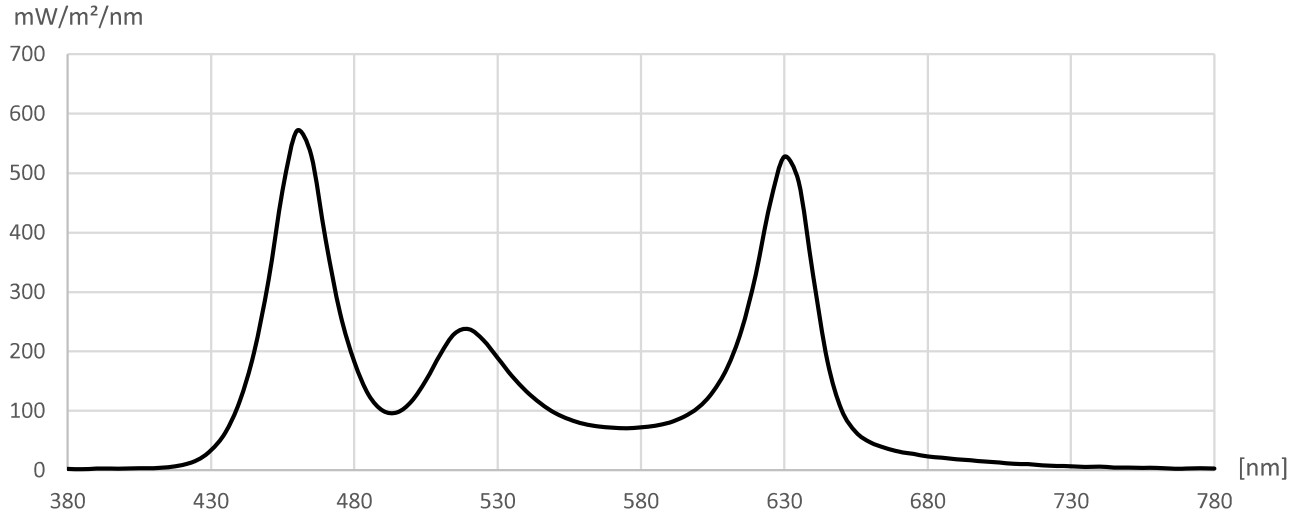
Measurement protocol

th•mann

Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @1 m / all

Measurement file: full_1m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:05:28



R1 = 4,2	Ra = 31,5	
R2 = 43,7	Re = 8,9	
R3 = 84,9	GAI = 156,6	
R4 = 17,2		
R5 = 16,8		
R6 = 33,3		
R7 = 66,5		
R8 = -14,2		
R9 = #####		
R10 = -16,2		
R11 = -3,3		
R12 = 24,7		
R13 = 9,8		
R14 = 84,0		
R15 = -16,7		

Illuminance	10839,35 lx
Ee	47,449 W/m²
LER	228,4 lm/W
correlated color temperature (CCT)	7463 K
Duv	-0,0367
Saturation	39 %
Dominant wavelength	#NV
Peak wavelength	460 nm
Flicker frequency	% < 2.5 Hz
Percent Flicker	< 2.5 %
Flicker index	% < 2.5

CIE1931	
x = 0,3135	
y = 0,2618	
CIE1976	
u' = 0,2274	
v' = 0,4273	
CIE1960	
u = 0,2274	
v = 0,2848	
TM30	
Rf = 57,8	
Rg = 118,8	

[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm
380	2,21	440	115,86	500	116,25	560	77,91	620	329,01	680	23,41	740	6,18
385	1,67	445	198,05	505	151,69	565	73,73	625	446,76	685	21,07	745	4,63
390	2,66	450	318,42	510	195,33	570	71,67	630	527,68	690	18,67	750	4,42
395	2,65	455	470,56	515	229,57	575	70,69	635	485,70	695	16,68	755	3,88
400	2,70	460	571,15	520	237,46	580	72,21	640	328,87	700	14,64	760	4,20
405	3,44	465	529,49	525	219,11	585	74,98	645	183,44	705	12,81	765	2,84
410	3,66	470	387,48	530	189,13	590	80,44	650	101,90	710	11,03	770	2,69
415	5,17	475	264,52	535	158,16	595	90,09	655	64,12	715	10,18	775	3,51
420	8,92	480	181,92	540	133,14	600	105,29	660	46,88	720	8,40	780	2,98
425	16,79	485	127,18	545	112,41	605	131,39	665	37,59	725	7,18		
430	33,35	490	100,02	550	96,37	610	171,83	670	31,08	730	6,73		
435	63,25	495	97,64	555	85,45	615	234,94	675	27,36	735	5,41		

Thomann GmbH
Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Sebastian Laske

First, last name of inspector

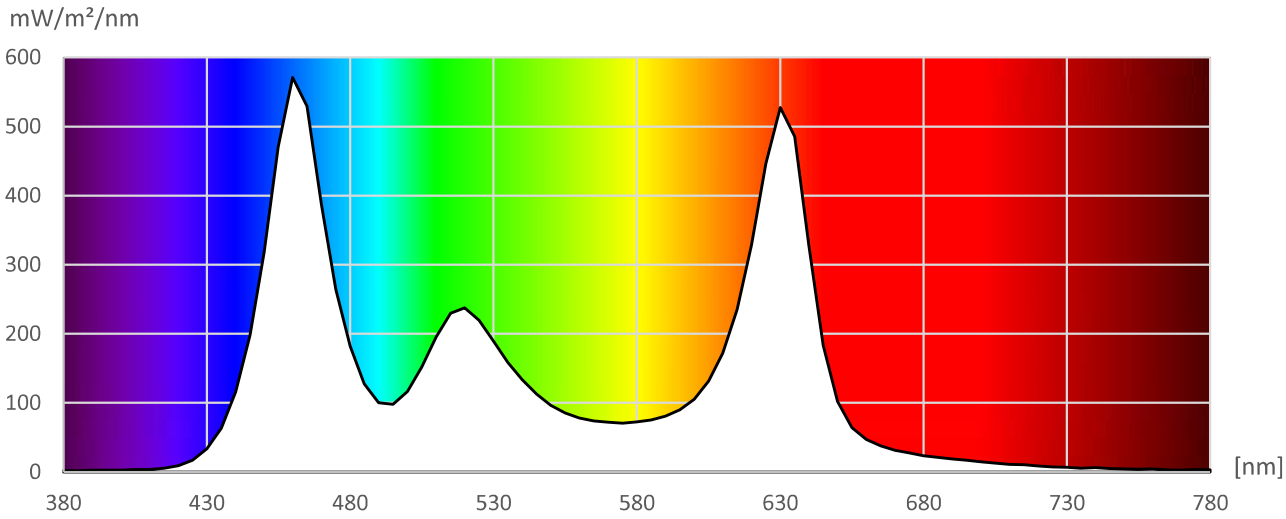
Burgebrach, 05.02.2019

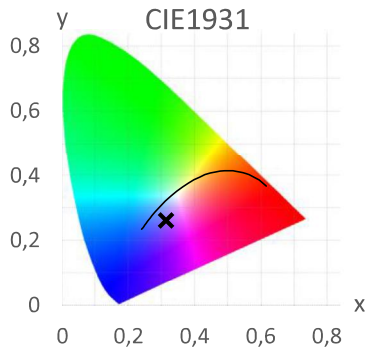
Measurement protocol

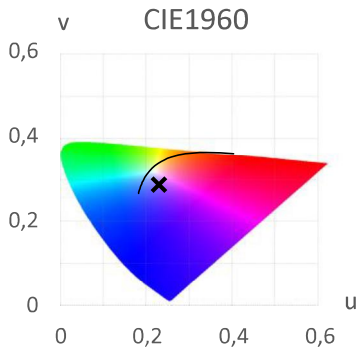
th•mann

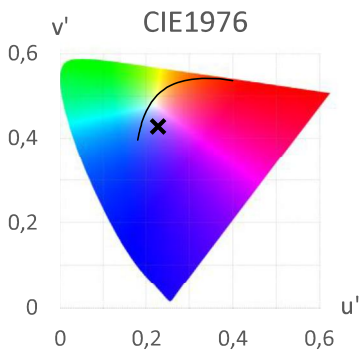
Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @1 m / all

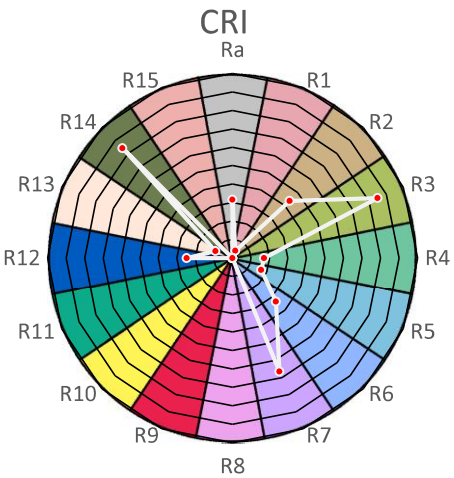
Measurement file: full_1m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:05:28

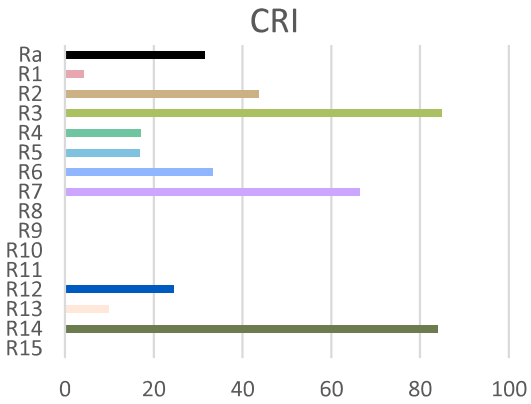












Thomann GmbH
Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Sebastian Laske

First, last name of inspector

Burgebrach, 05.02.2019

Measurement protocol

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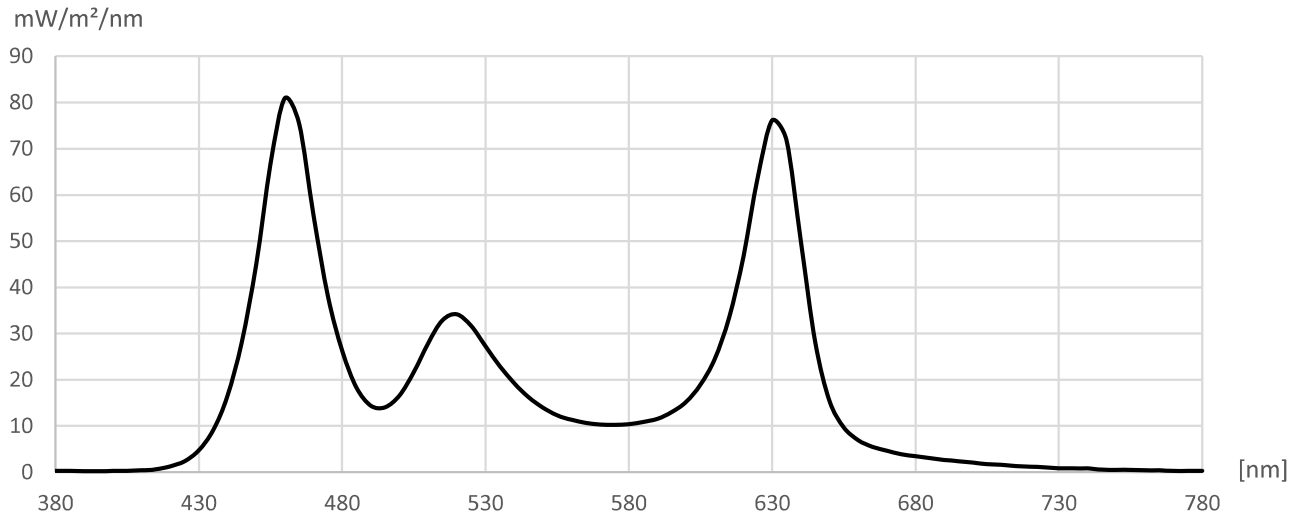
Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @3 m / all

Measurement file: full_3m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:05:42



