

## The Use of Mesh Guards and Screens for Mercury Vapour Lamps

The surface temperature of a self-ballasted lamp is high, owing to the combined heat output from the mercury vapour arc tube and the incandescent filament. It is therefore important that a reptile cannot come into contact with the lamp at any time, as serious burns might result. Mesh guards are often used to enclose hot bulbs; alternatively, bulbs may be placed above screen tops to prevent accidental contact.

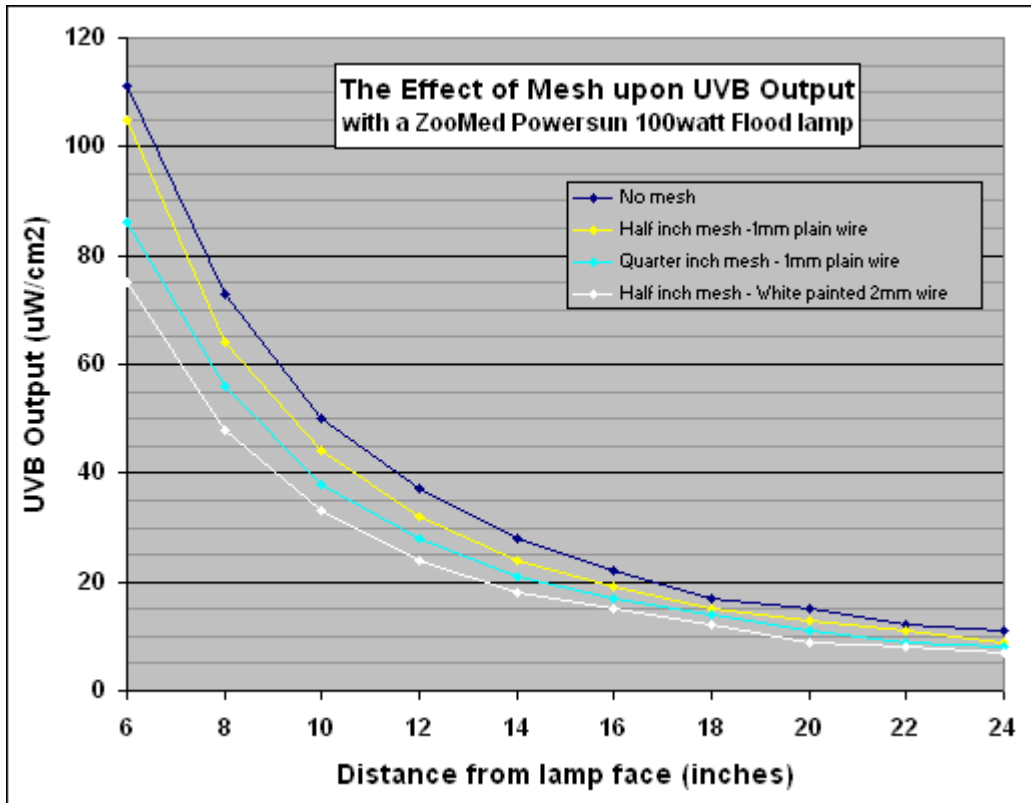
This experiment investigates the drop in output that might be expected when placing a mercury vapour lamp behind mesh of various types.

First, the output of a **100watt Zoo Med Powersun Flood Lamp** was measured, in a ceramic holder affixed to a wooden batten in a test room. The same lamp was then tested behind a sheet of quarter-inch twillweld wire mesh with wire thickness 1mm (such as might be used for a protective screen) and inside two commercially available mesh guards. The first guard was made from half-inch twillweld mesh with 1mm wire; the second was made from half-inch mesh using a much thicker, white painted 2mm wire. (Fig. 1)

