

The differences between cheap 1000w DE and real 1000w DE

	cheap DE	real DE
Price	30-40USD	90-130USD
Burner	long street lighting burner or short grow light burner with gas configuration for lighting	short grow light burner with gas configuration for plant growth
gas	China made approx 6000USD/CBM	From overseas approx 12000USD/CBM
blue light	around 25%	above 30%
red light on 660nm		2 times than cheap one
infrared around 760nm	6 times than real one, it is harmful for plants	
PPF	Less than 2100 μ mol/s	Above 2100 μ mol/s

1. Burner

Burner is the only part for us to check real or fake by eyes.



We can see the cheap ones are using long burner, this long burner is used to make street lighting HPS, long burner can get more lumen output but low PAR.

Long burner in SE bulb

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Philips 1850umol/s

Philips Agrolite XT 1000W 400V

Specifications

Grow light (PPF):	1.850 $\mu\text{mol s}^{-1}$
Luminous Flux:	146.000 Lumen
Lamp base:	E39



hortilux 1800umol/s

on the market. The runner-up was Hortilux with less than 1800 umol, s

short real grow light burner in SE bulb

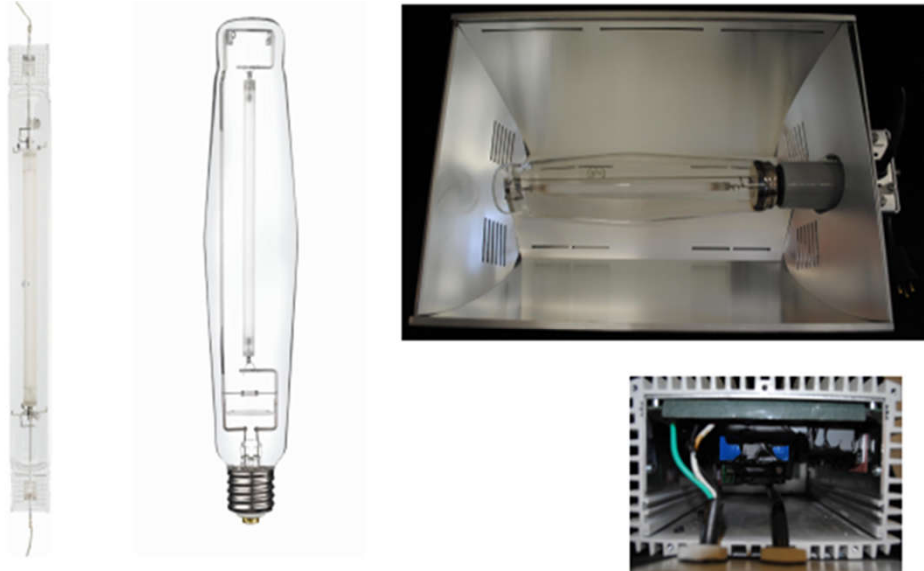


When I sealed short
DE burner into SE bulb,
The test result was same
as DE, above 2100umol/s

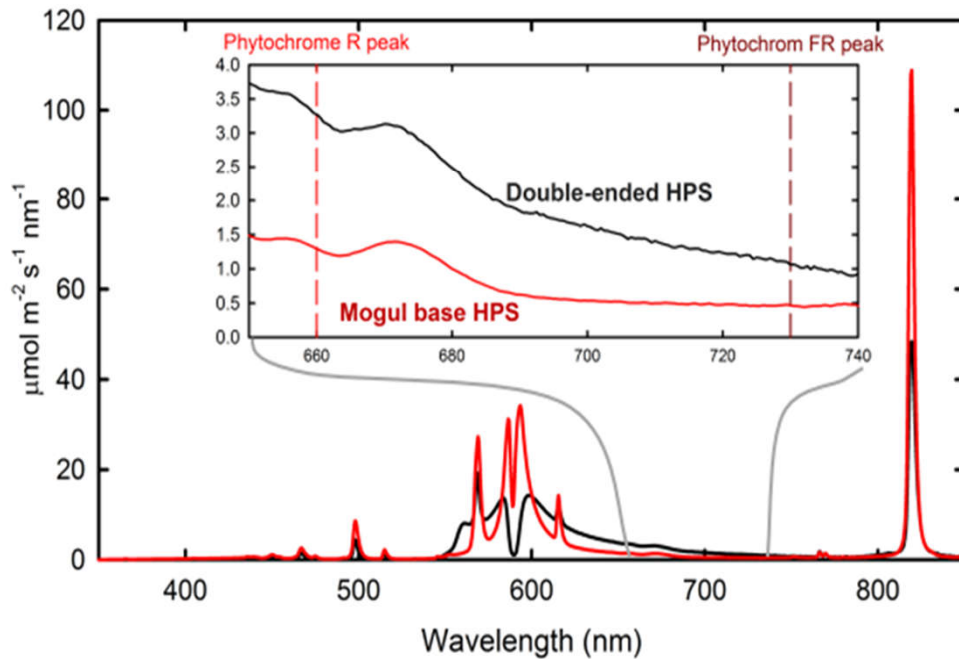
Flux = 145997 lm Eff. : 146.29 lm/W Fe

Flux of emitted photons(umol/s):2128.7

Utahstate university also found the differences when they compare Philips DE with Hortilux SE



Spectral changes



We can see the real DE burner contain 2 times 660nm red light than cheap one, so spend same 1000w power, cheap DE only get half 660nm of real one, it is not effective and waster your electric charge.