R1 = 4,3	Ra = 31,4	
R2 = 43,7	Re = 8,8	
R3 = 85,1	GAI = 156,3	
R4 = 17,1		
R5 = 16,5		
R6 = 33,0		
R7 = 66,4		
R8 = -14,9		
R9 = #####		
R10 = -16,2		
R11 = -3,4		
R12 = 23,5		
R13 = 9,9		
R14 = 84,2		
R15 = -16,7		

Illuminance	1564,32 lx
Ee	6,833 W/m²
LER	228,9 lm/W
correlated color temperature (CCT)	7223 K
Duv	-0,0367
Saturation	19 %
Dominant wavelength	#NV
Peak wavelength	460 nm
Flicker frequency	% < 2.5 Hz
Percent Flicker	< 2.5 %
Flicker index	% < 2.5

CIE1931	
x	0,3152
y	0,2634
CIE1976	
u'	0,2280
v'	0,4286
CIE1960	
u	0,2280
v	0,2858
TM30	
Rf	57,9
Rg	120,0

[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm
380	0,32	440	16,52	500	16,63	560	11,33	620	46,78	680	3,47	740	0,83
385	0,30	445	28,24	505	21,70	565	10,68	625	63,75	685	3,08	745	0,55
390	0,25	450	45,04	510	27,95	570	10,32	630	76,09	690	2,67	750	0,54
395	0,23	455	66,53	515	32,87	575	10,27	635	71,80	695	2,38	755	0,54
400	0,28	460	80,86	520	34,18	580	10,41	640	49,93	700	2,07	760	0,40
405	0,32	465	75,45	525	31,66	585	10,87	645	28,11	705	1,77	765	0,42
410	0,42	470	55,60	530	27,28	590	11,58	650	15,51	710	1,59	770	0,26
415	0,61	475	38,09	535	22,91	595	13,02	655	9,71	715	1,33	775	0,30
420	1,28	480	26,25	540	19,27	600	15,20	660	6,96	720	1,23	780	0,28
425	2,41	485	18,36	545	16,25	605	18,93	665	5,50	725	1,08		
430	4,73	490	14,41	550	14,00	610	24,57	670	4,64	730	0,89		
435	9,07	495	14,08	555	12,29	615	33,56	675	3,90	735	0,82		

Thomann GmbH
Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Sebastian Laske

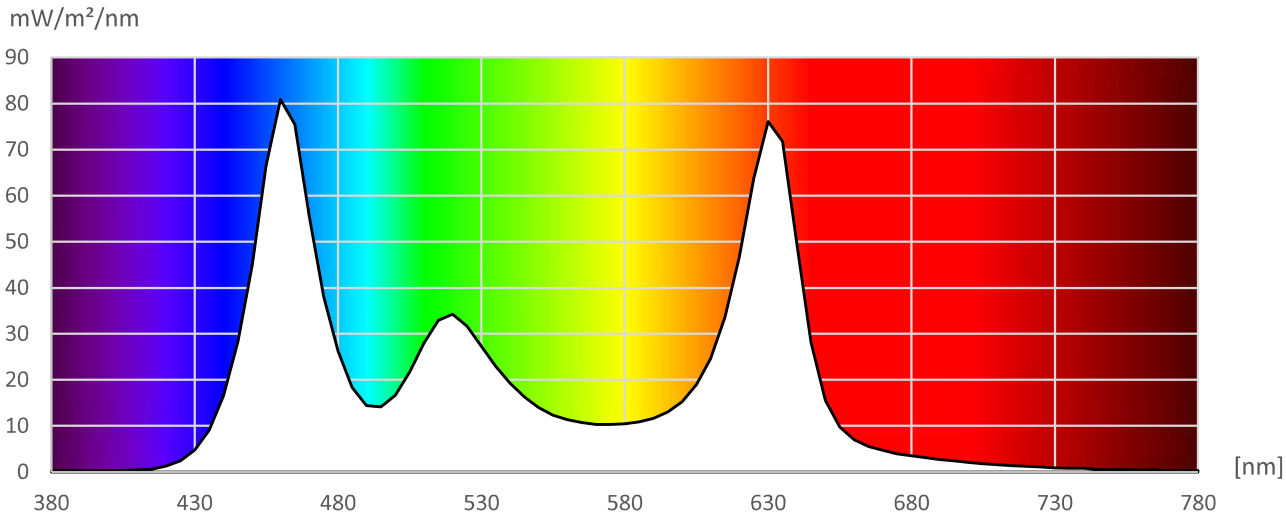
First, last name of inspector

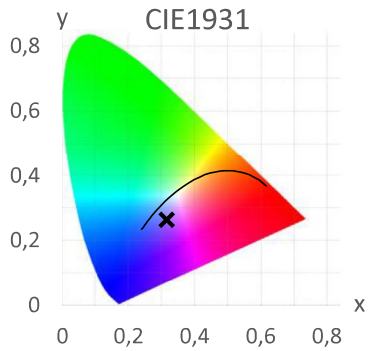
Burgebrach, 05.02.2019

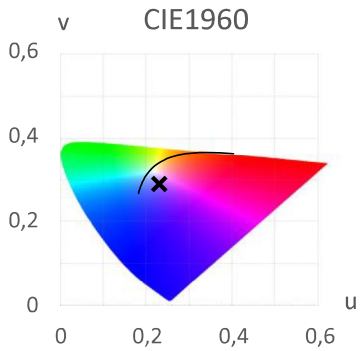
Measurement protocol

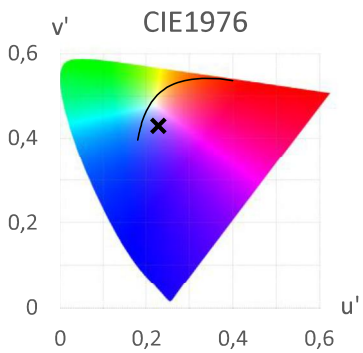
Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @3 m / all

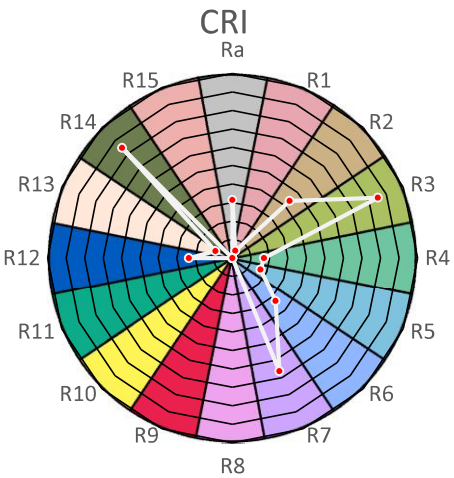
Measurement file: full_3m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:05:42

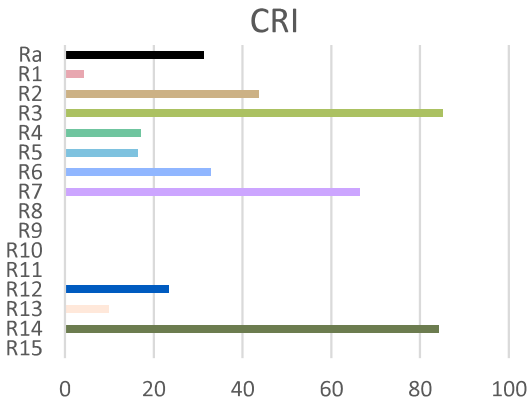












Thomann GmbH
Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Sebastian Laske

First, last name of inspector

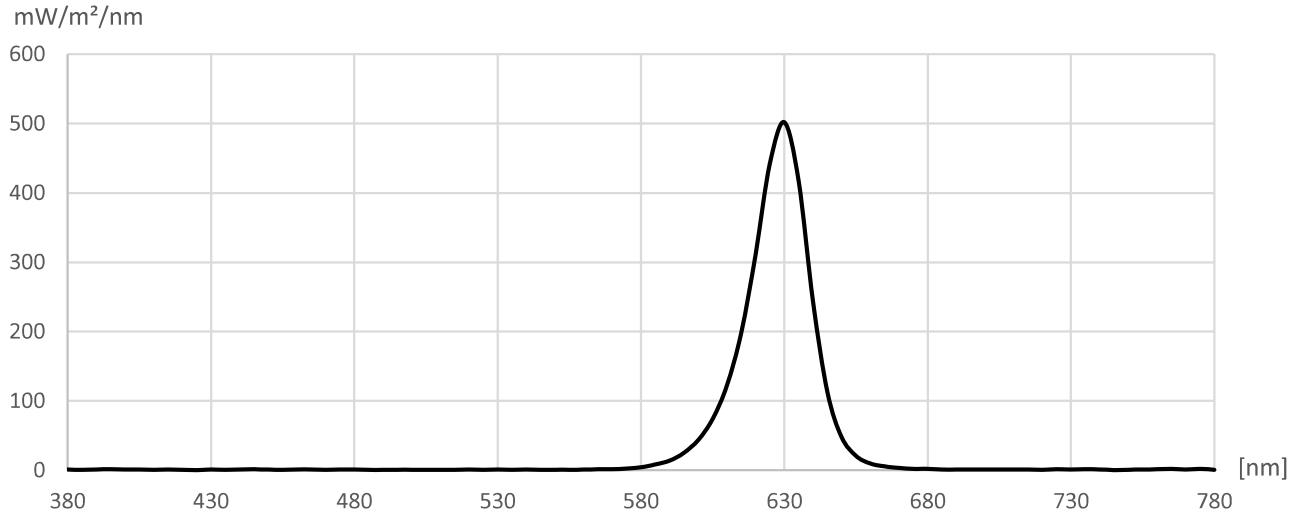
Burgebrach, 05.02.2019

Measurement protocol

th•mann

Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @1 m / red

Measurement file: red_1m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:05:59



R1 = -	Ra = -	
R2 = -	Re = -	
R3 = -	GAI = -	
R4 = -		
R5 = -		
R6 = -		
R7 = -		
R8 = -		
R9 = -		
R10 = -		
R11 = -		
R12 = -		
R13 = -		
R14 = -		
R15 = -		

Illuminance	2817,4 lx
Ee	13,353 W/m²
LER	211,0 lm/W
correlated color temperature (CCT)	< 1600 K
Duv	-
Saturation	97,8 %
Dominant wavelength	624 nm
Peak wavelength	628 nm
Flicker frequency	% < 2.5 Hz
Percent Flicker	< 2.5 %
Flicker index	% < 2.5

CIE1931
x = 0,6831
y = 0,3096

CIE1976
u' = 0,5109
v' = 0,5209

CIE1960
u = 0,5109
v = 0,3473

TM30
Rf = -
Rg = -

[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm
380	0,95	440	1,07	500	0,80	560	0,90	620	312,31	680	2,19	740	1,24
385	0,48	445	1,31	505	0,48	565	1,41	625	442,37	685	0,94	745	0,32
390	1,29	450	0,88	510	0,77	570	1,51	630	501,94	690	0,98	750	0,73
395	1,42	455	0,66	515	0,81	575	2,66	635	416,99	695	1,09	755	1,00
400	1,21	460	1,25	520	0,90	580	4,19	640	243,12	700	1,19	760	1,39
405	1,10	465	1,07	525	0,67	585	8,22	645	112,71	705	0,95	765	1,87
410	0,67	470	0,80	530	1,07	590	14,13	650	47,98	710	0,89	770	1,15
415	0,89	475	0,91	535	0,63	595	24,99	655	20,72	715	1,05	775	1,97
420	0,54	480	0,96	540	1,01	600	43,66	660	9,69	720	0,74	780	0,65
425	0,18	485	0,39	545	0,59	605	74,09	665	5,49	725	1,45		
430	1,04	490	0,51	550	0,82	610	122,55	670	3,37	730	0,97		
435	0,83	495	0,76	555	0,77	615	199,16	675	1,81	735	1,35		

Thomann GmbH
Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Sebastian Laske

