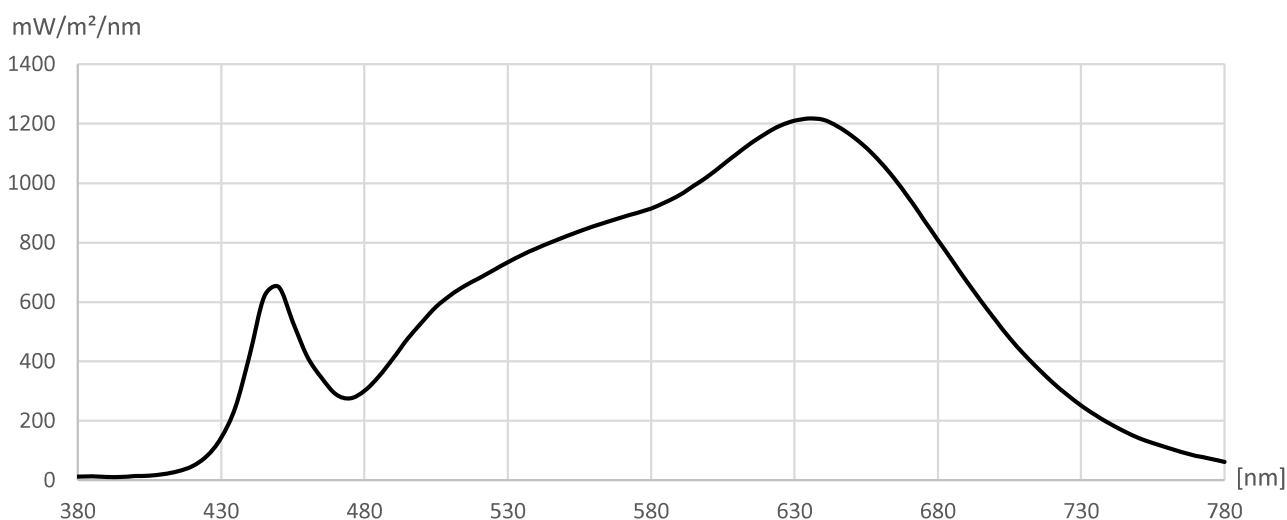


Measurement protocol

th.mann

Test object: Varytec
LED Theater Spot 250 MZ
444937 / narrow / @ 1 m

Measurement file: 444937_15_1m.CSV
Date of measurement: 23.12.2019
Time of measurement: 12:31:40



R1 = 98,2	Ra = 96,7	Illuminance	61748,4 lx	CIE1931
R2 = 97,3	Re = 95,3	Ee	230,144 W/m ²	x = 0,4235
R3 = 94,9	GAI = 63,9	LER	268,3 lm/W	y = 0,3993
R4 = 96,8				
R5 = 97,4		correlated color temperature (CCT)	3187 K	CIE1976
R6 = 96,2		Duv	0,0001	u' = 0,2439
R7 = 97,2				v' = 0,5175
R8 = 95,7		Saturation	46,9 %	
R9 = 88,6				CIE1960
R10 = 92,9		Dominant wavelength	581 nm	u = 0,2439
R11 = 96,2		Peak wavelength	634 nm	v = 0,3450
R12 = 86,5				
R13 = 98,0		Flicker frequency	362,3 Hz	TM30
R14 = 96,5		Percent Flicker	3,8 %	Rf = 94,3
R15 = 97,0		Flicker index	0,007	Rg = 102,2

[nm]	mW/m ² /nm	[nm]	mW/m ² /nm	[nm]	mW/m ² /nm	[nm]	mW/m ² /nm	[nm]	mW/m ² /nm	[nm]	mW/m ² /nm	[nm]	mW/m ² /nm
380	11,83	440	422,98	500	531,63	560	854,92	620	1167,12	680	809,21	740	190,38
385	13,43	445	617,91	505	583,70	565	869,75	625	1192,79	685	739,94	745	165,30
390	11,10	450	650,51	510	622,55	570	885,33	630	1209,31	690	670,09	750	142,34
395	11,04	455	533,85	515	654,03	575	899,18	635	1216,87	695	604,04	755	125,14
400	13,96	460	417,74	520	680,10	580	914,61	640	1212,63	700	540,18	760	110,00
405	15,58	465	345,04	525	706,98	585	935,76	645	1190,84	705	479,89	765	95,23
410	20,76	470	289,39	530	733,69	590	959,96	650	1159,64	710	425,10	770	82,50
415	30,70	475	275,30	535	758,41	595	991,07	655	1119,06	715	375,95	775	72,72
420	47,85	480	300,83	540	780,03	600	1023,63	660	1070,40	720	329,01	780	61,90
425	81,63	485	348,83	545	800,68	605	1061,72	665	1012,93	725	288,93		
430	141,81	490	409,65	550	819,36	610	1099,24	670	948,02	730	251,52		
435	245,69	495	475,00	555	837,63	615	1135,14	675	879,09	735	219,27		

