

Hi Andreas,

I've constructed the Spectroscope, and here is the feedback I promised you:

My first action was to reverse engineer the design. I soon saw that a transmissive grating in front of an image-forming lens was far superior to reflection off a DVD both in terms of light gathering, spectral clarity, and compactness. I was initially disappointed by the light-weight card, but the unit assembled quite easily (with PVA adhesive) and is stronger than I expected (not that I'd let a small child use it without careful supervision!). Through trial and error I arrived at a double thickness of 80g/m² copy paper over the graticule.

The accuracy is excellent – lines from fluorescent tubes and sodium vapour lamps come out exactly as described on the case.

There are a couple of issues.

First, the interior of the case is black, but with a high sheen, so that internal reflection is a big problem. I cured the bulk of this by inserting a black cardboard tube, with internal baffles, to constrain the ray from the inlet slot. This was inserted through the side wall and pushed up against the front of the unit, so that the rear end did not obstruct the view of the graticule. Second, reflection and ambient light were also a problem at the viewing port, particularly as I wear glasses (and the lens front face is planar). I solved this by adding a rudimentary eyecup, not particularly neatly I have to admit. To take photographs (with my Panasonic DMC-TZ6) I slipped a cardboard shield over the eyecup.

A *very* minor issue is that, to my mind, the area where one writes one's name is upside down...

David