First, last name of inspector

Burgebrach, 05.02.2019

Measurement protocol

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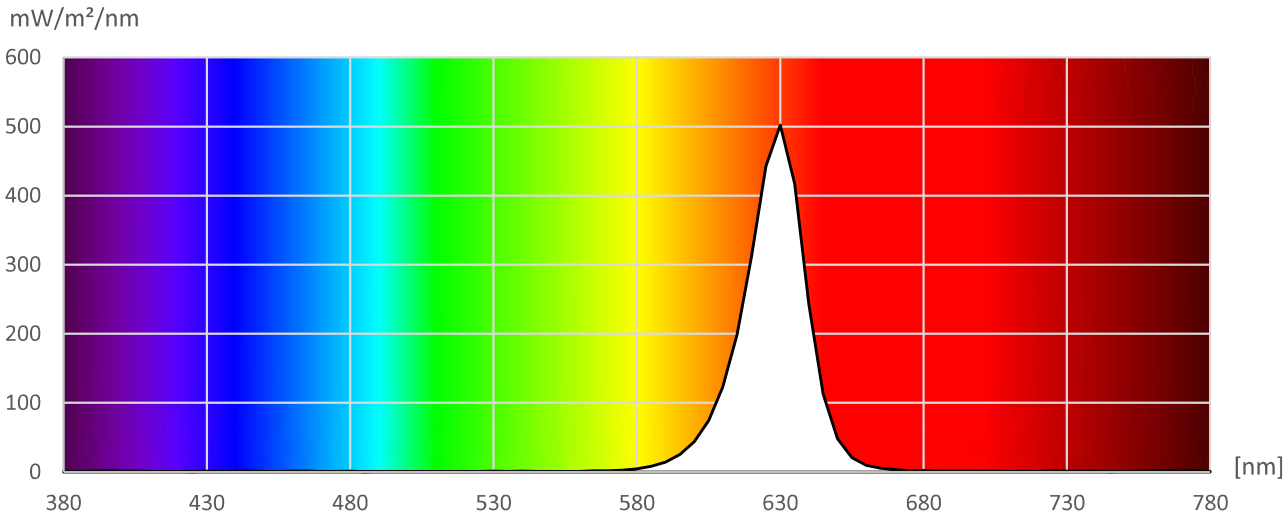
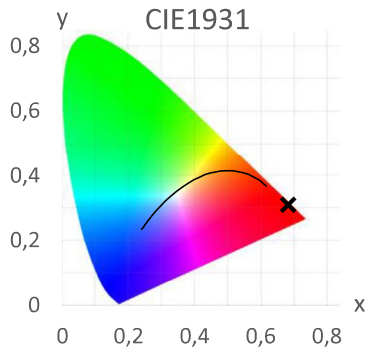
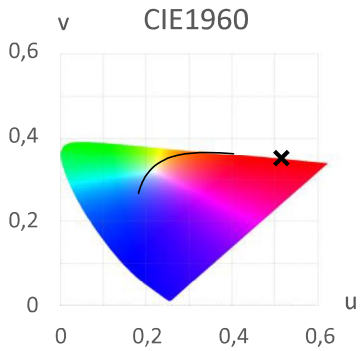
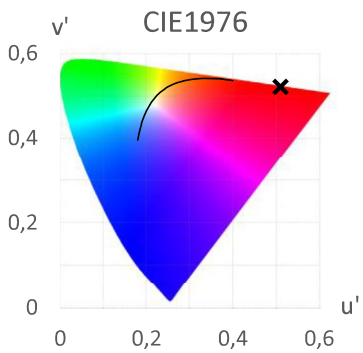
Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @1 m / red

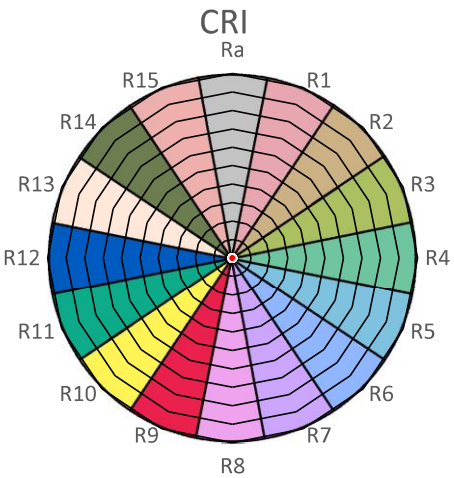
Measurement file: red_1m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:05:59

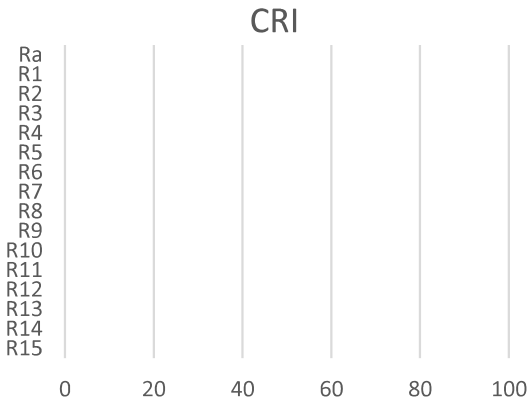












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Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Burgebrach, 05.02.2019

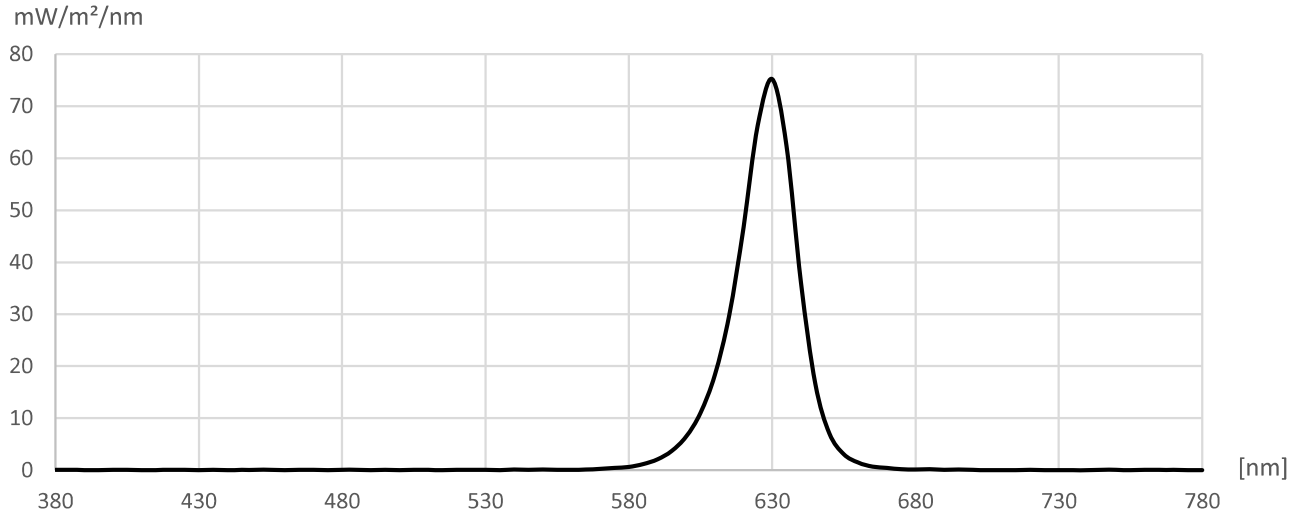
Sebastian Laske

First, last name of inspector

Measurement protocol

Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @3 m / red

Measurement file: red_3m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:06:11



R1 = -	Ra = -	
R2 = -	Re = -	
R3 = -	GAI = -	
R4 = -		
R5 = -		
R6 = -		
R7 = -		
R8 = -		
R9 = -		
R10 = -		
R11 = -		
R12 = -		
R13 = -		
R14 = -		
R15 = -		

Illuminance	419,5 lx
Ee	1,972 W/m²
LER	212,8 lm/W
correlated color temperature (CCT)	< 1600 K
Duv	-
Saturation	99,2 %
Dominant wavelength	623 nm
Peak wavelength	628 nm
Flicker frequency	% < 2.5 Hz
Percent Flicker	< 2.5 %
Flicker index	% < 2.5

CIE1931
x = 0,6865
y = 0,3102

CIE1976
u' = 0,5133
v' = 0,5219

CIE1960
u = 0,5133
v = 0,3479

TM30
Rf = -
Rg = -

[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm
380	0,07	440	0,00	500	0,03	560	0,10	620	46,76	680	0,13	740	0,00
385	0,09	445	0,06	505	0,07	565	0,13	625	66,29	685	0,18	745	0,11
390	0,04	450	0,05	510	0,06	570	0,28	630	75,21	690	0,11	750	0,05
395	0,00	455	0,11	515	0,02	575	0,45	635	62,38	695	0,12	755	0,00
400	0,07	460	0,02	520	0,07	580	0,66	640	36,23	700	0,06	760	0,09
405	0,07	465	0,10	525	0,07	585	1,18	645	16,67	705	0,01	765	0,05
410	0,03	470	0,07	530	0,06	590	2,10	650	7,10	710	0,04	770	0,07
415	0,05	475	0,05	535	0,05	595	3,70	655	3,10	715	0,03	775	0,01
420	0,09	480	0,08	540	0,12	600	6,44	660	1,47	720	0,08	780	0,04
425	0,08	485	0,10	545	0,08	605	11,03	665	0,72	725	0,00		
430	0,04	490	0,00	550	0,13	610	18,33	670	0,44	730	0,03		
435	0,06	495	0,07	555	0,09	615	29,84	675	0,20	735	0,04		

Thomann GmbH
Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Sebastian Laske
First, last name of inspector

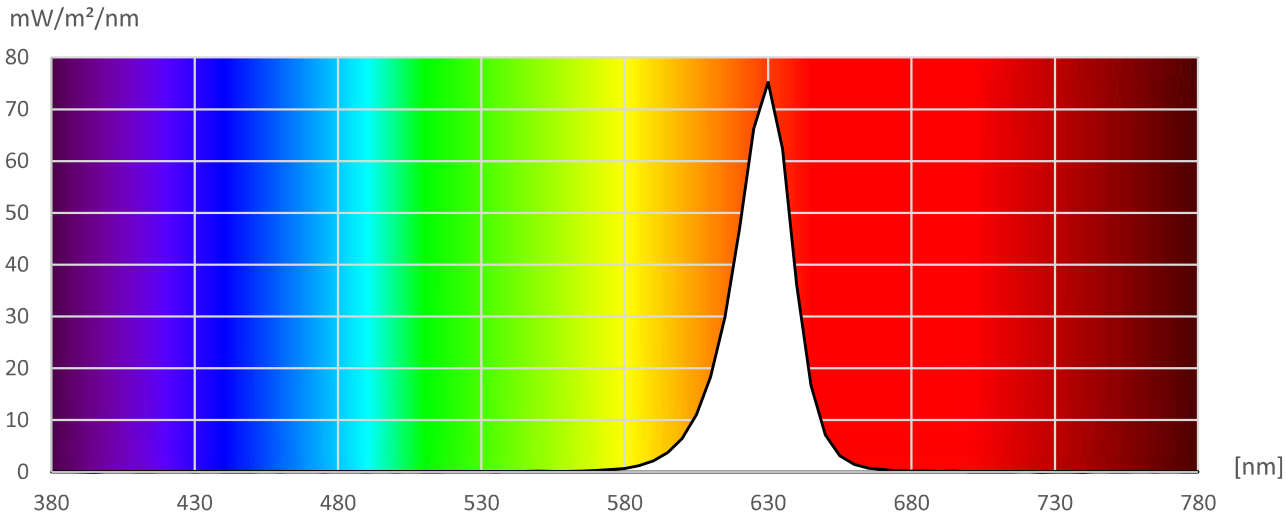
Burgebrach, 05.02.2019

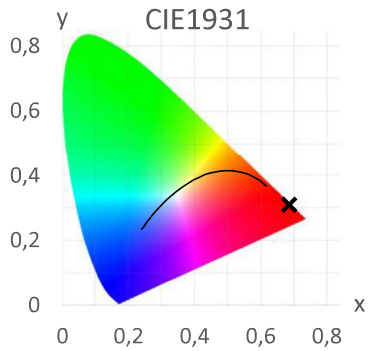
Measurement protocol

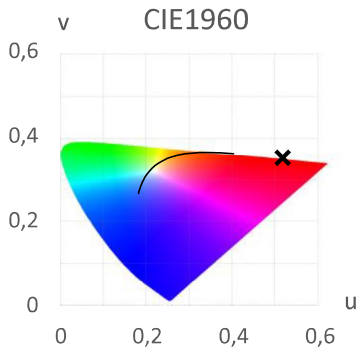
th•mann

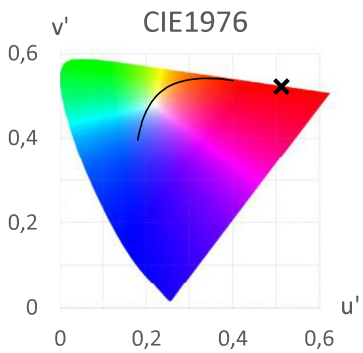
Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @3 m / red