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Burgebrach, 23.12.2019

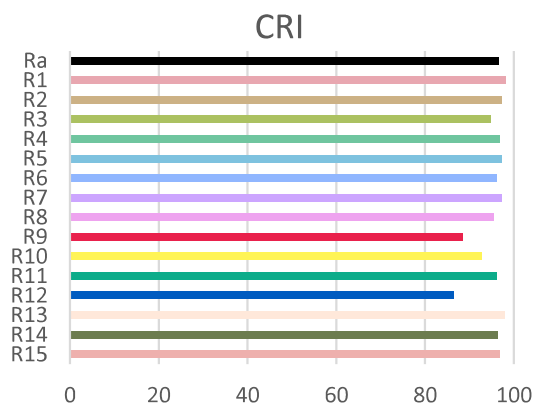
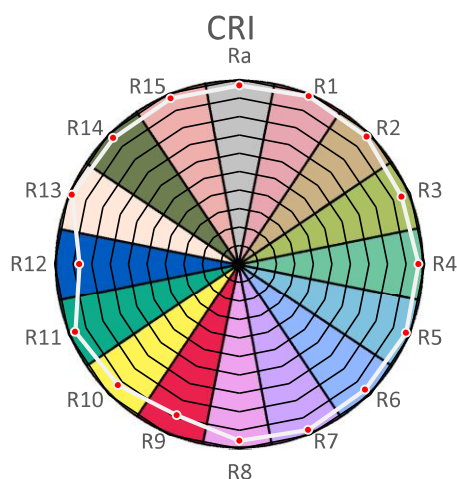
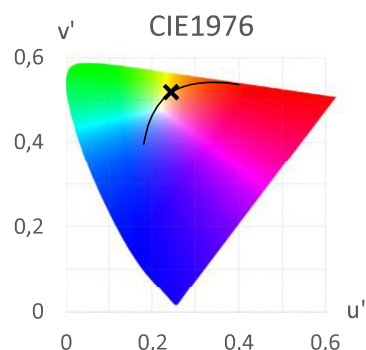
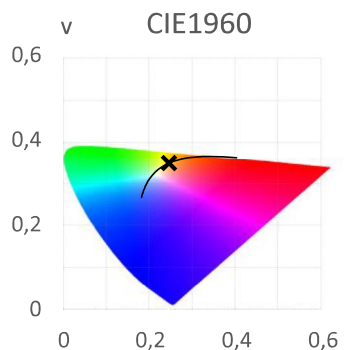
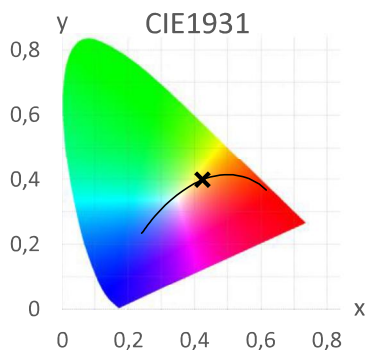
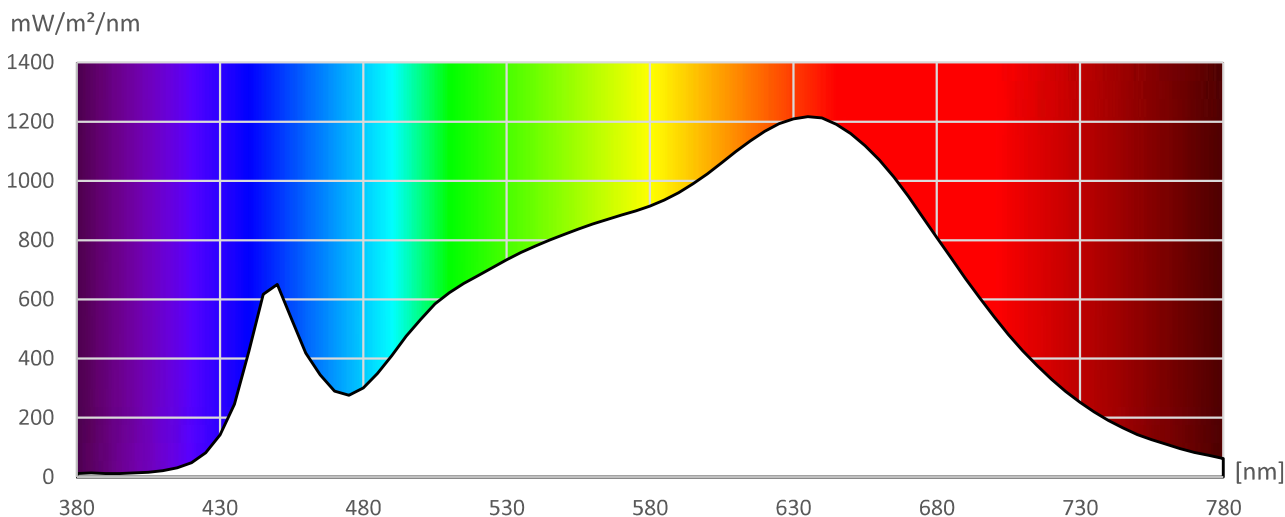
First, last name of inspector

Measurement protocol

th•mann

Test object: Varytec
LED Theater Spot 250 MZ
444937 / narrow / @ 1 m

Measurement file: 444937_15_1m.CS
Date of measurement: 23.12.2019
Time of measurement: 12:31:40



