

Developments in digital image detectors and display technologies, and the advent of the Picture Archiving and Communication System (PACS) provide a more effective means of electronically archiving and retrieving radiological images than the conventional film-based system. In August 2002, YUMC (Yonsei University Medical Center, Seoul, Korea) Severance Hospital implemented a full-PACS system (GE Medical Systems Korea) with 18 cathode ray tube (CRT) displays (BracoView, Belgium) and 32 flat panel liquid crystal displays (LCD) (Totoku Electric Co., Ltd., Japan) for diagnostic interpretation purposes. Here, we report upon the visual and quantitative acceptance testing of the 18 CRT display devices for geometric distortion, reflection, luminance response, luminance uniformity, resolution, noise, veiling glare, and color uniformity based on the AAPM TG18 document version 9.0. The tools used included a portable luminance meter, which was used as a colorimeter, digital TG18 test patterns, and AAPM Tg18 AT plug-in software (Barco View Ltd., Kortrijk, Belgium). All test results except for the color uniformity are in-line with the criteria recommended by AAPM TG18 and are thus fully acceptable for diagnostic image interpretation. As a result, the acceptance testing schedule described provides not only an acceptance standard but also guidelines for quality control, optimized viewing conditions, and a means for determining the upgrading time of display devices for diagnostic interpretation.

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