

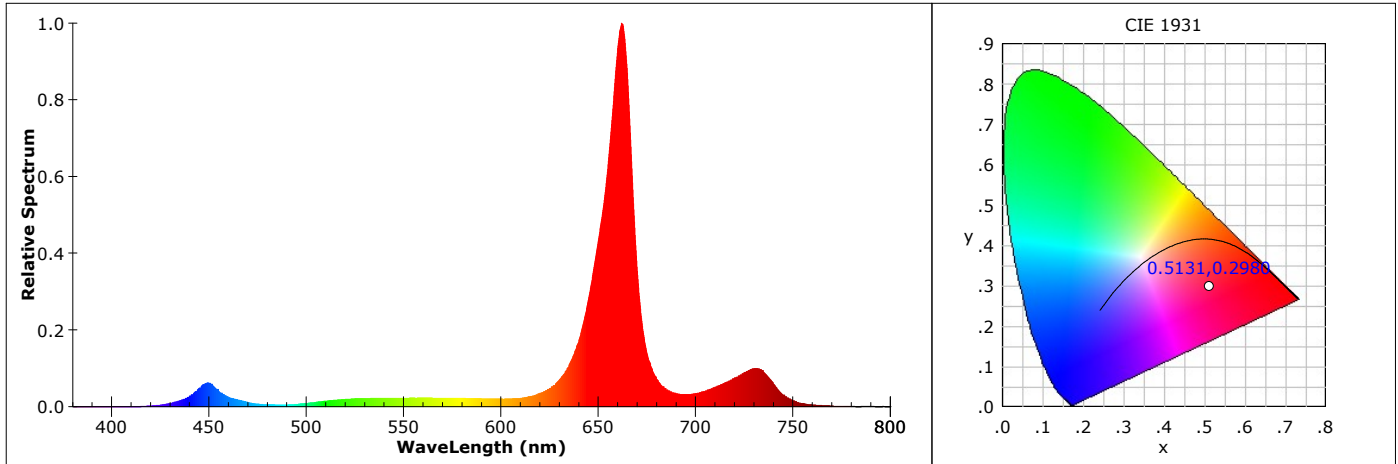
Spectroradiometer Lightsource Test

Report No: 1086

Test Time: 2026-05-04 15:10:03

Category: Growth
 Spec: Linear 1500 Growth 160W
 Manufacturer: Industrial Lighting Ltd

Type: LED
 Number: 1086
 Submitter:



CIE Colorimetric Parameters

CIE(x,y): 0.5131,0.2980 CIE(u,v): 0.3698,0.3222 CIE(u',v'): 0.3698,0.4833
 CCT: 1406 K (Duv=-0.037744) Dominant Wavelength: 729.9 nm Color Purity: 0.450
 Peak Wavelength: 662.2 nm Half Width: 16.5 nm Color Ratio: R:0.526, G:0.452, B:0.022

Color Render Index: Ra:23.9 , avgR(1~14):3.4 , avgR(1~15):3.0

R1: 13	R2: 50	R3: 72	R4: -0	R5: -5	R6: 35	R7: 54	R8: -28
R9: -126	R10: 4	R11: -35	R12: -77	R13: 12	R14: 78	R15: -3	

Color Quality Scale: Qa:12.1 , Qf:0.0 , Qp:391.4 , Qg:325.6 ,

Q1: 47	Q2: 54	Q3: 54	Q4: 45	Q5: 34	Q6: 16	Q7: 2	Q8: 0
Q9: 18	Q10: 45	Q11: 37	Q12: 21	Q13: 7	Q14: 0	Q15: 14	

TM-30-18: Rf:31 , Rg:193 Gamut Area Index (GAI): GAI_EES:120.1 , GAI_BB_8:1834.5 , GAI_BB_15:1259.8

Photometric Parameters

Luminous Flux: 10102.06 lm Radiant Power: 112.983 W Efficiency: 62.46 lm/W
 Energy Efficiency Class:G (EU 2019/2015 η_{TM}:62.46lm/W) S/P: 1.136