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Burgebrach, 23.12.2019

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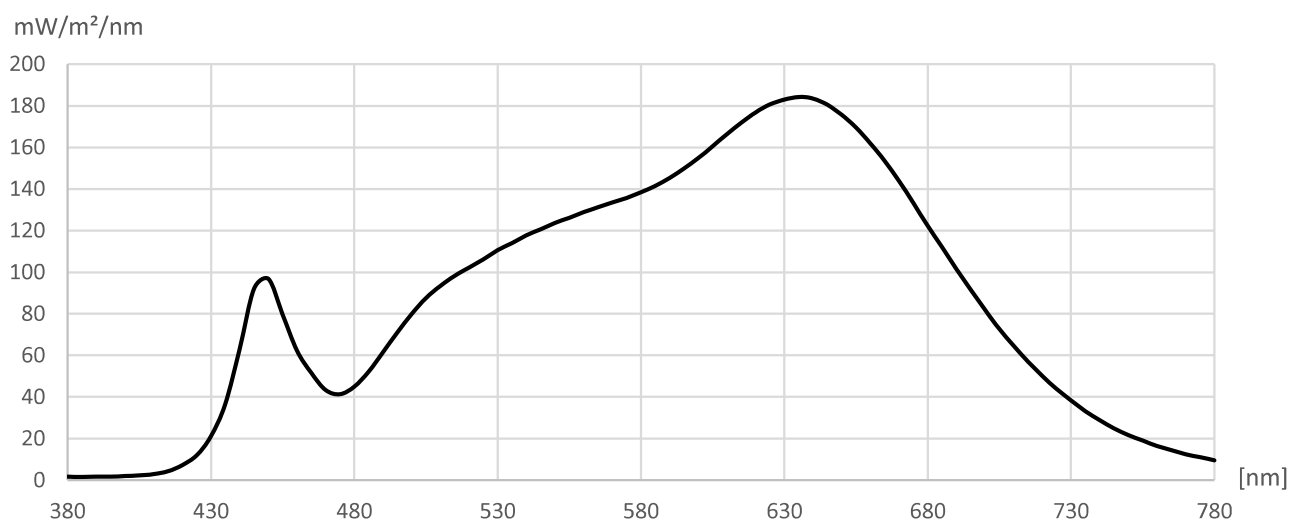
First, last name of inspector

Measurement protocol

th•mann

Test object: Varytec
LED Theater Spot 250 MZ
444937 / narrow / @ 3 m

Measurement file: 444937_15_3m.CSV
Date of measurement: 23.12.2019
Time of measurement: 12:31:52



R1 = 98,1	Ra = 96,7	Illuminance	9317,9 lx	CIE1931
R2 = 97,3	Re = 95,2	Ee	34,746 W/m²	x = 0,4246
R3 = 95,0	GAI = 63,4	LER	268,2 lm/W	y = 0,3998
R4 = 96,8				
R5 = 97,4		correlated color temperature (CCT)	3169 K	CIE1976
R6 = 96,2		Duv	0,0002	u' = 0,2444
R7 = 97,2				v' = 0,5179
R8 = 95,5		Saturation	47,4 %	
R9 = 88,2				CIE1960
R10 = 92,9		Dominant wavelength	581 nm	u = 0,2444
R11 = 96,2		Peak wavelength	634 nm	v = 0,3452
R12 = 86,6				
R13 = 97,9		Flicker frequency	484,7 Hz	TM30
R14 = 96,6		Percent Flicker	f > 400 Hz %	Rf = 94,3
R15 = 96,8		Flicker index	f > 400 Hz	Rg = 102,2

[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	1,69	440	63,00	500	79,94	560	128,90	620	176,85	680	122,51	740	28,96
385	1,58	445	92,10	505	87,63	565	131,26	625	180,62	685	112,09	745	24,90
390	1,78	450	96,76	510	93,43	570	133,54	630	182,92	690	101,64	750	21,77
395	1,70	455	79,79	515	98,21	575	135,73	635	184,22	695	91,64	755	19,04
400	1,98	460	62,40	520	102,23	580	138,40	640	183,51	700	81,95	760	16,52
405	2,30	465	51,59	525	106,14	585	141,53	645	180,48	705	72,79	765	14,52
410	2,91	470	43,42	530	110,57	590	145,28	650	175,67	710	64,71	770	12,48
415	4,27	475	41,38	535	114,04	595	149,82	655	169,63	715	57,09	775	11,07
420	7,32	480	45,03	540	117,65	600	154,84	660	161,98	720	50,18	780	9,57
425	11,98	485	52,09	545	120,64	605	160,55	665	153,51	725	43,78		
430	21,07	490	61,49	550	123,62	610	166,39	670	143,78	730	38,47		
435	36,60	495	71,05	555	126,22	615	171,90	675	133,28	735	33,28		

