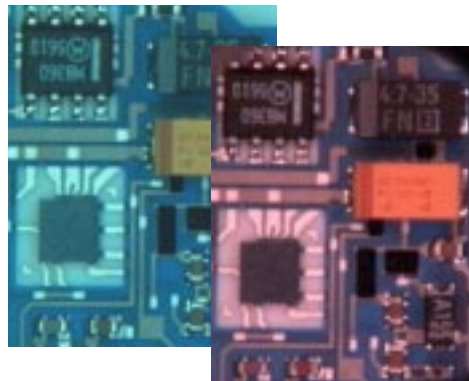


APPLICATION NOTE: 201

Application: Color Line Scan of Printed Circuit Boards

Problems: 1) Balancing of the Color Channels
2) Proper Structure for all Components



Fluorescent/Tungsten Halogen



Color Balanced

Solution:

CCD cameras do not have constant sensitivity over their entire spectral range. As with most silicon based sensors, they are more sensitive in the red end of the spectrum. In addition, many light sources which appear to be “white” have spectral output distributions which are not evenly distributed over the entire visible range. The two images on the left are examples of the results that occur because of these issues. The fluorescent light has stronger spectral peaks in the blue, while the Tungsten Halogen has stronger output in the red.

To solve this problem, a color balanced fiberoptic DRI system (Patent Pending) was developed which enables three independent RGB components to be adjusted, mixed and structurally projected onto the PC Board. The three independent channels are controlled with independent 3900 *Smart-Lites*, each with a different high efficiency color filter (R,G or B). The *Smart-Lites* provide superb stability for each channel, and allow for automated color balance via their RS-232/485 serial interfaces. Output color can also be adjusted to boost contrast to compensate for variations inherent in product lot changes. The fiberoptic DRI device provides the proper structure for imaging the various types of PC components without glare or poor contrast. The DRI also provides the optimum means for color mixing, ensuring superb intensity and chromatic uniformity over the entire FOV.

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