Pupil Flux: 11154.67 Plm (Kp=1.104) Pupil Lumens per Watt: 68.97 Plm/W
 Cirtopic Flux: 22666.06 lm Mesopic Flux (CIE R.): 10392.99 lm (Lp=0.300)
 Mesopic Flux (USP): 10471.01 lm (Lp=0.300) Mesopic Flux (MOVE): 10461.49 lm (Lp=0.300)

Electric Parameters

Voltage: 230.200 V Current: 0.7060 A Power: 161.740 W
 Power Factor: 0.9940 Frequency: 49.99 Hz

Geometry: 4n, m	Self-absorption Factor: 1.373	Photometric Method: sphere-spectroradiometer
Warmup Time: 1 Hours	Integration Time: 4 ms	Peak of Signal: 45688
Spectroradiometer: LMS-9000A	Digital Power Meter: LS2010	Power Source: LSP Series

Test Lab: Lighting Lab TU Gabrovo
 Operator: Ivaylo Stoyanov

Testing Environment: Ts:23.4°C, Ta:24.1°C,42%
 Approver:

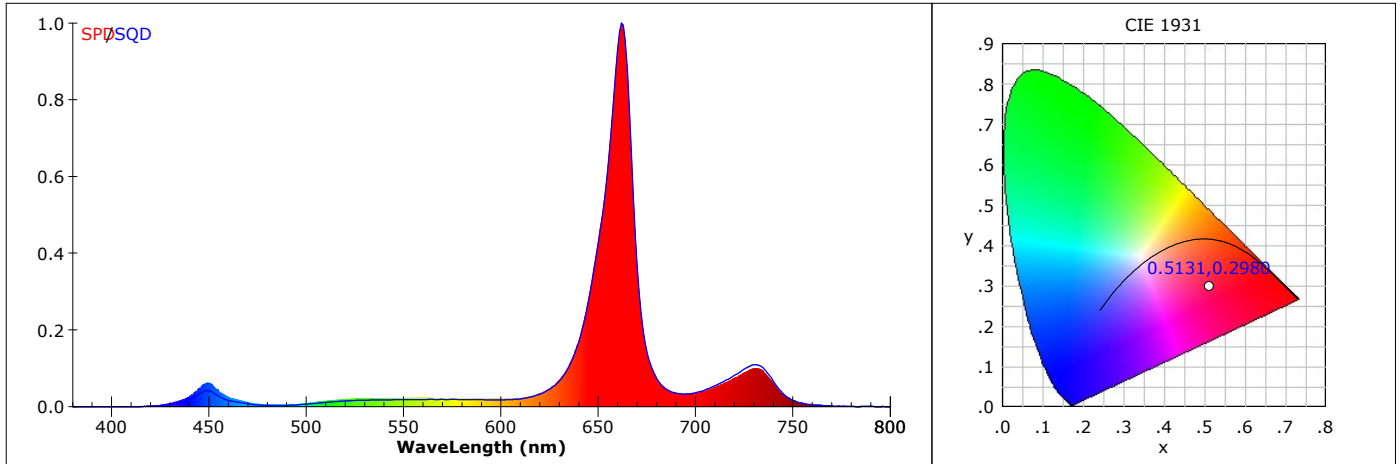
Plant Growth Lamp Test Report

Report No: 1086

Test Time: 2026-05-04 15:10:03

Category: Growth
 Spec: Linear 1500 Growth 160W
 Manufacturer: Industrial Lighting Ltd

Type: LED
 Number: 1086
 Submitter:



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R9: -126	R10: 4	R11: -35	R12: -77	R13: 12	R14: 78	R15: -3	