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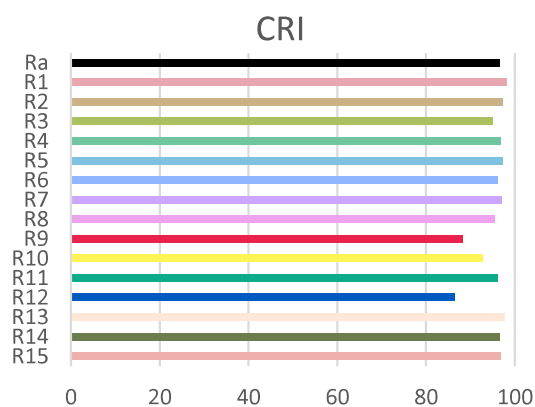
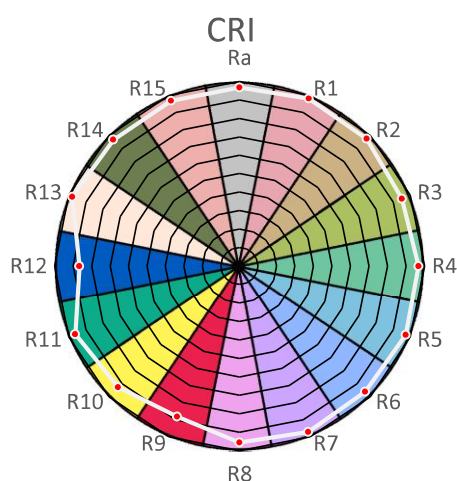
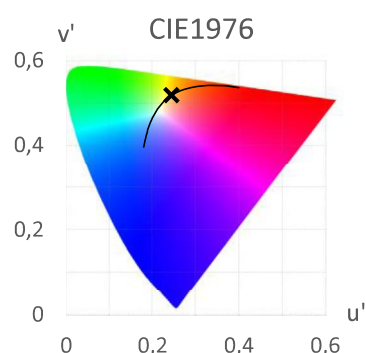
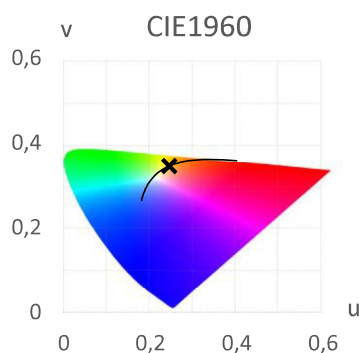
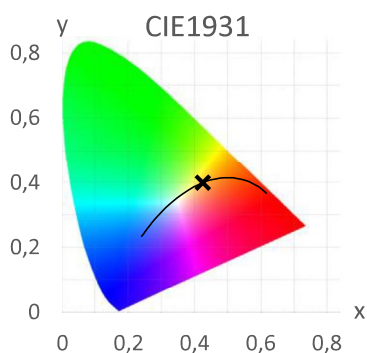
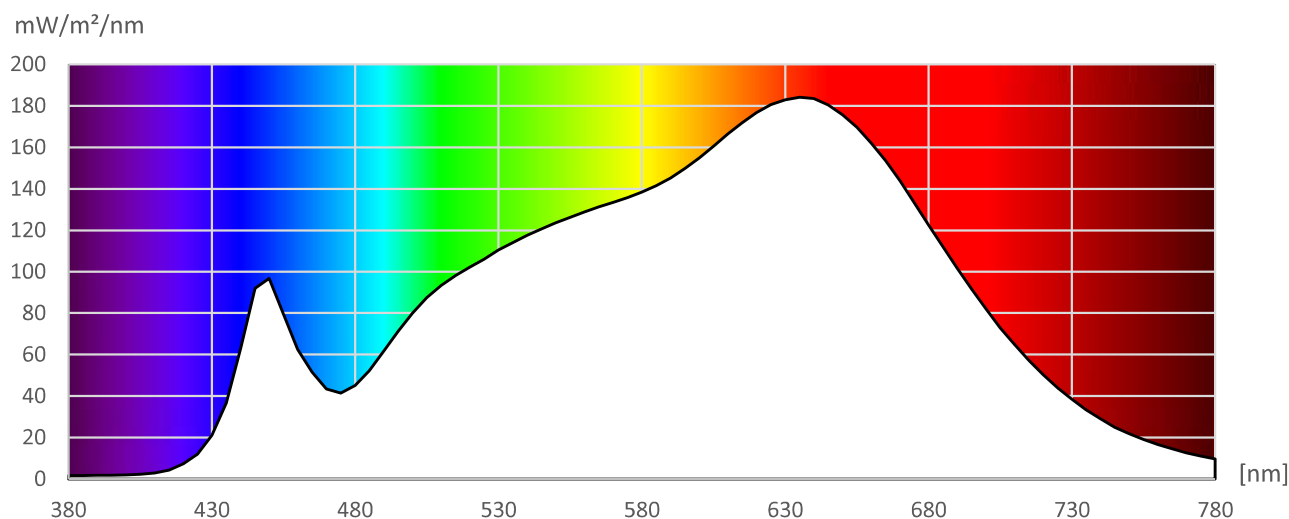
First, last name of inspector

Measurement protocol

th•mann

Test object: Varytec
LED Theater Spot 250 MZ
444937 / narrow / @ 3 m

Measurement file: 444937_15_3m.CS
Date of measurement: 23.12.2019
Time of measurement: 12:31:52