Then if the cheap ones' burner is same size of real one, how can we check it?
 We have to test it with professional equipments.

2. Read test report

Spectrum Test Report

Sample : LUMENHORT
 Specification : HPS1000 400V
 Sample No. : 02
 Manufacturer :

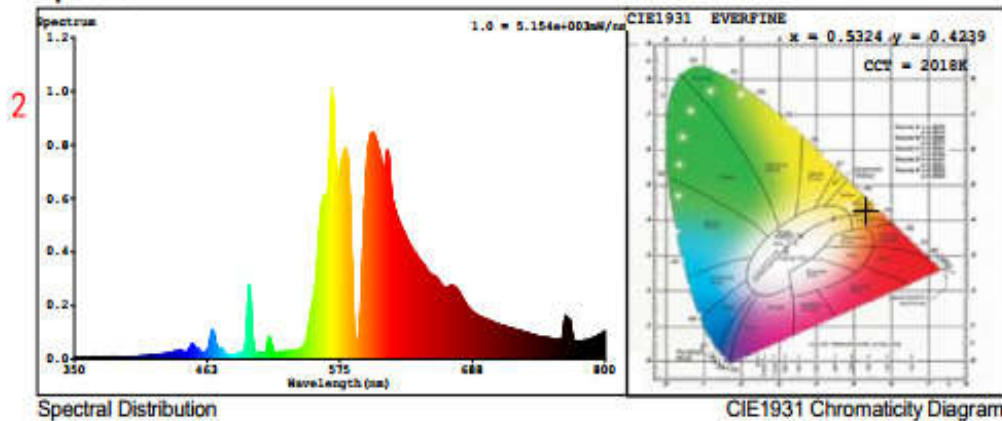
¹ Date : 2017-06-28 15:47:19
 Sam. Status :
 Instrument : HaasSuite(EVERFINE)
 Test by : WLN

Test Condition

Temperature : 25.0Deg
 WL Range : 350nm-800nm
 Test Mode : Accuracy Test

RH : 65.0%
 IP : 49485 (76%)
 T : 24 ms
 Delicacy : High

Spectrum



Colorimetric Quantities

Chromaticity Coordinate: $x = 0.5324$ $y = 0.4239$ / $u' = 0.3033$ $v' = 0.5433$ ($duv=3.28e-03$)
 CCT= 2018K Prcp WL: Ld=587.8nm Purity=87.0%
 Peak WL: Lp=569nm FWHM: =26.3nm Ratio:R=31.5% G=67.4% B=1.2%

Render Index: Ra = 48.3

R1 =42 R2 =70 R3 =85 R4 =24 R5 =34 R6 =53 R7 =66
 R8 =13 R9 =0 R10=43 R11=0 R12=21 R13=40 R14=91 R15=43

Photometric & Radiometric Quantities

Flux = 143268 lm Eff. : 142.27 lm/W Fe = 465.78 W

³ Flux of emitted photons(umol/s):2156.3 Flu. and blue light ratio:31.86 Fluorescent eff.:439.4

Electrical parameters

V = 245.6 V I = 4.185 A P = 1007 W PF = 0.9797

⁵

Above is test report of LUMENHORT DE, test on 2017, to read test report we must check 5 points.

1. Test date

Just a date to check the technological level at that time.

2. Spectrum

We can check the blue ,red and IR light, if it is good or not.

3. PAR

Most important, you can see our DE got 2156.3 μ mol/s

4. Blue light rate

Philips standard is 30%, so ours 31.86% already exceeded it.

5. Test power

The output power is 1007w, so the PAR at 1000w is 2156.3/1007x1000=2141.3 μ mol/s

Some one will increase the output power, in order to exceed 2100 μ mol/s, like below DE

Photosynthetic:PPF:2165.8 μ mol/s PAR WATT

Electrical parameters

V = 230.7 V I = 4.700 A P = 1060 W PF =

In fact, 2165.8 μ mol/1060wx1000w=2043 μ mol/s, so this DE is not good.