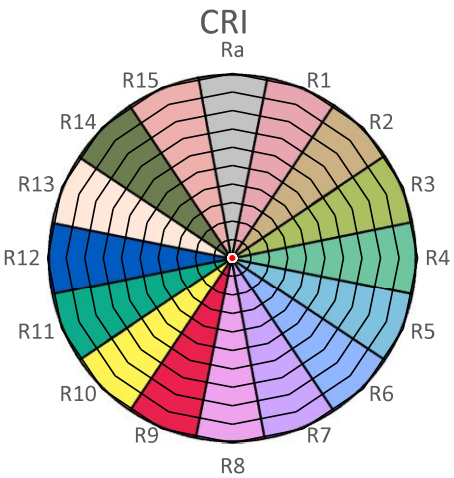
Measurement file: red_3m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:06:11

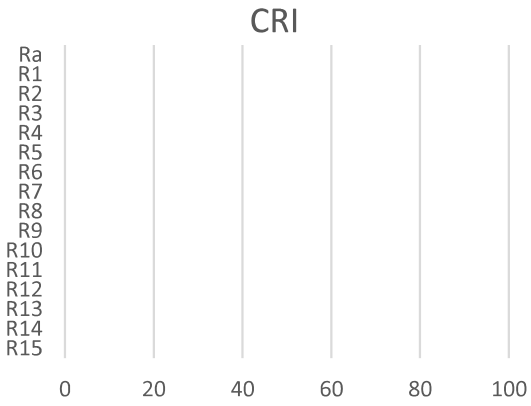












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Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Sebastian Laske

First, last name of inspector

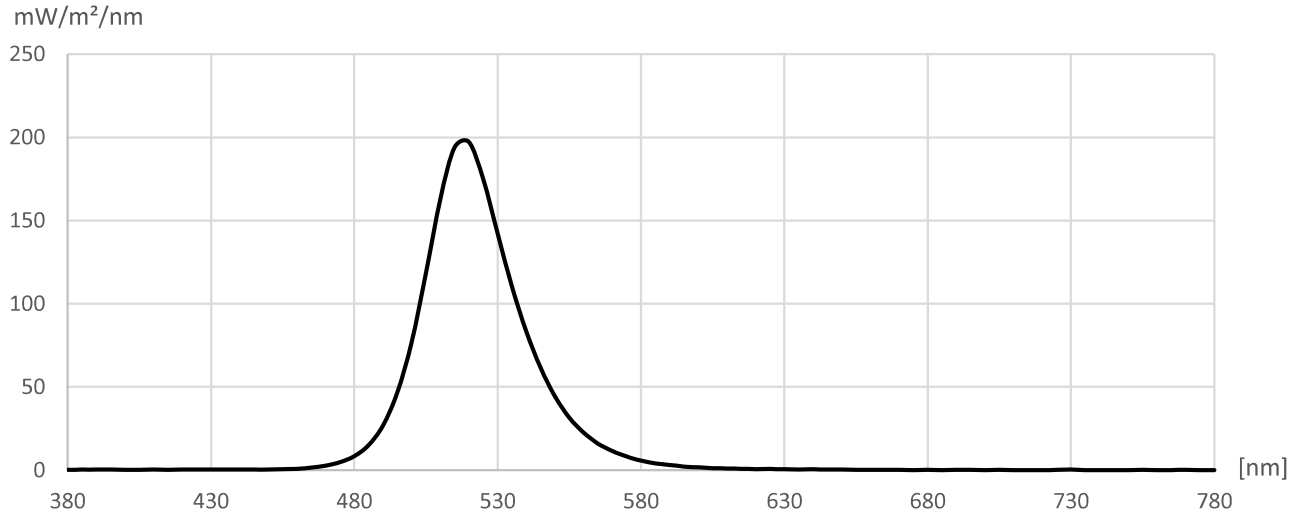
Burgebrach, 05.02.2019

Measurement protocol

th•mann

Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @1 m / green

Measurement file: green_1m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:06:35



R1	= -34,7	Ra	= -21,9	Illuminance	3722,34 lx	CIE1931	
R2	= -6,2	Re	= -52,3	Ee	7,992 W/m²	x	= 0,1570
R3	= -18,0	GAI	= 0,9	LER	465,8 lm/W	y	= 0,7148
R4	= -61,0						
R5	= -8,6			correlated color temperature (CCT)	8093 K	CIE1976	
R6	= -14,2			Duv	0,1605	u'	= 0,0558
R7	= -3,0					v'	= 0,5711
R8	= -29,7			Saturation	75,4 %		
R9	= #####					CIE1960	
R10	= #####			Dominant wavelength	521 nm	u	= 0,0558
R11	= -89,4			Peak wavelength	517 nm	v	= 0,3808
R12	= -28,9						
R13	= -40,2			Flicker frequency	% < 2.5 Hz	TM30	
R14	= 41,3			Percent Flicker	< 2.5 %	Rf	= 1,0
R15	= -37,4			Flicker index	% < 2.5	Rg	= 9,7

[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm
380	0,17	440	0,43	500	76,99	560	22,61	620	0,71	680	0,25	740	0,13
385	0,35	445	0,44	505	118,94	565	16,04	625	0,74	685	0,08	745	0,06
390	0,35	450	0,36	510	163,16	570	11,58	630	0,63	690	0,19	750	0,02
395	0,49	455	0,66	515	193,92	575	8,22	635	0,49	695	0,18	755	0,26
400	0,23	460	0,84	520	197,21	580	5,79	640	0,56	700	0,15	760	0,00
405	0,29	465	1,59	525	174,78	585	4,18	645	0,38	705	0,23	765	0,13
410	0,46	470	2,70	530	142,06	590	3,17	650	0,45	710	0,11	770	0,21
415	0,26	475	4,81	535	110,05	595	2,25	655	0,29	715	0,01	775	0,06
420	0,44	480	8,50	540	83,59	600	1,70	660	0,21	720	0,13	780	0,00
425	0,37	485	15,07	545	61,59	605	1,30	665	0,23	725	0,18		
430	0,47	490	26,85	550	44,41	610	1,09	670	0,28	730	0,40		
435	0,52	495	46,66	555	31,55	615	0,91	675	0,11	735	0,03		

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Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Sebastian Laske

First, last name of inspector

Burgebrach, 05.02.2019

Measurement protocol

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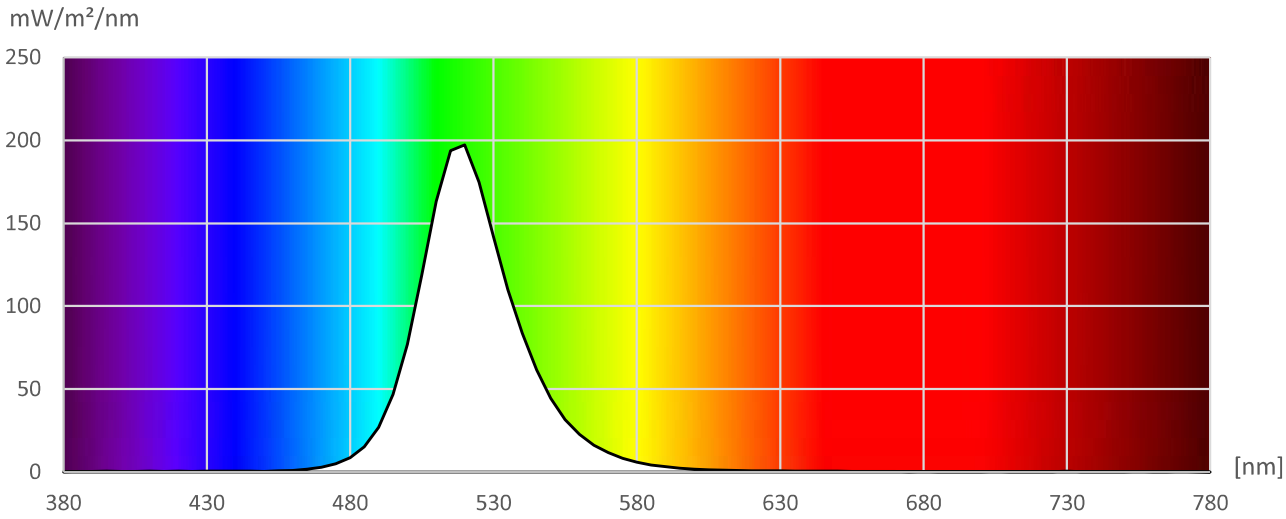
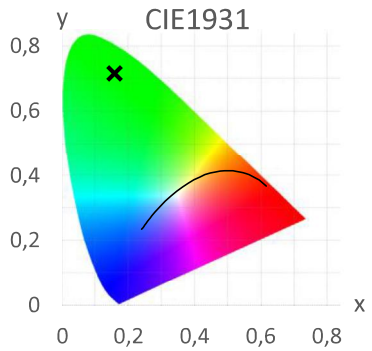
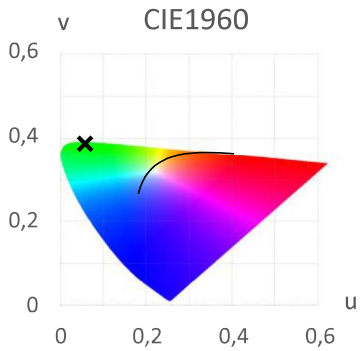
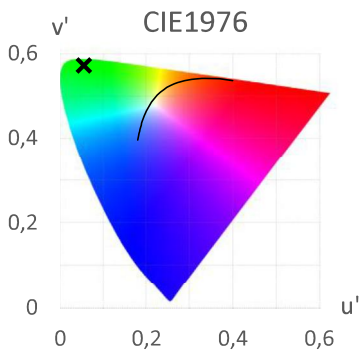
Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @1 m / green

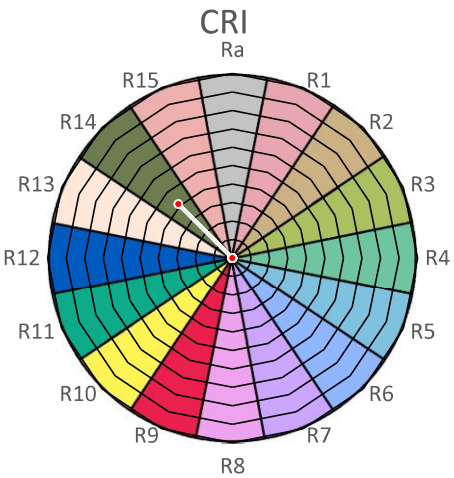
Measurement file: green_1m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:06:35

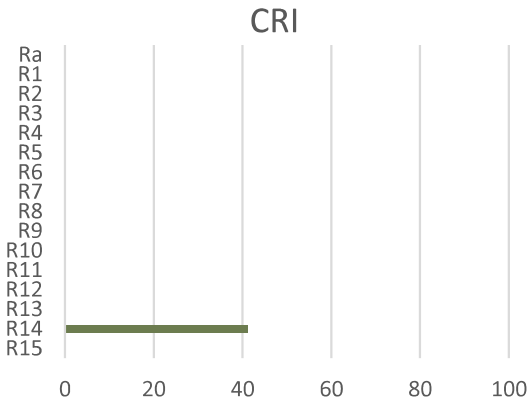












Thomann GmbH
Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Sebastian Laske