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Burgebrach, 23.12.2019

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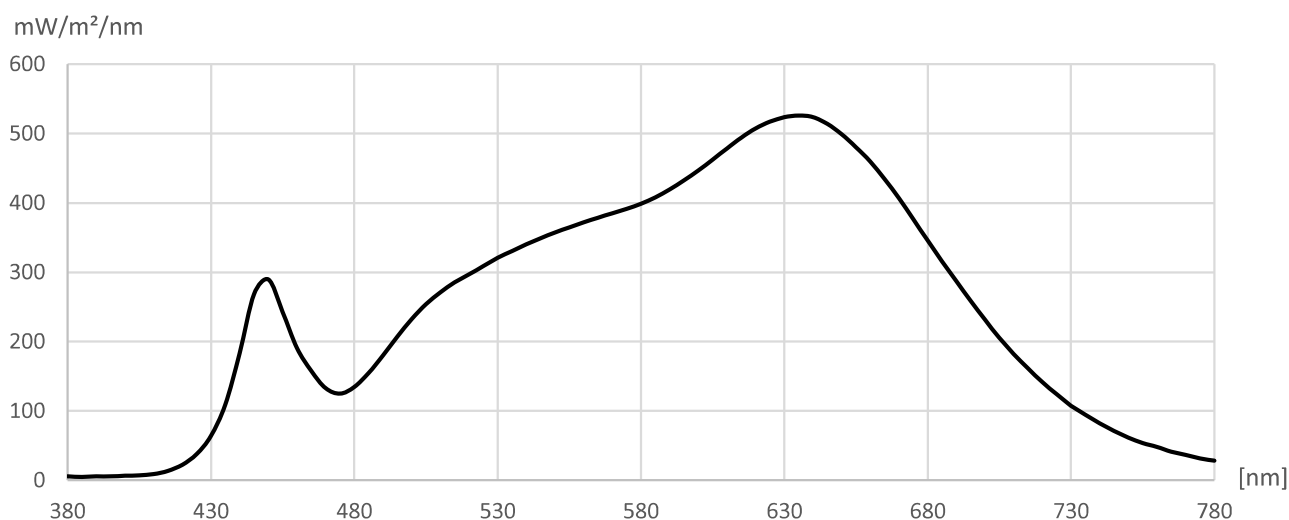
First, last name of inspector

Measurement protocol

th•mann

Test object: Varytec
LED Theater Spot 250 MZ
444937 / wide / @ 1 m

Measurement file: 444937_52_1m.CSV
Date of measurement: 23.12.2019
Time of measurement: 12:35:19



R1 = 98,3	Ra = 96,8	Illuminance	26898,77 lx	CIE1931
R2 = 97,5	Re = 95,3	Ee	100,061 W/m ²	x = 0,4217
R3 = 95,1	GAI = 64,9	LER	268,8 lm/W	y = 0,3977
R4 = 96,9				
R5 = 97,5		correlated color temperature (CCT)	3210 K	CIE1976
R6 = 96,3		Duv	-0,0002	u' = 0,2434
R7 = 97,2				v' = 0,5166
R8 = 95,5		Saturation	45,9 %	
R9 = 88,2				CIE1960
R10 = 93,1		Dominant wavelength	581 nm	u = 0,2434
R11 = 96,2		Peak wavelength	634 nm	v = 0,3444
R12 = 86,4				
R13 = 98,1		Flicker frequency	% < 2.5 Hz	TM30
R14 = 96,6		Percent Flicker	< 2.5 %	Rf = 94,3
R15 = 97,1		Flicker index	% < 2.5	Rg = 102,2

[nm]	mW/m ² /nm	[nm]	mW/m ² /nm	[nm]	mW/m ² /nm	[nm]	mW/m ² /nm	[nm]	mW/m ² /nm	[nm]	mW/m ² /nm	[nm]	mW/m ² /nm
380	5,47	440	183,03	500	232,44	560	371,78	620	507,43	680	346,16	740	82,30
385	4,76	445	268,52	505	253,94	565	378,62	625	516,92	685	315,97	745	71,27
390	5,66	450	289,73	510	270,97	570	384,99	630	523,39	690	287,28	750	61,53
395	5,56	455	243,15	515	285,19	575	391,28	635	525,90	695	258,58	755	53,64
400	6,42	460	191,00	520	296,74	580	398,81	640	523,62	700	231,52	760	48,08
405	7,19	465	157,74	525	308,67	585	408,06	645	513,67	705	205,78	765	41,15
410	8,88	470	132,64	530	320,71	590	419,32	650	499,21	710	182,36	770	36,68
415	13,68	475	124,84	535	330,49	595	432,32	655	480,42	715	161,37	775	31,41
420	22,44	480	134,59	540	340,02	600	446,57	660	459,51	720	141,52	780	28,05
425	37,75	485	154,53	545	349,03	605	462,26	665	434,17	725	124,01		
430	63,75	490	179,87	550	357,34	610	478,64	670	406,56	730	107,67		
435	109,00	495	206,97	555	364,74	615	494,12	675	376,19	735	94,79		

