

In addition to the inherent qualities of a digital image, the qualities of monitor and graphics control card as well as the viewing conditions will also affect the perceived quality of an image that is displayed on softcopy display (SD) system. With the implementation of PACS, many diagnoses are being made based on images displayed on SD devices, and consequently SD quality may affect the accuracy of diagnosis. Unlike the traditional film-on-lightbox display, optimal softcopy display system parameters are not well defined, and many issues remain unsettled. In this presentation, we will propose a quality index for the softcopy displays, which is similar to that of the gradient curve of the H&D curve in screen/film system, based upon the contrast sensitivity study results of several SD devices including an active matrix liquid crystal flat panel monitor. Contrast sensitivities were measured with various display system configurations. Experimental results have showed that contrast sensitivity depends on many factors such as the type of monitor, the monitor brightness, and the gamma settings of the graphics card in a complex manner. However, there is a clear correlation between the measured contrast thresholds and the gradient of display device's luminance response curve. Based on this correlation, it is proposed to use the gradient of luminance response curve as a *quality-index* for SD devices.