Photometric Parameters

Luminous Flux: 10102.06 lm	Efficiency: 62.46 lm/W
Radiant Power: 112.983 W	Radiant Efficiency (η): 0.699
Photosynthetic Photon Flux (Φp): 533.143 μmol/s	Photosynthetic Photon Efficacy (Kp): 3.296 μmol/J
Photosynthetic Radiant Flux (Φe): 100.118 W	Photosynthetic Radiant Efficiency (ηe): 0.619
Photon Flux (400~500nm): 22.150 μmol/s	Photon Flux (500~600nm): 36.880 μmol/s
Photon Flux (600~700nm): 474.114 μmol/s	Photon Flux (PFfr 700~800nm): 78.033 μmol/s
Photon Flux (PFuv 280~400nm): 0.018 μmol/s	Photon Flux (PF_PBAR): 611.195 μmol/s
Radiant Flux (400~500nm): 5.849 W	Radiant Flux (500~600nm): 7.985 W
Radiant Flux (600~700nm): 86.284 W	Radiant Flux (700~800nm): 12.859 W
Radiant Flux (280~400nm): 0.006 W	R/B: 14.8 R/FR: 6.7
YPF (320~780nm): 502.166 μmol/s	YPF (400~500nm): 16.300 μmol/s
YPF (500~600nm): 32.032 μmol/s	YPF (600~700nm): 438.758 μmol/s
YPF (700~780nm): 15.065 μmol/s	YPF (320~400nm): 0.011 μmol/s
Radiant Flux (Chl-A): 25.256 W	Radiant Flux (Chl-B): 9.876 W

Electric Parameters

Voltage: 230.200 V Current: 0.7060 A Power: 161.740 W
 Power Factor: 0.9940 Frequency: 49.99 Hz

Geometry: 4n, m	Self-absorption Factor: 1.373	Photometric Method: sphere-spectroradiometer
Warmup Time: 1 Hours	Integration Time: 4 ms	Peak of Signal: 45688
Spectroradiometer: LMS-9000A	Digital Power Meter: LS2010	Power Source: LSP Series

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 Operator: Ivaylo Stoyanov

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 Approver:

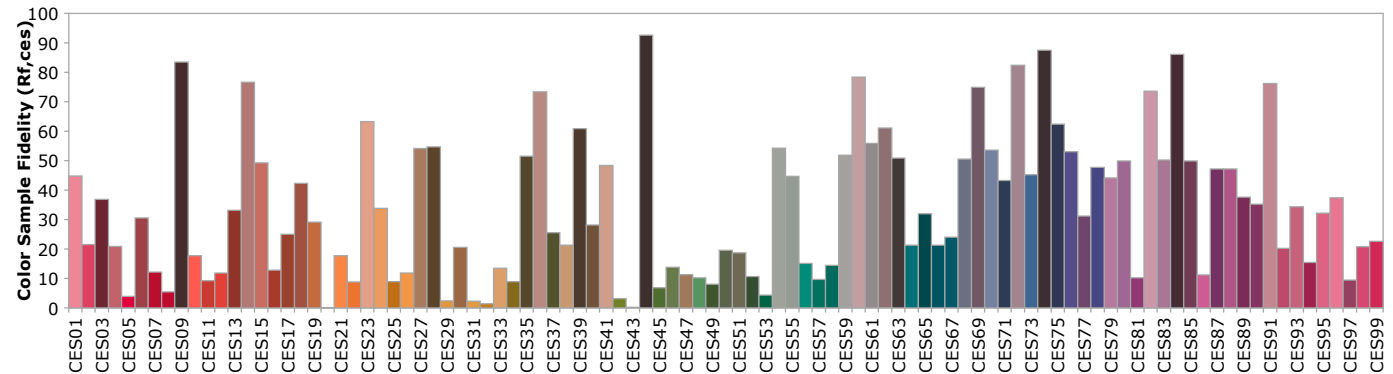
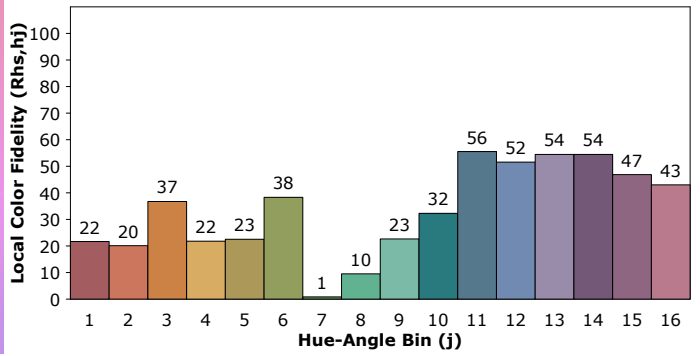
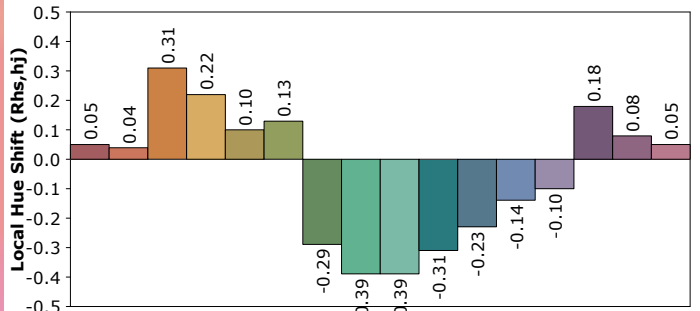
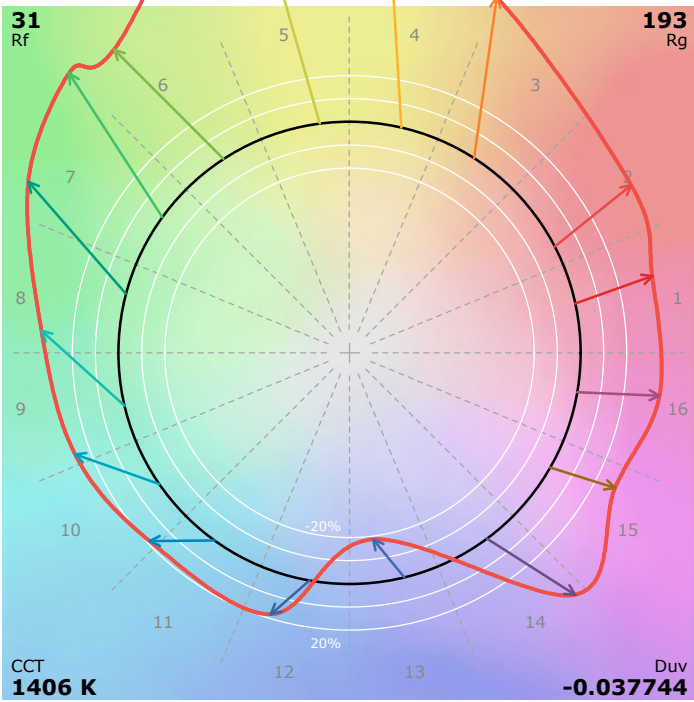
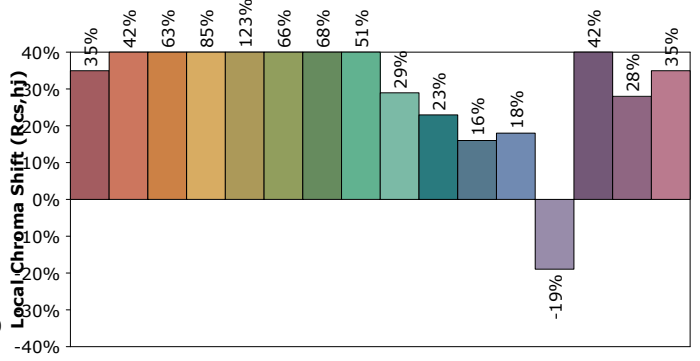
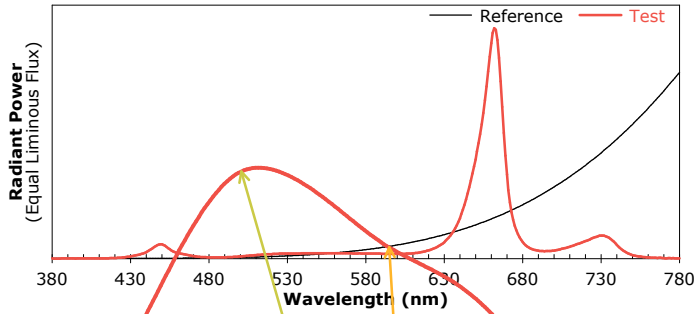
IES TM-30-18 Color Rendition Report

Report No: 1086

Test Time: 2026-05-04 15:10:03

Category: Growth
 Spec: Linear 1500 Growth 160W
 Manufacturer: Industrial Lighting Ltd