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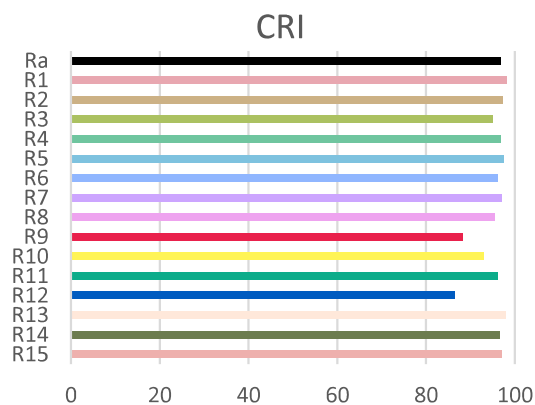
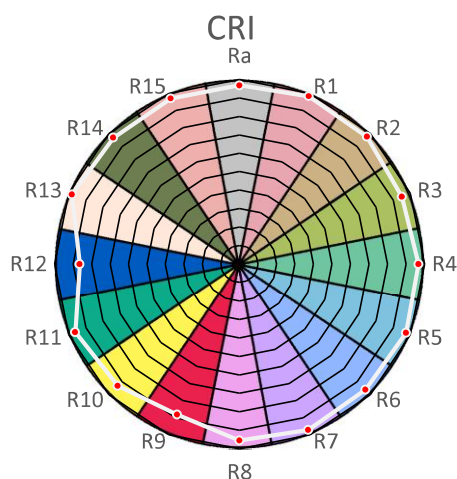
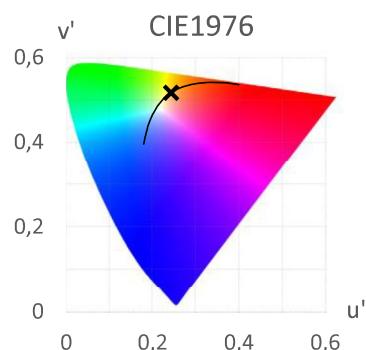
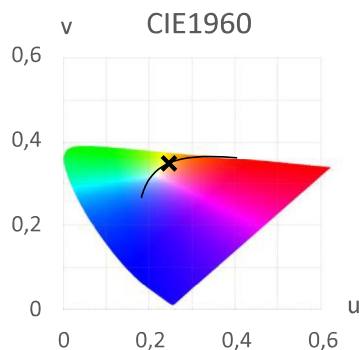
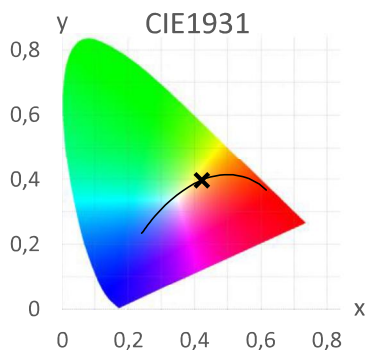
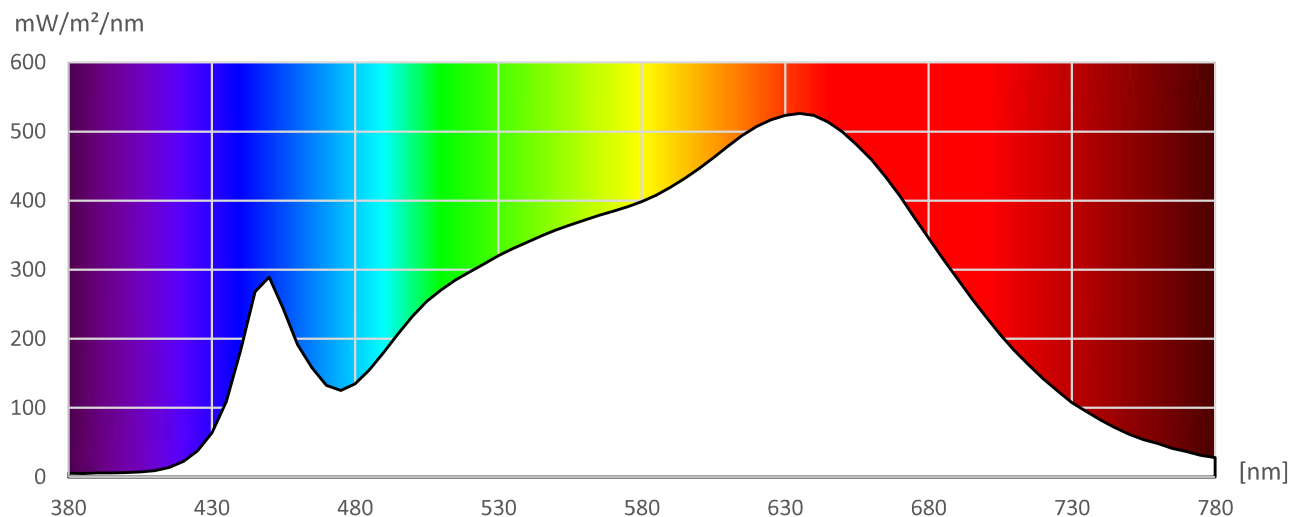
First, last name of inspector

Measurement protocol

th•mann

Test object: Varytec
LED Theater Spot 250 MZ
444937 / wide / @ 1 m

Measurement file: 444937_52_1m.CS
Date of measurement: 23.12.2019
Time of measurement: 12:35:19



