

Spectra

CIE 1931 ZOOM

 $\Delta uv: 0,0034$

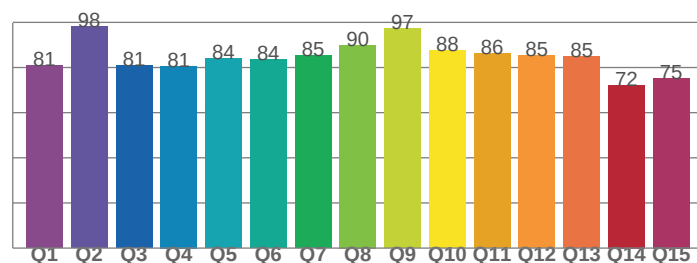
CRI: 82,4 (R1-R8)



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

R1	R2	R3	R4	R5	R6	R7	R8
80,6	86,2	91,9	83,9	80,8	82,2	87,0	66,7
R9	R10	R11	R12	R13	R14	R15	
10,3	68,4	84,0	64,7	81,5	95,4	73,2	

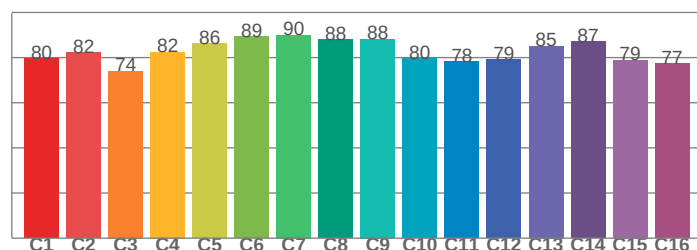
CQS: 83,4



CQS values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
81,0	98,2	80,9	80,7	84,0	83,6	85,3	90,0
Q9	Q10	Q11	Q12	Q13	Q14	Q15	
97,3	87,6	86,2	85,2	84,8	72,3	75,4	

TM30: 82,5



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

C1	C2	C3	C4	C5	C6	C7	C8
79,6	82,3	74,0	82,4	86,2	89,4	90,0	87,9
C9	C10	C11	C12	C13	C14	C15	
88,3	79,7	78,3	79,1	85,1	87,1	79,0	

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
3921 K	82,4	10,3	82,5	97,9	83,4	0,387	0,388	0,225	0,338	0,0034



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TM30 details

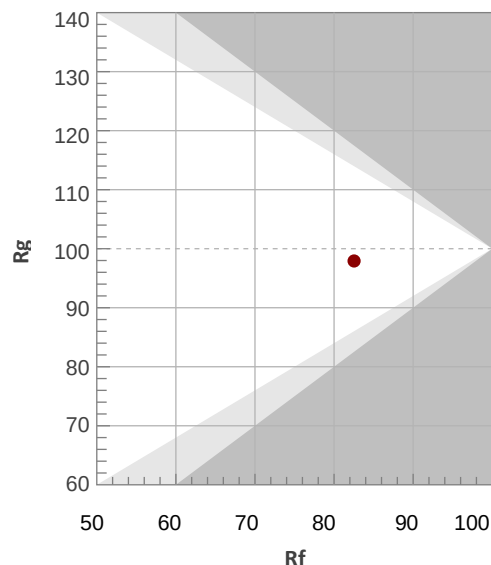
Rf 82,5

Fidelity index Rf

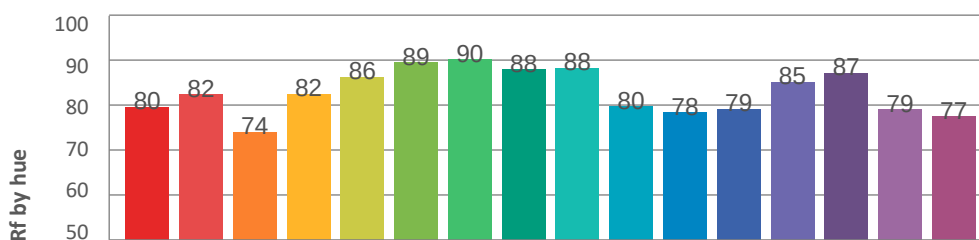
Rg 97,9

Gamut index Rg

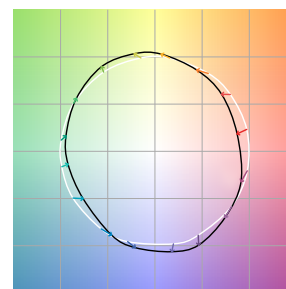
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	80	-11%	-3%
2	82	-8%	5%
3	74	-4%	12%
4	82	2%	10%
5	86	6%	6%
6	89	6%	-1%
7	90	0%	-6%
8	88	-4%	-5%
9	88	-7%	-1%
10	80	-9%	6%
11	78	-1%	13%
12	79	5%	9%
13	85	8%	-3%
14	87	9%	-5%
15	79	1%	-13%
16	77	-4%	-13%



