AbstractID: 1687 Title: Intraobserver Variability between CRT and Flat Panel Displays

The intra-observer variability for 5 readers was evaluated using three different video displays – a Siemens SMM21201P 5 Megapixel CRT, a 9.2 Megapixel IBM T221 flat panel and a 9.2 Megapixel IBM Hi-Brite T221 flat panel. Room illumination was 5 lux. The observers scored a 6 x 6 array (36 elements) centered in the display. Each sub-element had a center target (1x1, 2x2, 3x3 or 4x4 pixel array) and a same-sized target randomly placed in one of the four corners of the sub-element. Eight of the elements were repeated to evaluate intra-observer variability. The background to target difference for the sub-elements was 5, 10, 15, 20, 25, 30 or 35 driving levels. Target surround and display background were set at the same intensity and were varied by 0, 5, 20 and 50% of D_{max}. To avoid reader memory effects each sub-element and the location of its corner target were randomly distributed over the 6x6 array each time the test pattern was displayed. Intra-observer variability was least for the CRT and Hi-Brite T221 panel (no significant difference) and greatest for the standard T221. As the target background luminance levels increased the intra-observer variability reached a minimum at 5% and increased substantially at 50%. Reasons for the observed changes in intra-observer variability between display devices and under changing target surrounds will be discussed.