

Re: Smear

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Louis Boyd <boyd@xxxxxxxxxxxxxxxxxxxxxxxx> wrote:

Why do you think it's "contrary to transport direction"?

What I am trying to say is that the bright line should run in the opposing direction.

All explanations I found say that smear happens during the vertical transport phase. Either by continuous exposure to light (Frame Transfer CCDs without shutter) or by electrons spilling horizontally into the vertical

shift register (Inter Line Transfer with shielded shift register).

Either way: at every step of vertical transfer the pixels next to the bright spot in the picture "get brighter", right? That is why I think the resulting bright line should only run from the bright spot to the border of the picture.

The slow clocking of the entire picture in almost all video and still cameras is in the vertical direction. When a spot is over exposed the excess electrons spill along the transport direction both up and down.

During the exposure phase? Would that not be smear but blur?

Smear doesn't have anything to do with better isolation against horizontal spilling, does it?

They are well isolated from spilling horizontally. The horizontal clocking only takes place in one specialized readout line at high speed on the vast majority of CCDs. Since spilling has already taken place and no additional electrons are being added there is very little horizontal smear.

Re: Smear

Smear isn't much of a problem on modern CCDs. Many ccd designs drain off electrons in over saturated pixels rather than leaking them to adjacent pixels. A bright spot on a ccd can also cause electrons to be released in horizontally displaced pixels too from either from IR transparency, internal reflection, or reflection off the package window, but that doesn't involve electrons moving between pixels.