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Video Crosstalk in Kepler CCDs JASON VON WILPERT, University of California Santa Cruz — Kepler is the first mission capable of detecting Earth-size planets in the habitable zone of solar-like stars, and is at the forefront of the exciting field of extrasolar planets. Kepler looks for planetary transits in F-M main-sequence stars, ranging from 7^{th} to 14^{th} magnitude. I investigate video crosstalk, which is the noise due to coupled readout of CCDs. Video crosstalk is modeled as a linear coefficient multiplied by the signal from the source CCD, and can be as large as 0.066% of the signal. The transit of an Earth-size planet in Kepler's field of view is a 0.01% drop in flux, so video crosstalk can significantly skew planet mass estimations. It produces both positive and negative images, and is not symmetric between two CCDs. While the exact cause for this phenomenon remains to be clarified, the undesirable effects of video crosstalk have been mitigated, and specific stars in Kepler's field of view with high amounts of crosstalk have been flagged for more thorough analysis of flux measurements.

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