AWB Collimation Aid Help

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1 Introduction

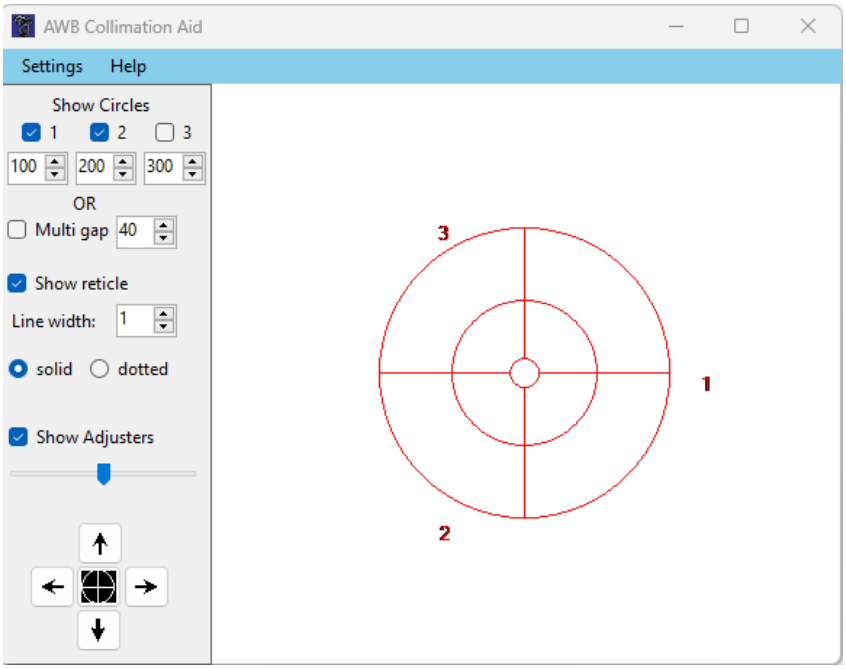
AWB Collimation Aid is one of a set of applications under my AstroWorkBench (AWB) collection that I use during my observational sessions. I wrote this application with the purpose of assisting during the collimation of my Celestron Schmidt-Cassegrain but it can be used with any similar scope.

The application presents a transparent form with a set of adjustable circles. Use your preferred camera software to display a defocussed bright star so that you are presented with a 'donut' image consisting of a dark circle in the middle (which is the shadow of your secondary mirror) with diffraction rings around it.

You can then position the AWB Collimation Aid transparent screen over the top and adjust the circles so that any asymmetry within the donut image (i.e. collimation error) becomes obvious. You may then adjust your scopes collimation with the help of the displayed circles to assist in your adjust-check-adjust collimation process until the donut appears symmetrical within the circles.

2 Startup

Upon starting the AWB Collimation Aid application the following screen will be presented.



The number of circles, their diameter, line type and thickness can be controlled via the panel on the left. Further options are provided via the *Settings* menu.

The optional display of the adjusters are for the classic 3 adjuster screws present on the secondary mirror holder of Schmidt-Cassegrain scopes. The displayed position of these can be rotated via the slider below the *Show Adjusters* checkbox to match your physical setup. I have 1 to 3 marked on my adjuster screws so that I can easily map the display to the physical.

3 Usage

In the example shown in the screen shot below I am using a ZWO ASI178MM camera attached to my scope and the ZWO ASI Studio software to display a defocused star image.

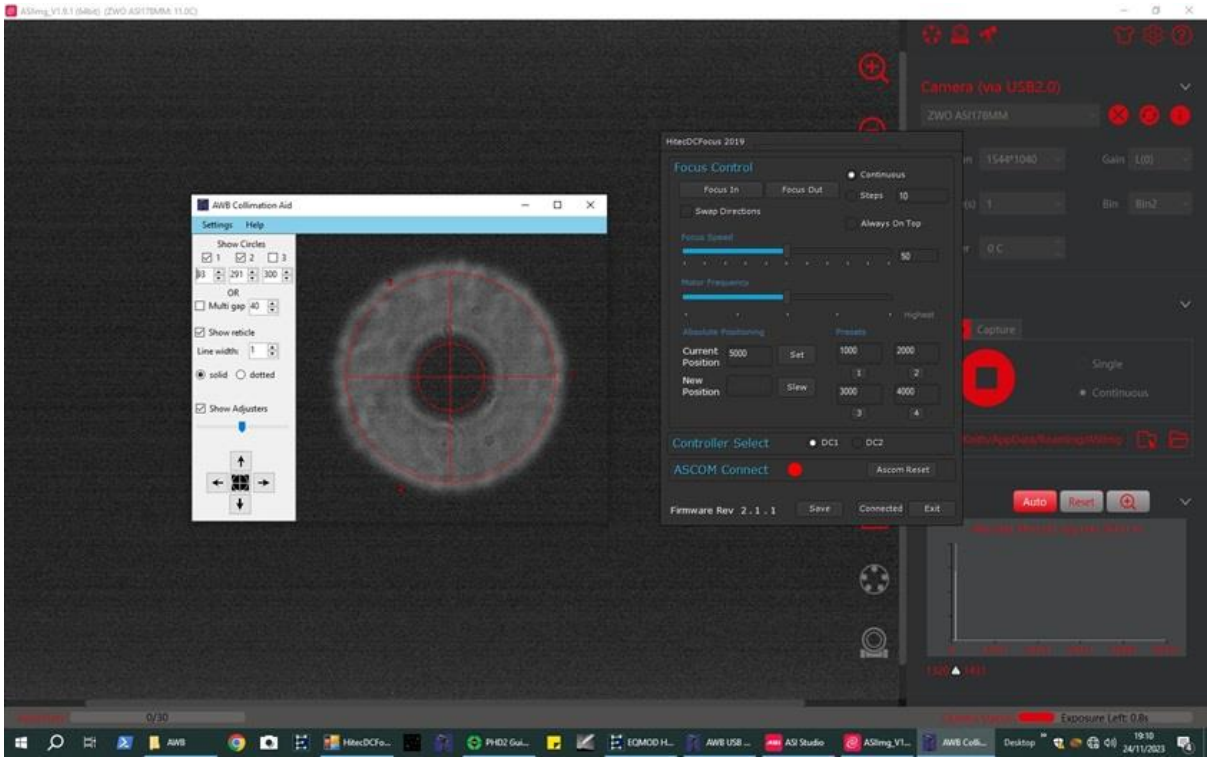
You can also see the HitecDCFocus software that I use to adjust my focuser.

I have positioned the AWB Collimation Aid screen over the top of the defocused ‘donut’ star and adjusted two circle diameters to match the donut hole and the edge of the diffraction circles.

You can see from the image that there was a lot of atmospheric turbulence when I caught this image but that is unfortunately more common than the perfect diffraction circles that you often see in articles about collimation.

In this image you can see that collimation is pretty close as the symmetry of the circles with the donut is not far off.

As you adjust your scope’s collimation any shift in the symmetry of the donut against the circles is visually very apparent and hence aids in obtaining collimation.



4 Further Information

Please visit my website www.astroworkbench.co.uk for further applications, documents and articles.

Thanks.

Keith.