First, last name of inspector

Burgebrach, 05.02.2019

Measurement protocol

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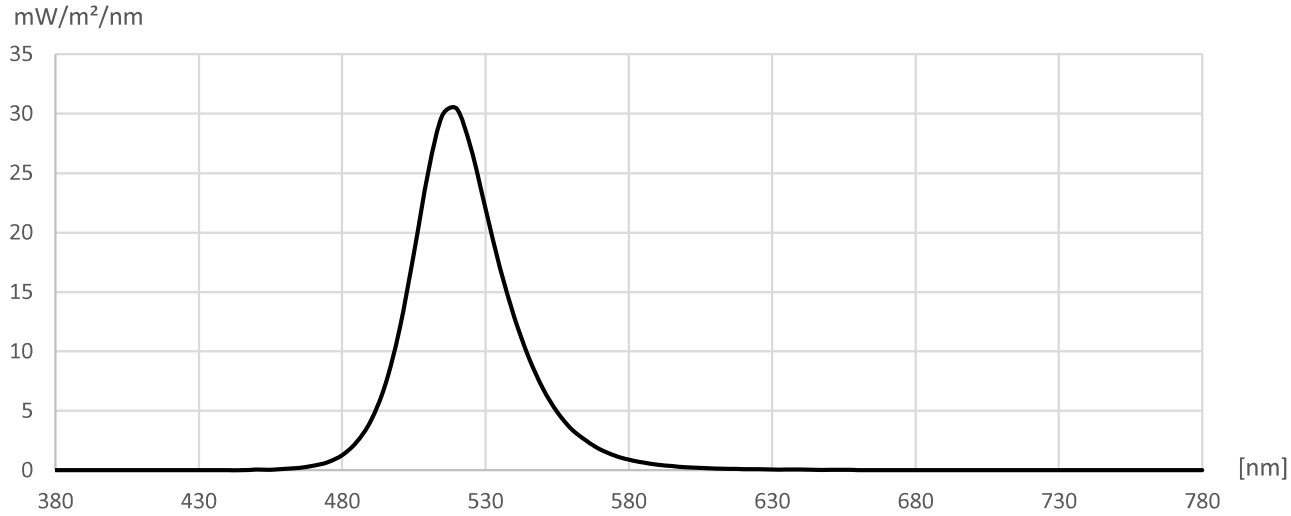
Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @3 m / green

Measurement file: green_3m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:06:48



R1	= -35,3	Ra	= -24,2	Illuminance	574,28 lx	CIE1931	
R2	= -7,8	Re	= -54,4	Ee	1,224 W/m²	x	= 0,1564
R3	= -21,4	GAI	= 0,7	LER	469,2 lm/W	y	= 0,7187
R4	= -64,3						
R5	= -9,2			correlated color temperature (CCT)	8081 K	CIE1976	
R6	= -15,6			Duv	0,1611	u'	= 0,0553
R7	= -7,3					v'	= 0,5718
R8	= -32,4			Saturation	76,1 %		
R9	= #####					CIE1960	
R10	= #####			Dominant wavelength	521 nm	u	= 0,0553
R11	= -92,7			Peak wavelength	517 nm	v	= 0,3812
R12	= -29,7						
R13	= -41,1			Flicker frequency	% < 2.5 Hz	TM30	
R14	= 39,6			Percent Flicker	< 2.5 %	Rf	= 0,7
R15	= -38,3			Flicker index	% < 2.5	Rg	= 8,3

[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm
380	0,00	440	0,01	500	11,85	560	3,46	620	0,10	680	0,00	740	0,00
385	0,00	445	0,00	505	18,26	565	2,50	625	0,09	685	0,00	745	0,00
390	0,00	450	0,06	510	25,12	570	1,77	630	0,05	690	0,00	750	0,00
395	0,00	455	0,05	515	29,87	575	1,24	635	0,06	695	0,00	755	0,00
400	0,01	460	0,11	520	30,40	580	0,89	640	0,06	700	0,00	760	0,00
405	0,00	465	0,21	525	27,03	585	0,64	645	0,03	705	0,00	765	0,00
410	0,00	470	0,39	530	21,99	590	0,46	650	0,04	710	0,00	770	0,00
415	0,00	475	0,68	535	17,03	595	0,35	655	0,03	715	0,00	775	0,00
420	0,01	480	1,28	540	12,94	600	0,25	660	0,02	720	0,00	780	0,00
425	0,00	485	2,34	545	9,55	605	0,20	665	0,00	725	0,00		
430	0,01	490	4,15	550	6,88	610	0,15	670	0,01	730	0,00		
435	0,00	495	7,15	555	4,90	615	0,12	675	0,00	735	0,00		

Thomann GmbH
Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Sebastian Laske

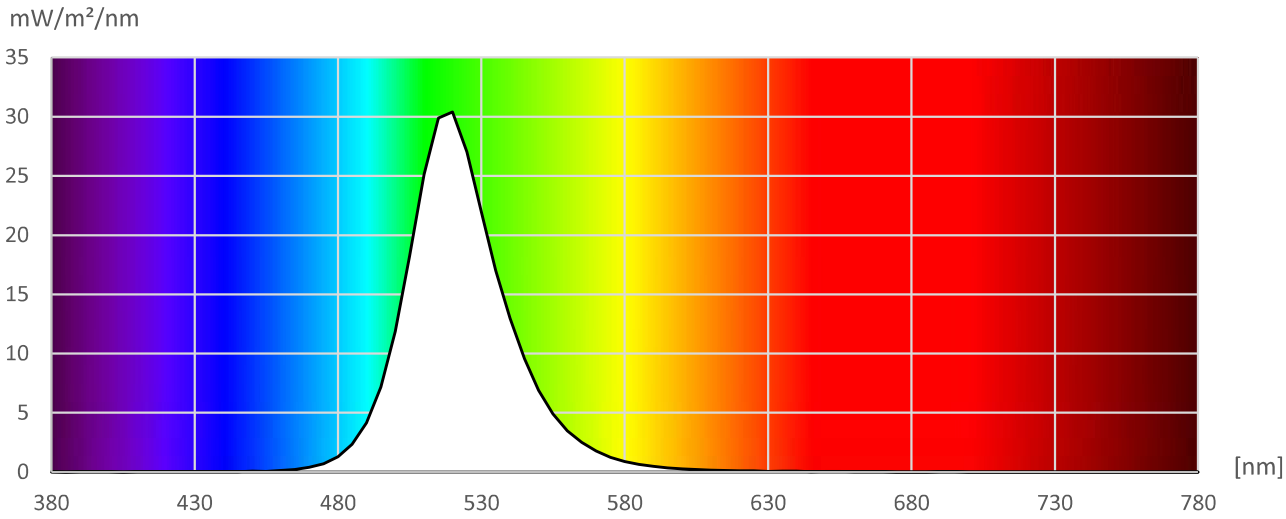
First, last name of inspector

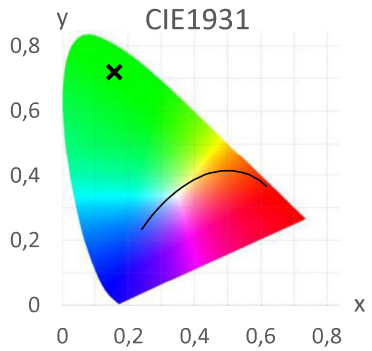
Burgebrach, 05.02.2019

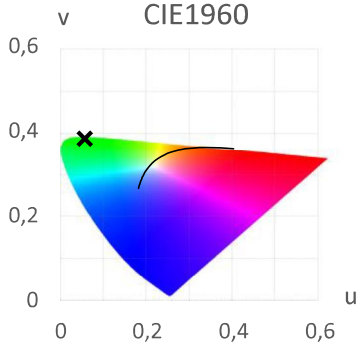
Measurement protocol

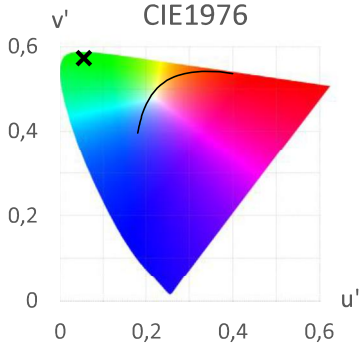
Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @3 m / green

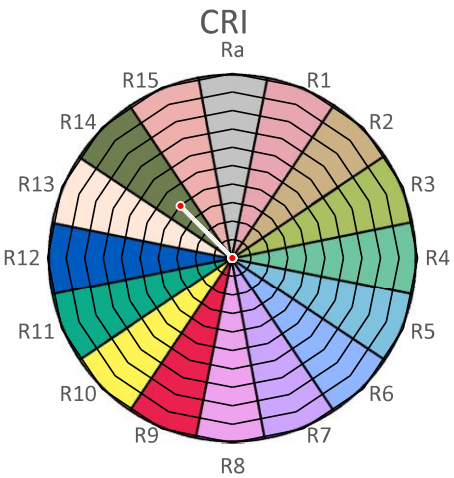
Measurement file: green_3m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:06:48

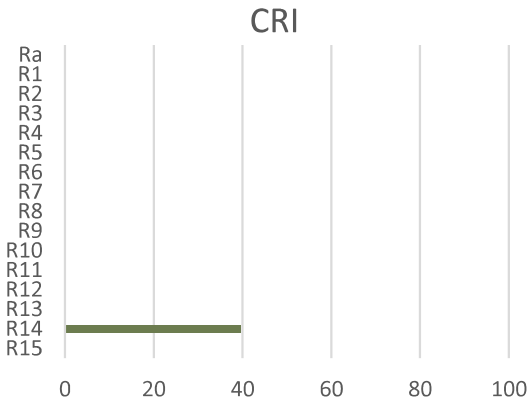












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Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Sebastian Laske

First, last name of inspector

Burgebrach, 05.02.2019

Measurement protocol

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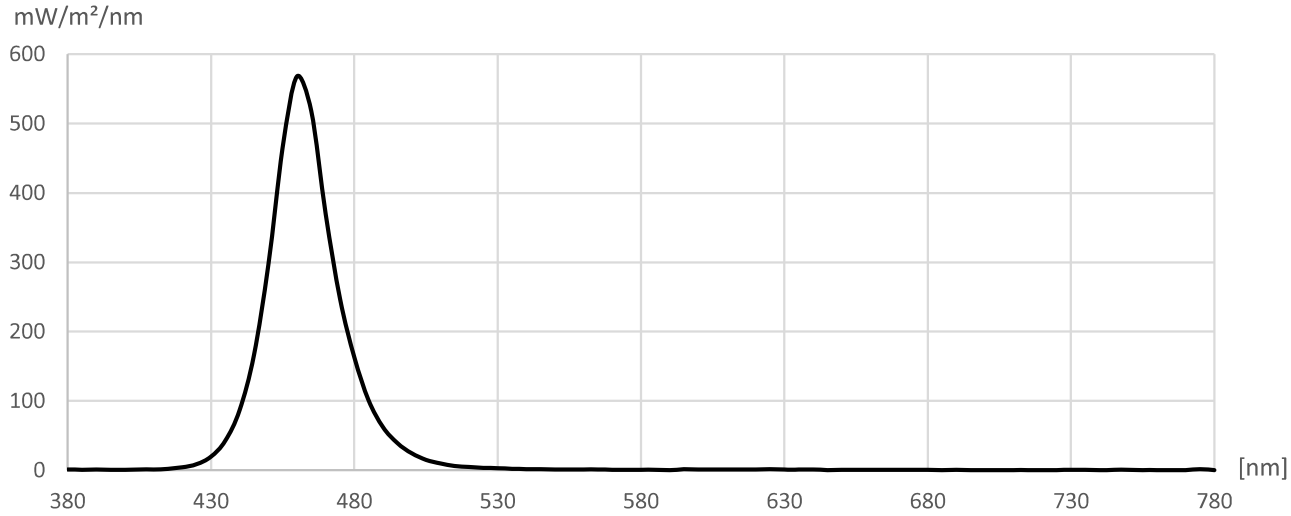
Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @1 m / blue

Measurement file: blue_1m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:06:59



R1 = -	Ra = -	
R2 = -	Re = -	
R3 = -	GAI = -	
R4 = -		
R5 = -		
R6 = -		
R7 = -		
R8 = -		
R9 = -		
R10 = -		
R11 = -		
R12 = -		
R13 = -		
R14 = -		
R15 = -		

Illuminance	983,16 lx
Ee	16,342 W/m²
LER	60,2 lm/W
correlated color temperature (CCT)	> 50000 K
Duv	-
Saturation	97,5 %
Dominant wavelength	459 nm
Peak wavelength	460 nm
Flicker frequency	% < 2.5 Hz
Percent Flicker	< 2.5 %
Flicker index	% < 2.5

