

LINEAR CCD SENSORS FOR IMAGING

P.A. Heuer,

CSIRO Division of Textile Physics, 338 Blaxland Road, Ryde,
NSW, 2112 Australia

Charged Coupled Device (CCD) image sensors have advantages over Vidicon-type sensors for some applications. Line scan CCDs, which consist of a single row of up to 3456 sensing elements (pixels), are particularly useful for imaging a continuous strip scanned past the sensor.

Some of the characteristics of CCD image sensors that can be advantages are:

- low cost,
- robustness,
- geometric precision and stability,
- constant sensitivity,
- easy to obtain non-standard integration times and scan rates.

Among the disadvantages are:

- temperature sensitive dark signal which appears as a background in each pixel,
- differing sensitivity between pixels.

The paper will use as an example an application with CCD sensors to detect dark fibres in a thin web of wool fibres. In a sample about 5cm wide, coloured fibres about 25 μ m in diameter are detected against a background of similar white fibres.

The aim is that a discussion of this experience and the basic characteristics of CCDs will help designers to assess whether CCDs are appropriate for particular applications.