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Burgebrach, 23.12.2019

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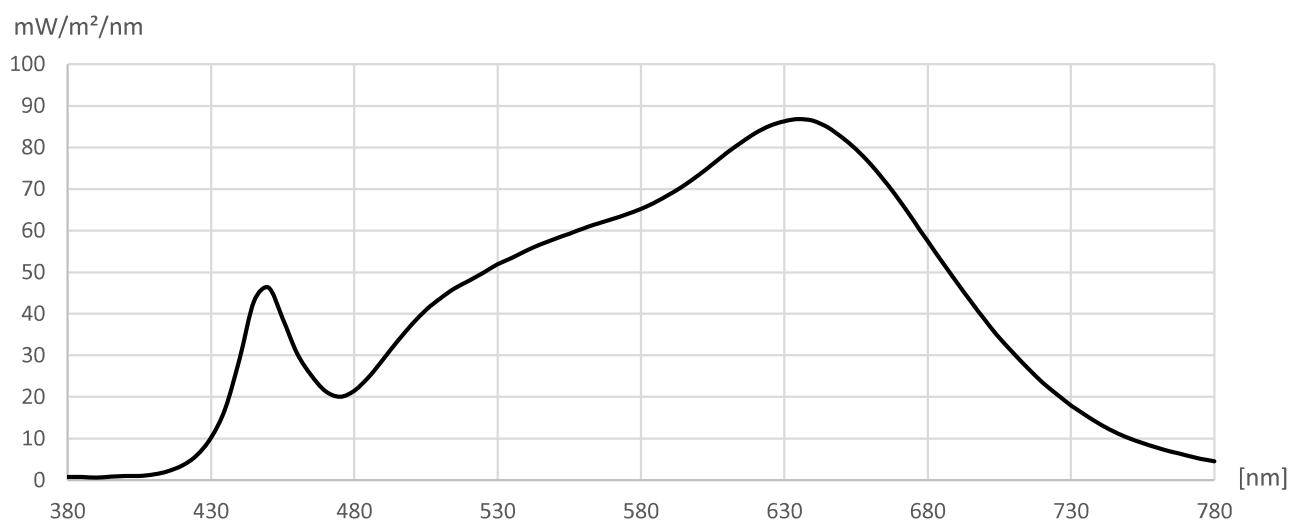
First, last name of inspector

Measurement protocol

th.mann

Test object: Varytec
LED Theater Spot 250 MZ
444937 / wide / @ 3 m

Measurement file: 444937_52_3m.CSV
Date of measurement: 23.12.2019
Time of measurement: 12:35:31



R1 = 98,3	Ra = 96,8	Illuminance	4387,05 lx	CIE1931
R2 = 97,6	Re = 95,4	Ee	16,378 W/m ²	x = 0,4240
R3 = 95,4	GAI = 64,2	LER	267,9 lm/W	y = 0,3983
R4 = 96,8				
R5 = 97,6		correlated color temperature (CCT)	3167 K	CIE1976
R6 = 96,5		Duv	-0,0004	u' = 0,2447
R7 = 97,1				v' = 0,5172
R8 = 95,2		Saturation	46,8 %	
R9 = 88,0				CIE1960
R10 = 93,5		Dominant wavelength	581 nm	u = 0,2447
R11 = 96,2		Peak wavelength	634 nm	v = 0,3448
R12 = 87,0				
R13 = 98,1		Flicker frequency	% < 2.5 Hz	TM30
R14 = 96,7		Percent Flicker	< 2.5 %	Rf = 94,3
R15 = 97,0		Flicker index	% < 2.5	Rg = 102,3

[nm]	mW/m ² /nm	[nm]	mW/m ² /nm	[nm]	mW/m ² /nm	[nm]	mW/m ² /nm	[nm]	mW/m ² /nm	[nm]	mW/m ² /nm	[nm]	mW/m ² /nm
380	0,76	440	29,24	500	37,40	560	60,57	620	83,49	680	57,51	740	13,55
385	0,76	445	43,01	505	40,96	565	61,72	625	85,18	685	52,56	745	11,68
390	0,64	450	46,33	510	43,70	570	62,74	630	86,28	690	47,71	750	10,14
395	0,85	455	38,95	515	46,09	575	63,92	635	86,78	695	43,00	755	8,90
400	1,01	460	30,57	520	47,98	580	65,23	640	86,38	700	38,46	760	7,83
405	1,05	465	25,24	525	49,86	585	66,84	645	84,85	705	34,27	765	6,89
410	1,38	470	21,35	530	51,90	590	68,74	650	82,47	710	30,49	770	6,01
415	2,18	475	20,07	535	53,50	595	70,84	655	79,55	715	26,87	775	5,21
420	3,56	480	21,55	540	55,15	600	73,26	660	76,02	720	23,55	780	4,58
425	5,99	485	24,78	545	56,69	605	75,98	665	71,93	725	20,65		
430	10,16	490	28,98	550	58,00	610	78,70	670	67,39	730	18,02		
435	17,22	495	33,36	555	59,27	615	81,23	675	62,45	735	15,68		