CIE1931	
x =	0,1407
y =	0,0503
CIE1976	
u' =	0,1694
v' =	0,1362
CIE1960	
u =	0,1694
v =	0,0908
TM30	
Rf =	-
Rg =	-

[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm
380	1,08	440	86,86	500	24,42	560	0,87	620	0,98	680	0,55	740	0,00
385	0,84	445	166,60	505	15,05	565	1,30	625	1,41	685	0,12	745	0,47
390	0,89	450	296,80	510	9,83	570	0,76	630	0,92	690	0,44	750	0,83
395	0,66	455	464,07	515	6,27	575	0,76	635	0,85	695	0,29	755	0,14
400	0,56	460	567,90	520	4,60	580	0,70	640	1,08	700	0,28	760	0,38
405	1,29	465	518,16	525	3,55	585	0,80	645	0,38	705	0,10	765	0,08
410	1,13	470	369,64	530	3,09	590	0,26	650	0,67	710	0,37	770	0,26
415	2,18	475	247,22	535	2,20	595	1,31	655	0,80	715	0,28	775	1,43
420	4,32	480	162,27	540	1,73	600	1,01	660	0,62	720	0,36	780	0,38
425	8,79	485	101,22	545	1,49	605	0,87	665	0,46	725	0,37		
430	19,39	490	62,24	550	1,21	610	1,06	670	0,58	730	0,44		
435	42,33	495	39,23	555	1,16	615	0,95	675	0,60	735	0,46		

Thomann GmbH
Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Sebastian Laske

First, last name of inspector

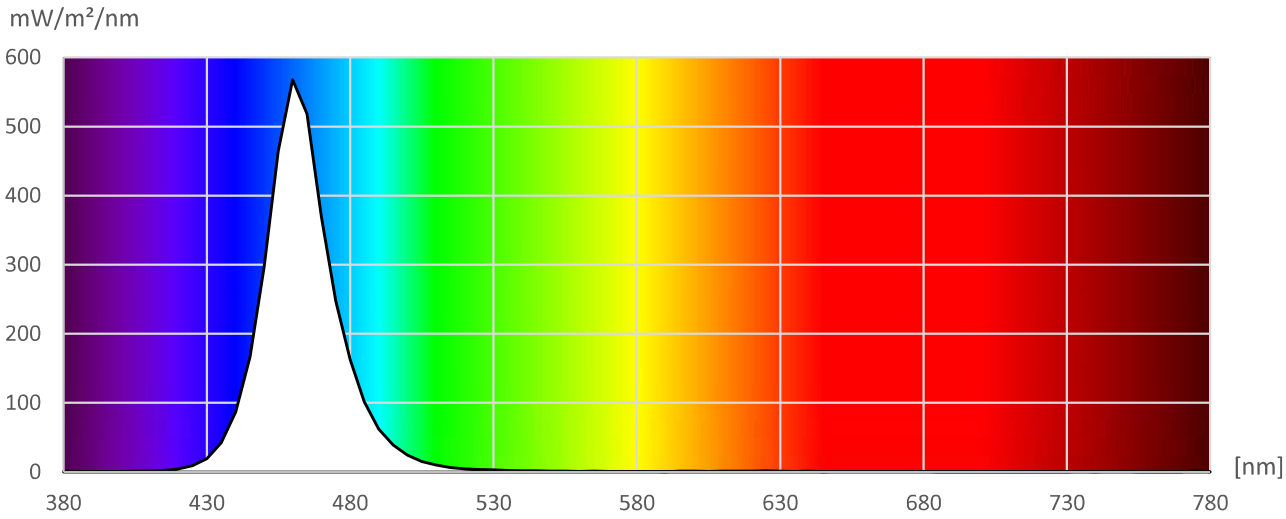
Burgebrach, 05.02.2019

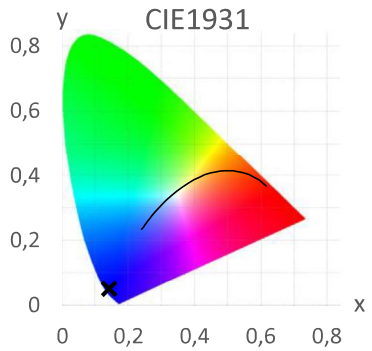
Measurement protocol

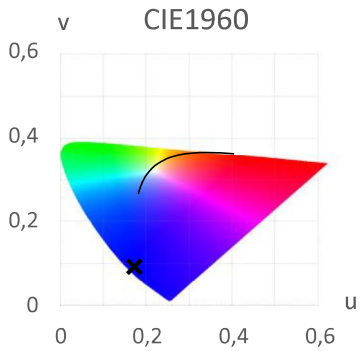
th•mann

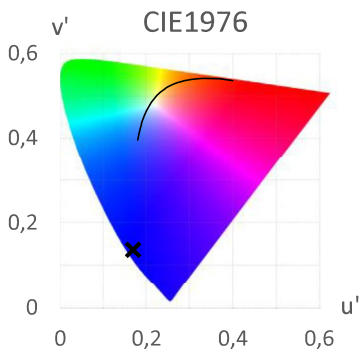
Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @1 m / blue

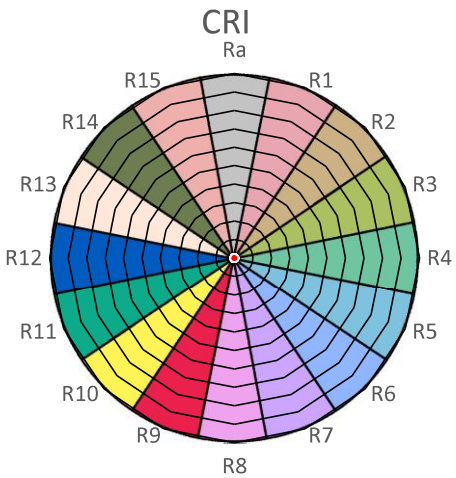
Measurement file: blue_1m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:06:59

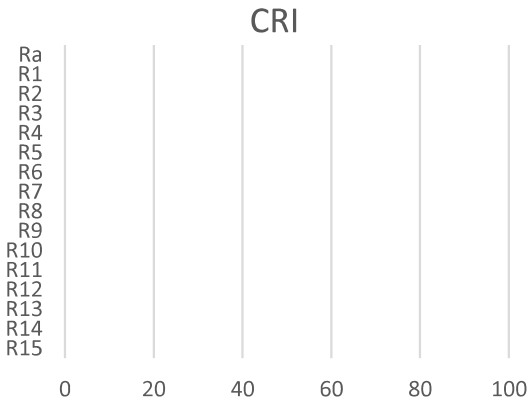












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Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Burgebrach, 05.02.2019

Sebastian Laske

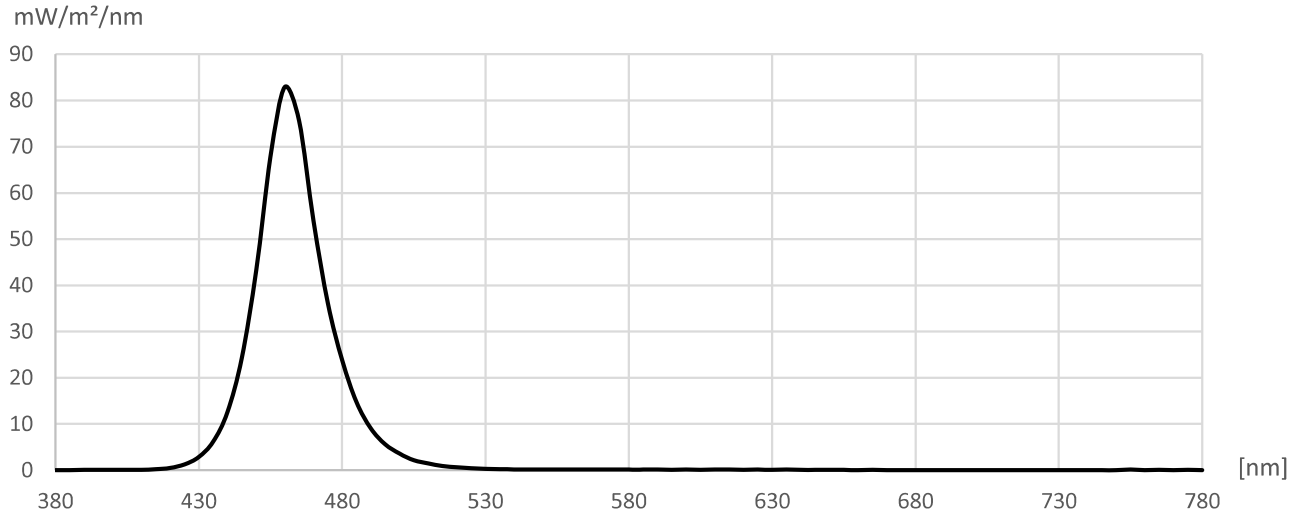
First, last name of inspector

Measurement protocol

th•mann

Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @3 m / blue

Measurement file: blue_3m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:07:08



R1 = -	Ra = -	
R2 = -	Re = -	
R3 = -	GAI = -	
R4 = -		
R5 = -		
R6 = -		
R7 = -		
R8 = -		
R9 = -		
R10 = -		
R11 = -		
R12 = -		
R13 = -		
R14 = -		
R15 = -		

Illuminance	142,06 lx
Ee	2,373 W/m²
LER	59,9 lm/W
correlated color temperature (CCT)	> 50000 K
Duv	-
Saturation	97,7 %
Dominant wavelength	459 nm
Peak wavelength	460 nm
Flicker frequency	% < 2.5 Hz
Percent Flicker	< 2.5 %
Flicker index	% < 2.5

CIE1931
x = 0,1406
y = 0,0499

CIE1976
u' = 0,1695
v' = 0,1353

CIE1960
u = 0,1695
v = 0,0902

TM30
Rf = -
Rg = -

[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm
380	0,05	440	12,60	500	3,59	560	0,14	620	0,12	680	0,00	740	0,00
385	0,01	445	24,36	505	2,18	565	0,13	625	0,13	685	0,04	745	0,02
390	0,08	450	43,27	510	1,44	570	0,14	630	0,09	690	0,01	750	0,00
395	0,10	455	67,71	515	0,93	575	0,15	635	0,13	695	0,04	755	0,15
400	0,10	460	82,89	520	0,65	580	0,13	640	0,06	700	0,00	760	0,00
405	0,10	465	75,57	525	0,43	585	0,13	645	0,11	705	0,00	765	0,10
410	0,08	470	53,94	530	0,32	590	0,15	650	0,08	710	0,01	770	0,04
415	0,20	475	36,09	535	0,22	595	0,11	655	0,06	715	0,02	775	0,09
420	0,47	480	23,72	540	0,19	600	0,15	660	0,02	720	0,01	780	0,05
425	1,29	485	14,78	545	0,17	605	0,11	665	0,07	725	0,02		
430	2,85	490	9,06	550	0,17	610	0,15	670	0,04	730	0,00		
435	6,15	495	5,63	555	0,18	615	0,14	675	0,01	735	0,00		

