

AbstractID: 7506 Title: Effect of Room Setting on Object Detectability for Two Different AMLCD Displays

**Purpose:**

The purpose of this study was to estimate the effect of viewing room setup on the reader's ability to detect subtle details in radiographic images displayed on two different active matrix liquid crystal displays (AMLCD).

**Method and Materials:**

Two viewing rooms were used in the study: one of them having a standard setup with white ceiling, light walls and furniture, and other monitors. The other room was a specially designed with black walls and ceiling and no other equipment except the monitors under study. Two different monitors, a standard IBM flat panel T-221 and an experimental high-bright IBM flat panel T-221 were used in this study. In order to evaluate the effect of the different viewing room setups on the results of image reading, a computer generated 11×11 test pattern with two circular objects in every square cell were used. Each object of the pattern is defined by two parameters: diameter (number of pixels used for its generation) and contrast (number of digital driving levels). Five medical physicists were requested to read these contrast-detail patterns at three different room illuminances (0, 5 and 20 lux) and four different backgrounds surrounding the entire test pattern (0%, 5%, 20% and 50% of max luminance) on both monitors.

**Results:**

At all conditions (room illuminance and surround) and on both flat panels, reader performance was significantly better in the specially designed dark room than in the typical viewing room.

**Conclusion:**

Higher diagnostic quality is realized in the room specially designed to minimize reflections.

**Conflict of Interest (only if applicable):**