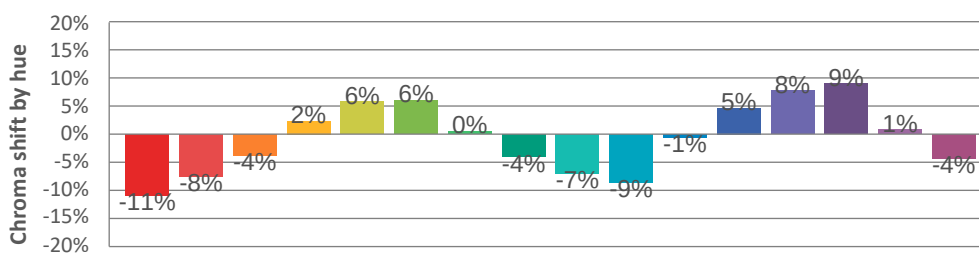
Hue binH



Color vector graphics



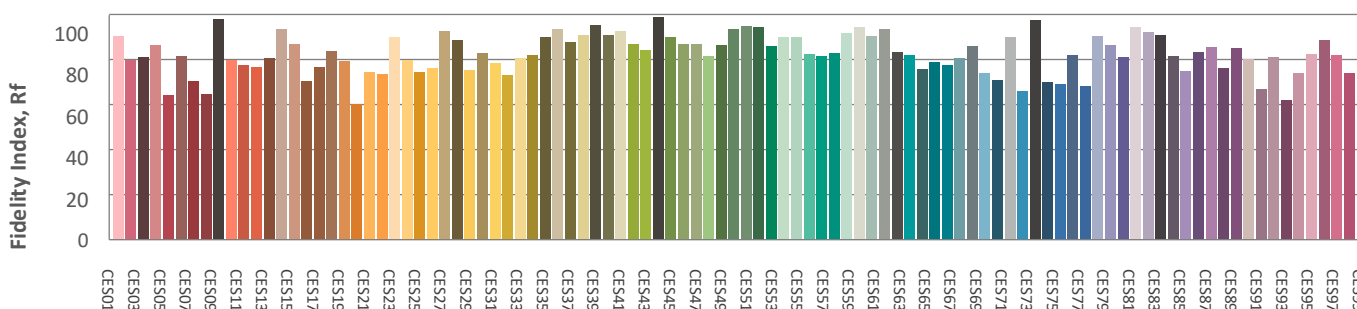
Hue bin



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	21,4	22,1	21,7	22,3	22,5	21,5	22,2	21,8	22,4	22,6
	3H	21,5	22,1	21,8	22,4	22,6	21,6	22,2	21,9	22,5	22,7
	4H	21,5	22,1	21,8	22,4	22,6	21,6	22,2	21,9	22,5	22,8
	6H	21,5	22,1	21,9	22,4	22,7	21,6	22,2	22,0	22,5	22,8
	8H	21,5	22,0	21,9	22,3	22,6	21,6	22,2	22,0	22,4	22,8
	12H	21,5	22,0	21,9	22,3	22,6	21,6	22,1	22,0	22,4	22,7
4H	2H	21,3	21,9	21,6	22,2	22,4	21,4	22,0	21,7	22,3	22,6
	3H	21,4	21,9	21,8	22,3	22,6	21,6	22,1	21,9	22,4	22,7
	4H	21,5	22,0	21,9	22,3	22,7	21,7	22,1	22,0	22,4	22,8
	6H	21,6	21,9	22,0	22,3	22,7	21,7	22,1	22,1	22,4	22,8
	8H	21,6	21,9	22,0	22,3	22,7	21,7	22,0	22,1	22,4	22,8
	12H	21,6	21,9	22,0	22,3	22,7	21,7	22,0	22,1	22,4	22,8
8H	4H	21,5	21,8	21,9	22,2	22,6	21,6	21,9	22,0	22,3	22,7
	6H	21,6	21,8	22,1	22,3	22,7	21,7	21,9	22,2	22,4	22,8
	8H	21,6	21,8	22,1	22,3	22,7	21,7	21,9	22,2	22,4	22,9
	12H	21,6	21,8	22,1	22,3	22,8	21,7	21,9	22,2	22,4	22,9
12H	4H	21,5	21,8	21,9	22,2	22,6	21,6	21,9	22,0	22,3	22,7
	6H	21,6	21,8	22,0	22,2	22,7	21,7	21,9	22,2	22,3	22,8
	8H	21,6	21,8	22,1	22,2	22,7	21,7	21,9	22,2	22,3	22,8
Variation of the observer position for the luminaire distance S											
S = 1,0H		+3,7 / -4,0					+3,7 / -4,0				
S = 1,5H		+6,2 / -4,4					+6,3 / -4,5				
S = 2,0H		+8,2 / -5,0					+8,2 / -4,9				
Standard table		BK01					BK01				
Correction summand		3,5					3,6				
Corrected glare indices referring to 3444lm total luminous flux											



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