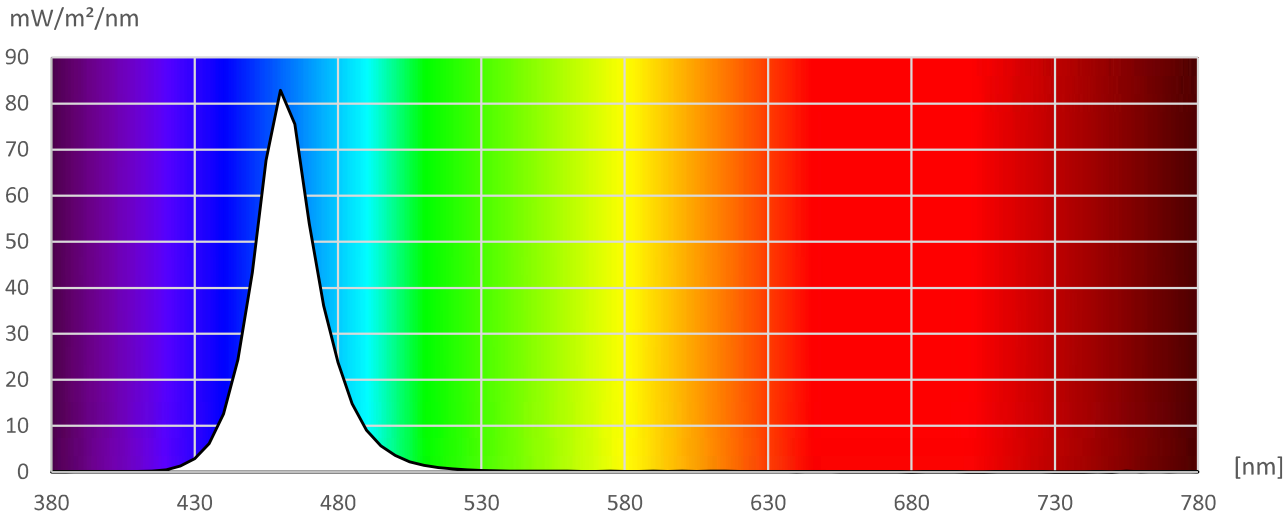
Thomann GmbH
Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

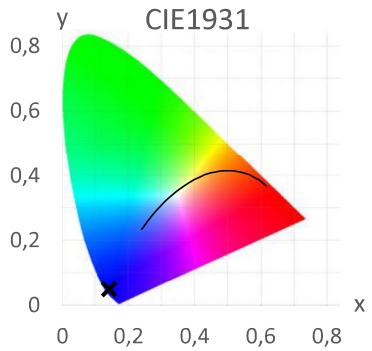
Sebastian Laske
First, last name of inspector

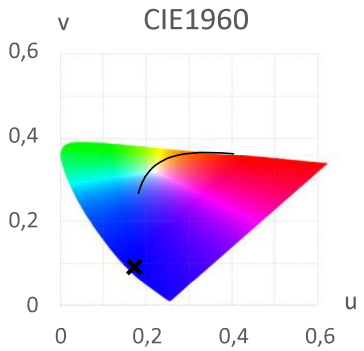
Burgebrach, 05.02.2019

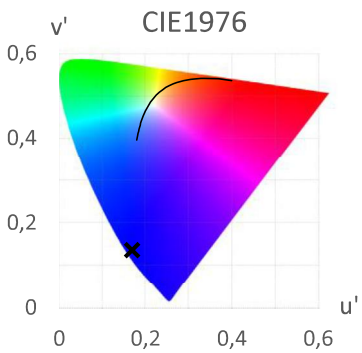
Measurement protocol

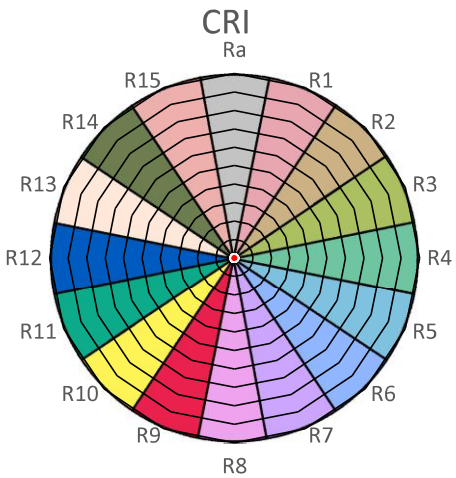
Test object:	Stairville HL-x18 QCL RGB WW Flood 18x8W Item 418761,418755 / @3 m / blue	Measurement file: Date of measurement: Time of measurement:	blue_3m.CSV 31.01.2019 20:07:08

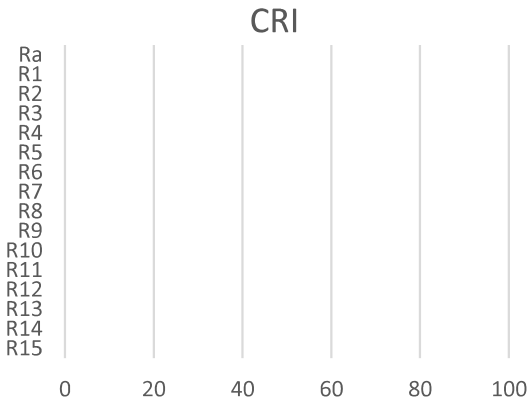












Thomann GmbH
Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Burgebrach, 05.02.2019

Sebastian Laske

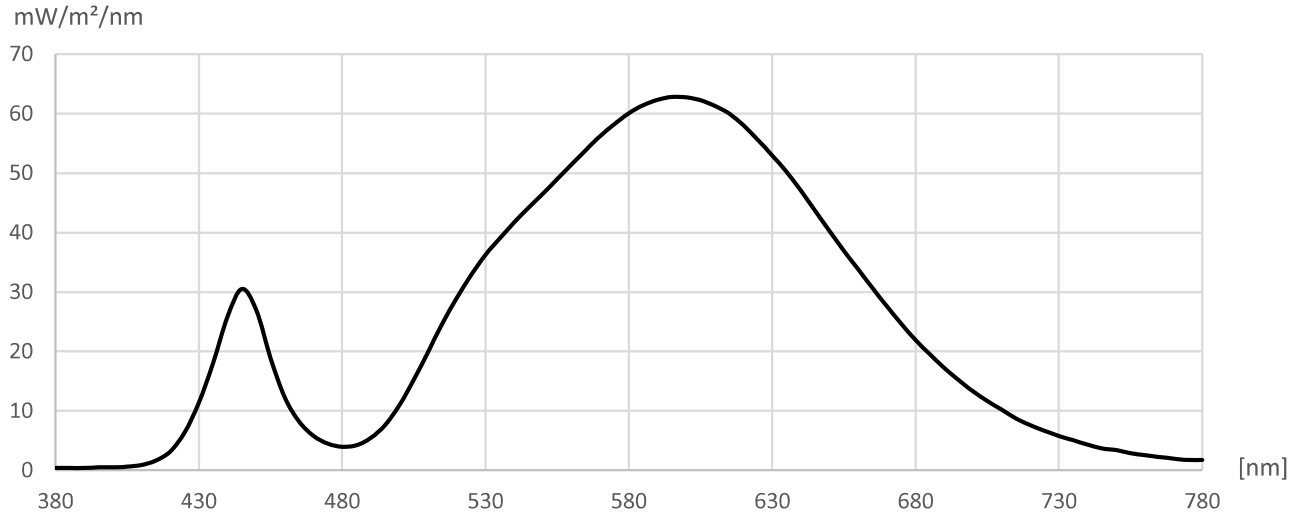
First, last name of inspector

Measurement protocol

th•mann

Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @1 m / ww

Measurement file: white_1m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:07:22



R1 = 71,1	Ra = 73,7	
R2 = 79,8	Re = 64,8	
R3 = 87,2	GAI = 46,8	
R4 = 72,7		
R5 = 68,7		
R6 = 70,4		
R7 = 83,3		
R8 = 56,0		
R9 = -7,6		
R10 = 52,2		
R11 = 67,1		
R12 = 42,3		
R13 = 71,9		
R14 = 92,2		
R15 = 65,2		

Illuminance	3309,55 lx
Ee	9,845 W/m²
LER	336,2 lm/W
correlated color temperature (CCT)	2966 K
Duv	0,0046
Saturation	59,2 %
Dominant wavelength	581 nm
Peak wavelength	596 nm
Flicker frequency	% < 2.5 Hz
Percent Flicker	< 2.5 %
Flicker index	% < 2.5

CIE1931	
x	0,4455
y	0,4188
CIE1976	
u'	0,2498
v'	0,5283
CIE1960	
u	0,2498
v	0,3522
TM30	
Rf	72,7
Rg	95,8

[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm
380	0,41	440	25,81	500	10,97	560	51,46	620	58,00	680	21,97	740	4,31
385	0,41	445	30,50	505	15,26	565	53,88	625	55,61	685	19,52	745	3,67
390	0,37	450	26,94	510	19,95	570	56,20	630	52,99	690	17,22	750	3,39
395	0,48	455	18,95	515	24,67	575	58,25	635	50,22	695	15,18	755	2,86
400	0,51	460	12,26	520	28,99	580	60,06	640	47,05	700	13,27	760	2,55
405	0,59	465	8,18	525	32,85	585	61,43	645	43,62	705	11,66	765	2,24
410	0,88	470	5,78	530	36,27	590	62,31	650	40,30	710	10,25	770	1,96
415	1,62	475	4,46	535	39,03	595	62,80	655	36,96	715	8,73	775	1,72
420	3,15	480	3,97	540	41,70	600	62,73	660	33,80	720	7,58	780	1,74
425	6,36	485	4,21	545	44,17	605	62,25	665	30,65	725	6,65		
430	11,32	490	5,43	550	46,51	610	61,32	670	27,58	730	5,77		
435	18,03	495	7,62	555	48,97	615	59,99	675	24,64	735	5,06		

Thomann GmbH
Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Sebastian Laske

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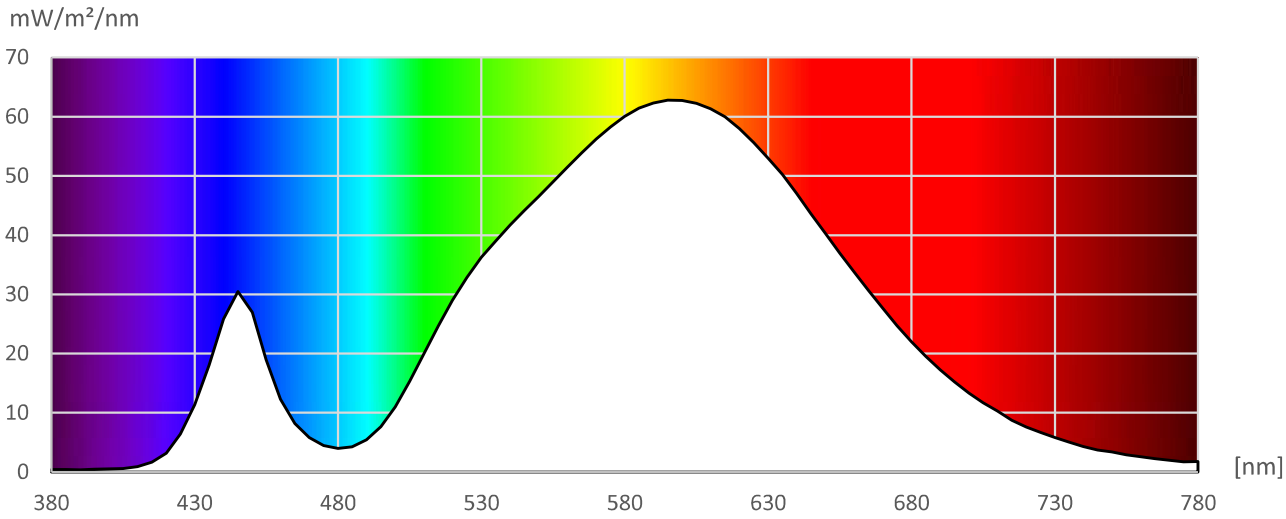
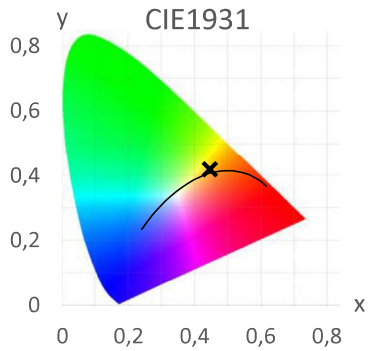
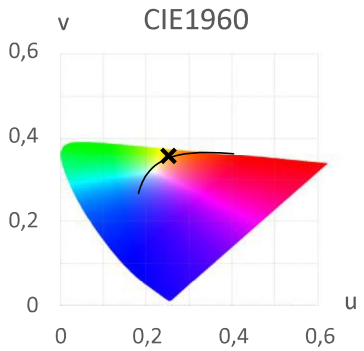
Burgebrach, 05.02.2019

