

Voltage use by lamps

I have some "experimental data"...

I bought a plug-in Power Monitor recently and I've made a few recordings with it. I would be very grateful if someone could help me out by explaining the difference between Watts and VA? (I always thought Watts = Volts x Amps, but clearly VA must be something different...I took the readings more or less simultaneously and only with one lamp, were they the same..with most, they were completely different)

But here are a selection of results which are a sort of "best fit" to the conversation so far:

>a halogen lamp 60 watt

I didn't have a 60watt halogen handy, but here is the reading I just took from a 60watt tungsten (ordinary household) spot bulb:
55watts/ 55VA Output at 12" - 11,500 lux and zero UVB.

>b mercvap lamp ext ballast 60 watt

These are all 60watt EB MegaRay lamps plus electronic ballast plus stepdown transformer. (I'm in the UK and the Power Monitor goes in the 240v wall plug)

(1) EB MegaRay 60watt Lamp (BM5 - newly burned in) 62watts/ 91VA - Output at 12" - 10,240 lux and 122uW/cm² UVB.

(2) EB MegaRay 60watt Lamp (BM6 - newly burned in) 65watts/ 89VA - Output at 12" - 14,800 lux and 305uW/cm² UVB.

(3) EB MegaRay 60watt Lamp (BM1- one year's use) 71watts/ 107VA - Output at 12" - 13,900 lux and 184uW/cm² UVB.

(4) EB MegaRay 60watt Zoo Lamp (BMZ1 - newly burned in) 60watts/ 88VA - Output at 12" - 60,800 lux and 1919uW/cm² UVB.

>c mercvap lamp selfballast 60 watt

As Bob says, no such thing. Nearest equivalents all run at 100 watts or more:

(1) TRex Active UV Heat SB 100watt Flood (BU22 - newly burned in) 115watts/ 120VA - Output at 12" - 14,310 lux and 134uW/cm² UVB.

(2) SB MegaRay 100watt Lamp (BM2 - 6,000hrs use) 113watts/ 119VA Output at 12" - 13,300 lux and 233 uW/cm²

(3) SB MegaRay "Low" 100watt Lamp (BM9 - newly burned in) 118watts/ 122VA Output at 12" - 9,400 lux and 71uW/cm²

(4) ZooMed Powersun 100watt Lamp (BP1 - about 300hrs use) 110watts/ 114VA Output at 12" - 2,430 lux and 14uW/cm²

(5) Rep Pro "UVB 60watt" SB plus stepdown transformer (BRP1 - newly

burned in) *150watts* / 164VA - Output at 12" - 9,610 lux and 35uW/cm2 UVB.

(6) Catalina Sunseeker 160watt SB plus stepdown transformer (BSS1 - brand new) 158watts/ 164VA - Output at 12" - 2,200 lux and zero UVB.

(7) Osram Ultravitalux 300watt SB (BO1 - newly burned in) 335watts/ 345VA - Output at 12" - 56,200 lux and 940uW/cm2 UVB.

>d fluorescent tube 60 watt

I've never tested one of the really big tubes. In fact I have only tested one tube with the power monitor so far, a 20watt, 24" long, 1.5" diameter Reptisun 10.0 tube (BZ8 - 4000 hrs use) in a typical UK magnetic ballast, an Arcadia aquarium ballast rated for 20 watts. Result: 28watts/ 76VA - Output at 12" - 570 lux and 25uW/cm2 UVB. Has anyone done any tests on different ballasts, with a power monitor? The only electronic ballast I have here is for two tubes, so it would be hard to compare this with my magnetic ones.

>e compact fluorescent lamp (with integrated ballast) 60 watt.

The only compact fluorescents I've tested are SB and in the 20watt range. Here's one:

Arcadia 23watt D3 Compact Lamp (Lamp ref BAC1, newly burned in) 23watts/ 38VA Output at 12" - 752 lux and 19uW/cm2 UVB.

You can see that there is no obvious relationship between wattage and the visual light output or UVB output. But then, we are comparing apples, oranges and pears! ...And some of those lamps are more pear-shaped than others ;-)

As for SB vs EB MegaRays - I suspect the glass, coatings and arc tubes cause far bigger changes in output than the wattage. Just look at the output from the Zoo MegaRay EB running at 60watt!

I think the EB MegaRays and ballasts must be very efficient, as even with all the wastage involved with voltage conversion (the little voltage converter gets very hot)it's still 60 - 65watts until you plug in the oldest lamp which has decayed over 60% from new - 71 watts.

The 100watts SBs in general all seem to run a little over their specs... 110-118watts, for the Westron 220v series but the other manufacturers also are all higher than their "spec".

I did laugh at the so-called 60watt Chinese-made Rep-Pro one though! Thanks, BobMac, for sending it to me for testing.

All the best,
Frances

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> --- In UVB_Meter_Owners@yahoogroups.com, Andy & Janette Beveridge

> <sprocket@> wrote:

> >> Theoretically, a 60W externally ballasted lamp should put out

> more

> > light than a 60W self-ballasted lamp. Bob or Frances may be ably

> to

> > confirm this with experimental data (I hope).

>

--- In UVB_Meter_Owners@yahoogroups.com, "Bob MacCargar"

<robertmaccargar@...> wrote:

> 60 wt is not an engineering possibility even though there

are "60wt

> mercury vapor SB" lamps sold. The truth is that these are really

> 160wt lamps.

>

> Our EB kits are electronically ballasted. We are testing both

240vt

> EB and 100wt 240vt and 100wt 120 volt ballasts at this time. All

> electronically ballasted.