3 Spectrum comparison

One good DE bulb equal to two cheap DE bulbs if compare from spectrum
 We will see the differences. I don't have wavelength analysis equipment, the test result was from my Denmark customer. I took off blue and red light part for comparison, left is cheap DE, right is real one

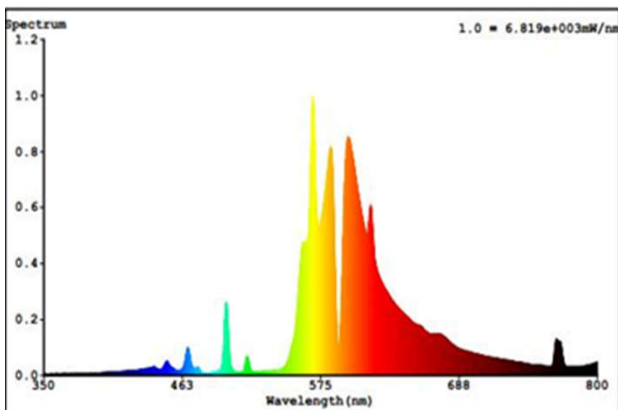
	Cheap one	Real one
430	4.39783E-03	4.70004E-03
431	4.56699E-03	4.83505E-03
432	4.73513E-03	5.09978E-03
433	5.05190E-03	5.61226E-03
434	5.39912E-03	6.09691E-03
435	5.63104E-03	6.26238E-03
436	5.68331E-03	6.10232E-03
437	5.71436E-03	5.89290E-03
438	6.02168E-03	6.05617E-03
439	6.32718E-03	6.35627E-03
440	6.13980E-03	6.29252E-03
441	5.53373E-03	5.93007E-03
442	4.83517E-03	5.49684E-03
443	4.44295E-03	5.19596E-03
444	4.35241E-03	5.04676E-03
445	4.51323E-03	5.12111E-03
446	5.20443E-03	5.61841E-03
447	6.50330E-03	6.75466E-03
448	8.05025E-03	8.62224E-03
449 example	1.03262E-02=10.3262E-03	
450	9.55271E-03	1.07803E-02
451	9.27479E-03	1.04425E-02
452	8.67125E-03	9.73167E-03
453	7.78772E-03	8.57821E-03
454	6.66148E-03	7.15928E-03
455	5.41757E-03	5.88347E-03
456	4.40303E-03	5.30292E-03
457	3.76650E-03	5.23345E-03
458	3.50743E-03	4.66607E-03
459	3.49852E-03	3.99358E-03
460	3.58812E-03	4.11317E-03
461	3.99766E-03	4.87832E-03

Real one contain more blue light in every wavelenghtes

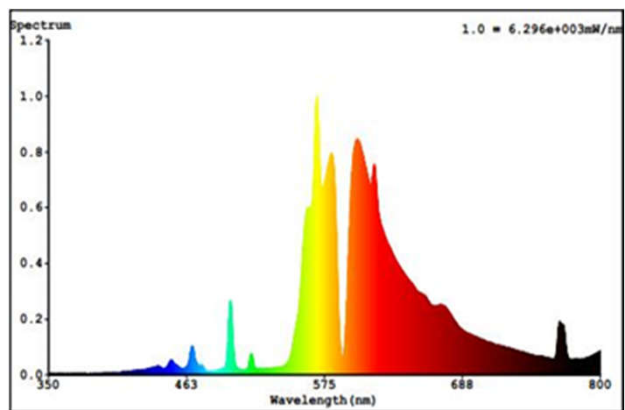
629	5.47073E-02	7.64820E-02
630	5.31498E-02	7.46344E-02
631	5.20270E-02	7.29304E-02
632	5.05174E-02	7.08088E-02
633	4.86106E-02	6.88288E-02
634	4.67646E-02	6.76265E-02
635	4.55535E-02	6.63527E-02
636	4.51270E-02	6.49960E-02
637	4.46167E-02	6.39878E-02
638	4.37509E-02	6.29594E-02
639	4.26966E-02	6.14860E-02
640	4.20215E-02	6.01446E-02
641	4.15004E-02	5.93280E-02
642	4.02189E-02	5.88767E-02
643	3.88587E-02	5.79037E-02
644	3.81613E-02	5.60434E-02
645	3.74470E-02	5.43703E-02
646	3.65415E-02	5.31499E-02
647	3.60592E-02	5.23581E-02
648	3.57658E-02	5.21280E-02
649	3.51297E-02	5.17950E-02
650	3.41560E-02	5.00696E-02
651	3.33439E-02	4.80378E-02
652	3.30876E-02	4.74941E-02
653	3.29068E-02	4.71951E-02
654	3.24240E-02	4.63533E-02
655	3.18890E-02	4.61258E-02
656	3.16401E-02	4.63172E-02
657	3.16027E-02	4.58413E-02
658	3.11163E-02	4.48938E-02
659	2.99954E-02	4.37678E-02
660	2.87308E-02	4.24580E-02
661	2.77871E-02	4.13744E-02
662	2.73703E-02	4.07999E-02

We can see it proved as Utahstate university's result, 2 times red light

Spectrum on test report



Cheap one



Real one