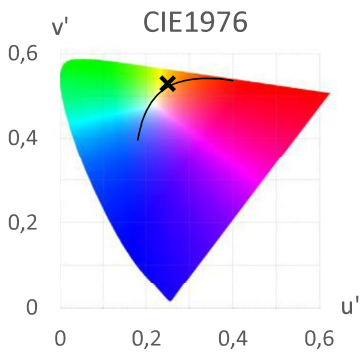
Measurement protocol

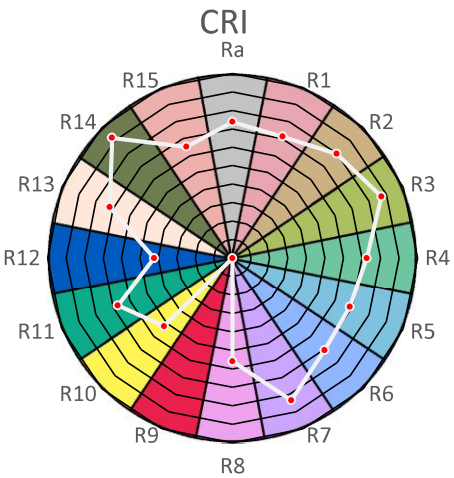
Test object:	Stairville	Measurement file:	white_1m.CSV
	HL-x18 QCL RGB WW Flood 18x8W	Date of measurement:	31.01.2019
	Item 418761,418755 / @1 m / ww	Time of measurement:	20:07:22

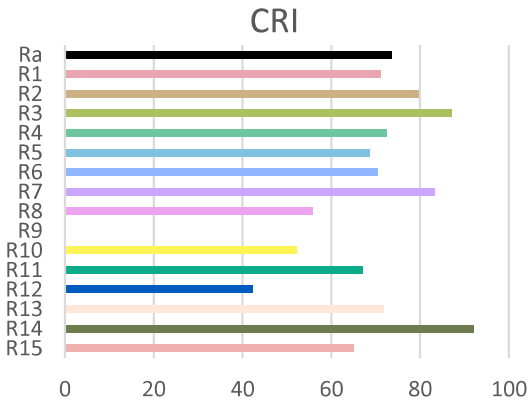












Thomann GmbH
Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

Sebastian Laske

First, last name of inspector

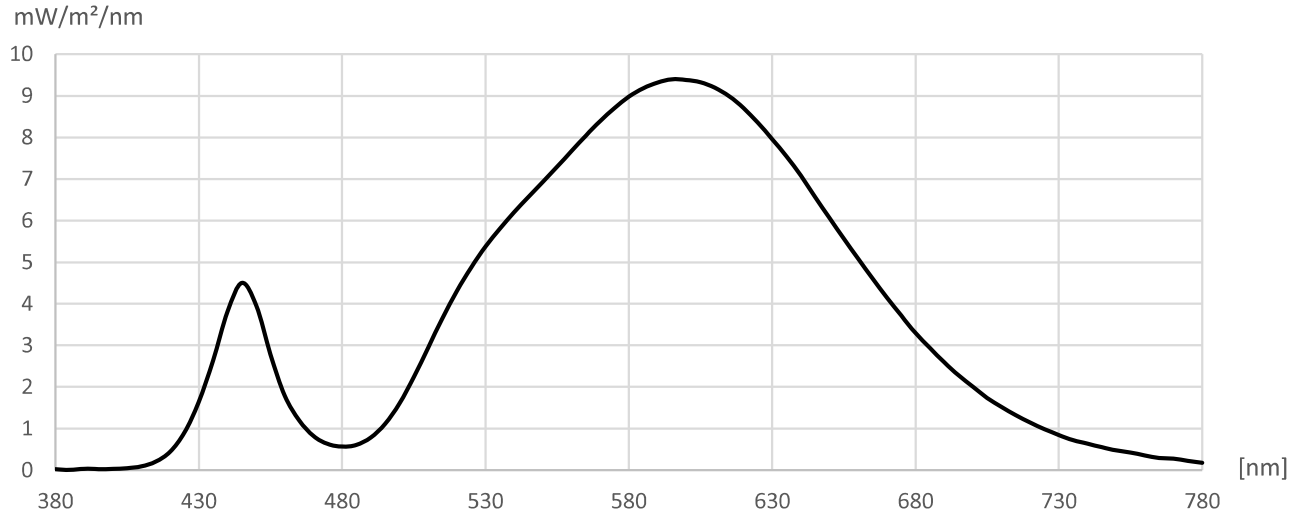
Burgebrach, 05.02.2019

Measurement protocol

th•mann

Test object: Stairville
HL-x18 QCL RGB WW Flood 18x8W
Item 418761,418755 / @3 m / ww

Measurement file: white_3m.CSV
Date of measurement: 31.01.2019
Time of measurement: 20:07:35



R1	= 71,1	Ra	= 73,6	Illuminance	493,84 lx	CIE1931	
R2	= 79,7	Re	= 64,8	Ee	1,467 W/m²	x	= 0,4470
R3	= 87,1	GAI	= 46,2	LER	336,7 lm/W	y	= 0,4195
R4	= 72,7						
R5	= 68,6			correlated color temperature (CCT)	2949 K	CIE1976	
R6	= 70,3			Duv	0,0047	u'	= 0,2505
R7	= 83,4					v'	= 0,5288
R8	= 56,0			Saturation	59,9 %		
R9	= -7,4					CIE1960	
R10	= 52,2			Dominant wavelength	581 nm	u	= 0,2505
R11	= 67,0			Peak wavelength	596 nm	v	= 0,3525
R12	= 42,0						
R13	= 71,8			Flicker frequency	% < 2.5 Hz	TM30	
R14	= 92,1			Percent Flicker	< 2.5 %	Rf	= 72,6
R15	= 65,2			Flicker index	% < 2.5	Rg	= 95,8

[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm	[nm]	mW/m²/nm
380	0,02	440	3,81	500	1,61	560	7,67	620	8,70	680	3,30	740	0,64
385	0,01	445	4,51	505	2,25	565	8,05	625	8,36	685	2,94	745	0,55
390	0,04	450	3,96	510	2,95	570	8,39	630	7,96	690	2,60	750	0,48
395	0,03	455	2,79	515	3,65	575	8,70	635	7,54	695	2,28	755	0,43
400	0,03	460	1,79	520	4,30	580	8,98	640	7,08	700	2,01	760	0,36
405	0,05	465	1,20	525	4,87	585	9,18	645	6,56	705	1,74	765	0,30
410	0,09	470	0,82	530	5,38	590	9,32	650	6,07	710	1,52	770	0,28
415	0,21	475	0,63	535	5,81	595	9,40	655	5,57	715	1,32	775	0,23
420	0,45	480	0,57	540	6,20	600	9,38	660	5,09	720	1,14	780	0,18
425	0,91	485	0,61	545	6,57	605	9,33	665	4,61	725	0,99		
430	1,64	490	0,78	550	6,93	610	9,19	670	4,15	730	0,85		
435	2,64	495	1,12	555	7,30	615	8,99	675	3,72	735	0,72		

Thomann GmbH
Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

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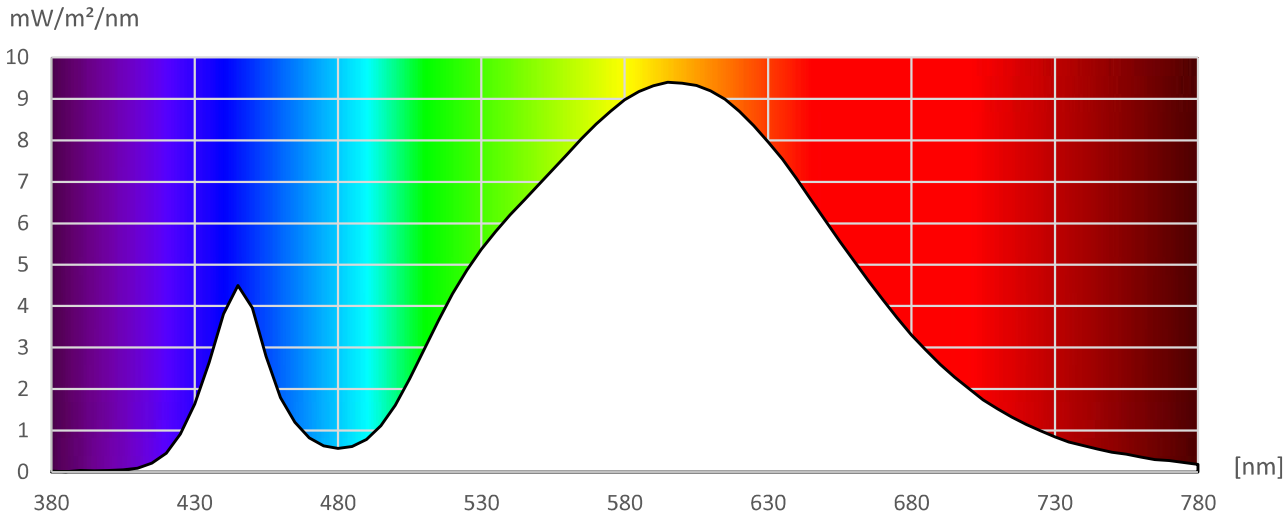
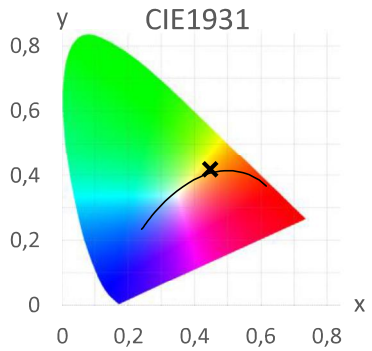
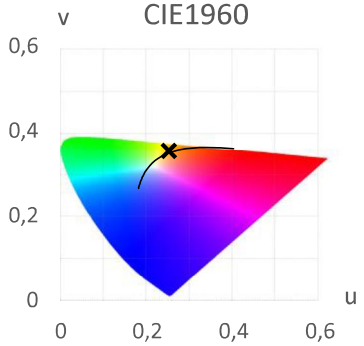
Burgebrach, 05.02.2019

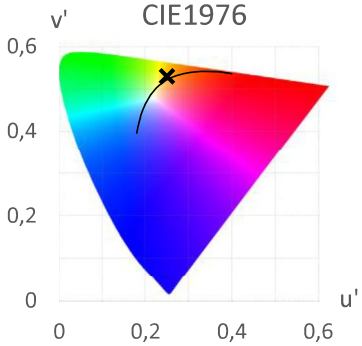
Measurement protocol

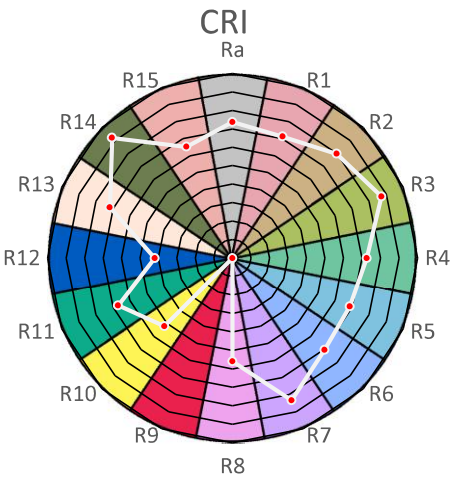
Test object:	Stairville	Measurement file:	white_3m.CSV
	HL-x18 QCL RGB WW Flood 18x8W	Date of measurement:	31.01.2019
	Item 418761,418755 / @3 m / ww	Time of measurement:	20:07:35

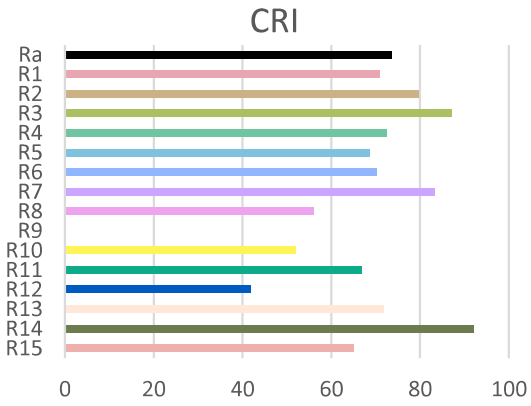












Thomann GmbH
Hans-Thomann-Str. 1
D-96138 Burgebrach, Germany

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Sebastian Laske

First, last name of inspector