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Burgebrach, 23.12.2019

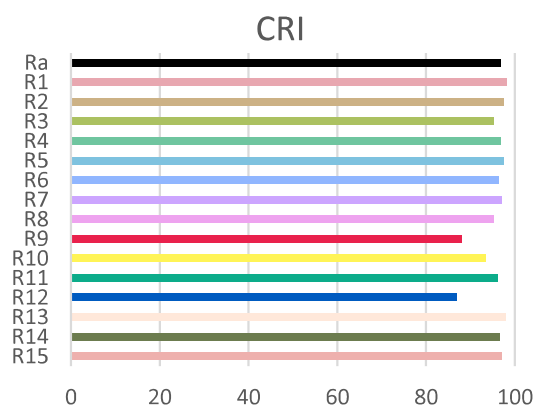
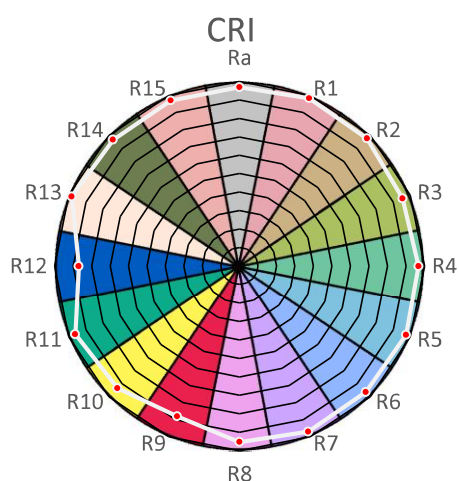
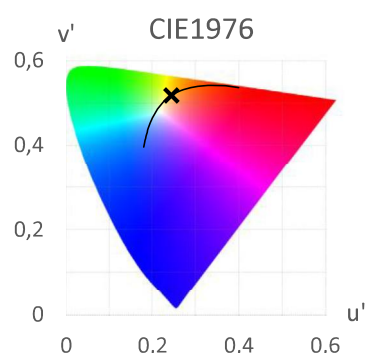
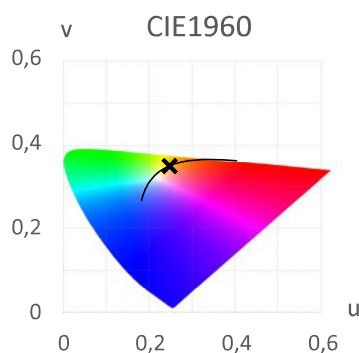
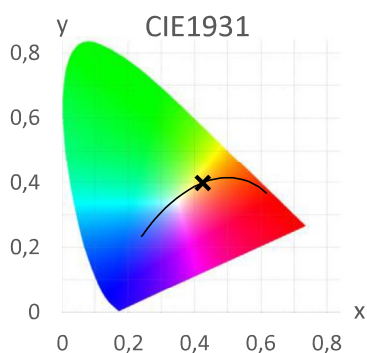
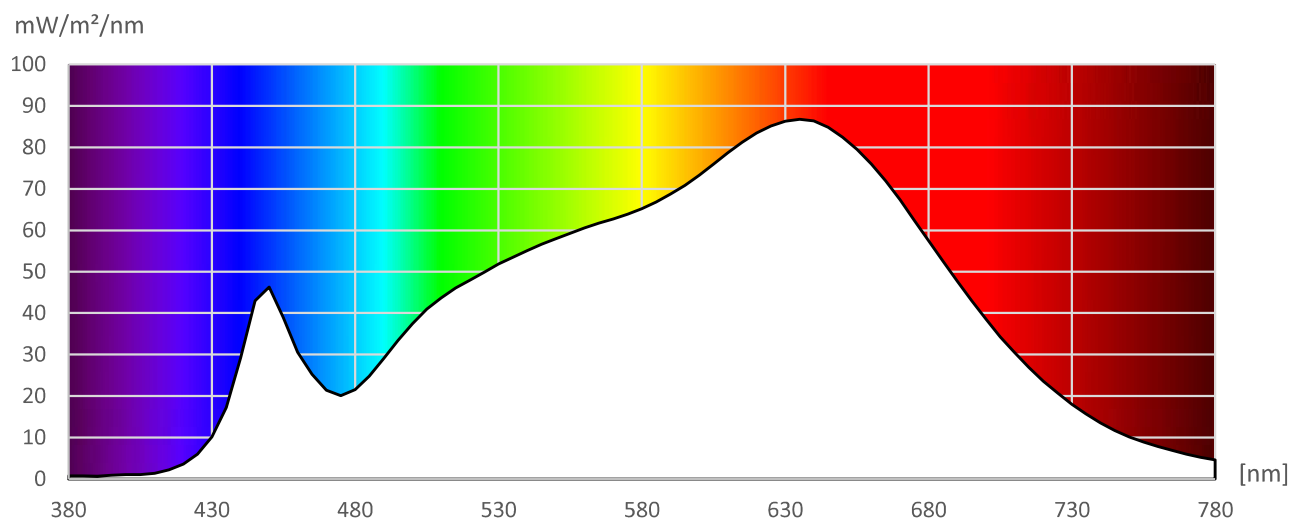
First, last name of inspector

Measurement protocol

th•mann

Test object: Varytec
LED Theater Spot 250 MZ
444937 / wide / @ 3 m

Measurement file: 444937_52_3m.CS
Date of measurement: 23.12.2019
Time of measurement: 12:35:31



Thomann GmbH
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Burgebrach, 23.12.2019

Sebastian Laske

First, last name of inspector