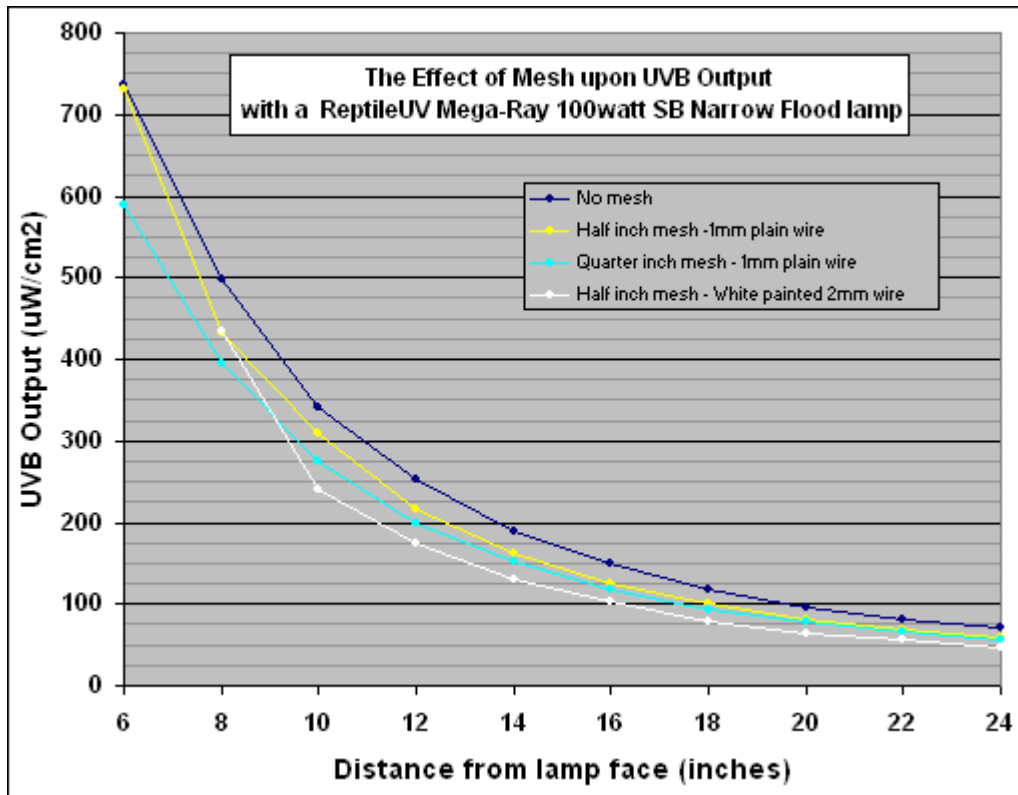


The results are shown in Graph 1 and are as expected: the thicker the mesh, the more UVB is blocked.

At a distance of 12", for example, the wide spaced, thin-wired mesh blocked about **14%**, the closer spaced mesh blocked **24%**, and the thickest white-painted mesh blocked **35%** of the UVB. The thickest mesh brought the UVB reading at 12" down from **37uW/cm<sup>2</sup>** to **24uW/cm<sup>2</sup>**.



The test was then repeated using a **ReptileUV Mega-Ray 100watt SB Narrow Flood lamp** in place of the Powersun lamp. The results are shown in Graph 2.



The output of this lamp is nearly seven times higher than the other (compare the different scales on the graphs) but the effect is very similar.

At a distance of 12", the thin-wired mesh blocked **15%**, the closer spaced mesh blocked **20%**, and the thickest white-painted mesh blocked **31%** of the UVB.

The thickest mesh brought the UVB reading at 12" down from **252uW/cm<sup>2</sup>** to **174uW/cm<sup>2</sup>**.

At close distances, the readings for the two half-inch mesh guards appear anomalously high. Perhaps this is due to the beam from the narrow flood lamp being more coherent than the true flood, and there is some type of interference effect with the mesh. Or it could be that I just messed up the readings. The ReptileUV Mega-Ray wouldn't go right inside the thick mesh guard and so I couldn't get the meter closer than 8".

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