

3. Bias Ripples

Description: Faint horizontal bands appearing in one or more CCDs. Bands are regularly spaced along CCD y direction with typically period of 5 or 6 pixels. Peak-to-peak amplitude of ripples is typically <7 electrons. Sometimes effect appears / disappears within given image as it is read out.

Cause: Exact cause is unknown. May be caused by extraneous signals in spacecraft leaking into CCD readout electronics.

Example: Figure 3.1 shows a 400 x 400 pixel section of WF2 illustrating the ripple pattern.

Impact: Will make detection of faint objects difficult.

Correction: To the extent that the pattern is periodic and uniform, it may be possible to model and remove it with Fourier analysis techniques. See King, Bartels, Nowak, and Hack (1993) for treatment of similar problems in FOC data.

Prevention: Cannot be prevented.

Figure 3.1. Example of bias ripples; center 400x400 pixels of WF2.