Type: LED
 Number: 1086
 Submitter:



Notes: This is a recommended method for displaying IES TM-30-18 information.

x **0.5131**
 y **0.2980**
 u' **0.3698**
 v' **0.4833**

CIE13.3-1995
 (CRI)
 Ra **24**
 R9 **-126**

Test Lab: Lighting Lab TU Gabrovo
 Operator: Ivaylo Stoyanov

Testing Environment: Ts:23.4°C, Ta:24.1°C,42%
 Approver:



Spectral Power Distribution Data

Report No: 1086

Test Time: 2026-05-04 15:10:03

Category: Growth

Type: LED

Spec: Linear 1500 Growth 160W

Number: 1086

Manufacturer: Industrial Lighting Ltd

Submitter:

WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0001	0.4538	525	0.0223	82.3190	670	0.3900	1436.9427
385	0.0000	0.0000	530	0.0230	84.5848	675	0.1530	563.8403
390	0.0001	0.3527	535	0.0236	86.8385	680	0.0771	284.1193
395	0.0000	0.0000	540	0.0238	87.6635	685	0.0473	174.2484
400	0.0001	0.4041	545	0.0240	88.2432	690	0.0365	134.5254
405	0.0002	0.7247	550	0.0239	88.2019	695	0.0343	126.2802
410	0.0004	1.6531	555	0.0242	89.2890	700	0.0368	135.4642
415	0.0010	3.6705	560	0.0242	89.0666	705	0.0446	164.4947
420	0.0025	9.1012	565	0.0241	88.8032	710	0.0548	201.8130
425	0.0050	18.5922	570	0.0240	88.3251	715	0.0674	248.2776
430	0.0098	35.9783	575	0.0237	87.4060	720	0.0805	296.5606
435	0.0174	64.1704	580	0.0234	86.3277	725	0.0960	353.8199
440	0.0296	108.9553	585	0.0230	84.6780	730	0.1065	392.2105
445	0.0522	192.3336	590	0.0223	82.1176	735	0.0969	357.1129
450	0.0658	242.5152	595	0.0217	79.7949	740	0.0638	235.2191
455	0.0433	159.6229	600	0.0215	79.1584	745	0.0330	121.5298
460	0.0255	93.8659	605	0.0222	81.9323	750	0.0162	59.6597
465	0.0187	68.7226	610	0.0238	87.8351	755	0.0090	32.9984
470	0.0116	42.5965	615	0.0291	107.3081	760	0.0046	16.9422
475	0.0073	26.7376	620	0.0377	138.8181	765	0.0035	12.9087
480	0.0058	21.3272	625	0.0516	190.1903	770	0.0022	8.2879
485	0.0051	18.7793	630	0.0757	279.0428	775	0.0014	5.2887
490	0.0053	19.4080	635	0.1164	428.6998	780	0.0013	4.9171
495	0.0070	25.7082	640	0.1865	687.1280	785	0.0013	4.6095
500	0.0096	35.3760	645	0.3018	1111.9290	790	0.0015	5.5815
505	0.0127	46.8261	650	0.4606	1696.9172	795	0.0005	1.9327
510	0.0159	58.4984	655	0.6758	2489.6345	800	0.0004	1.5182
515	0.0186	68.3553	660	1.0000	3684.2312			
520	0.0208	76.5803	665	0.9312	3430.7822			

Test Lab: Lighting Lab TU Gabrovo
Operator: Ivaylo Stoyanov

Testing Environment: Ts:23.4°C, Ta:24.1°C,42%
Approver:



Warmup Curve

Report No: 1086

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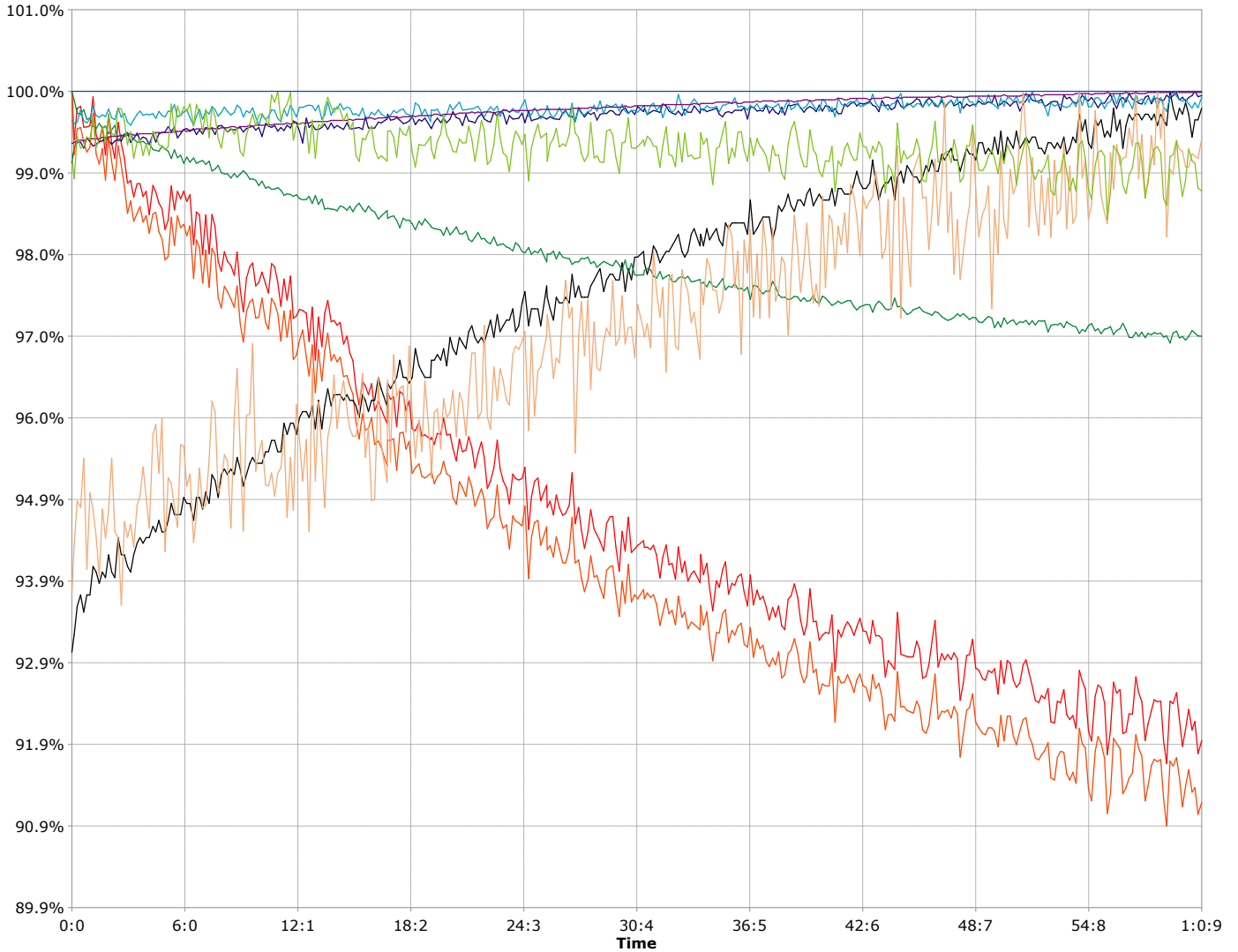
Type: LED

Spec: Linear 1500 Growth 160W

Number: 1086

Manufacturer: Industrial Lighting Ltd

Submitter:



Stable time: 1:0:9

Uptime: 0:0

Parameters	Maximum	Minimum	Change
Luminous Flux ,lm	10971.74	10056.88	914.85
Power ,W	161.800	160.360	1.440
Efficiency ,lm/W	68.42	62.19	6.23
CCT ,K	1409	1311	98
CIE x	0.5293	0.5128	0.0165
CIE y	0.2984	0.2971	0.0013
Peak Wavelength ,nm	662.3	658.0	4.3
Ra	24.1	22.5	1.5
Radiant Power ,W	114.118	112.306	1.812
Dominant Wavelength ,nm	729.9	729.9	0.0

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