

Electronic display is a key component of modern medicine, providing soft-copy viewing of medical images. Being the last component of the image chain, display quality can have a notable impact on overall accuracy and efficiency of the diagnostic process. Thus, it is necessary to ensure that the physical performance of a medical display is adequate for its intended use. Led by a task group initiative by the American Association of Physicists in Medicine (AAPM TG18), new guidelines have recently been published defining objective and standardized assessment procedures and criteria for acceptance testing and quality control of medical display devices (Samei et al, Med Phys 32:1205-25, 2005). The guidelines include detailed visual and quantitative methods and specific acceptance criteria for basic display characteristics including luminance, luminance spatial and angular response, resolution, noise, veiling glare, reflection, color uniformity, geometrical distortions, and display artifacts. The TG18 guidelines are also being gradually reflected in a number of other national and international directives including those by the IEC and the ACR. The goal of this demonstration workshop is multi-fold: 1) to present a tutorial on the TG18 guidelines and its adaptations, 2) to discuss its implementation by specific vendors, 3) to offer an opportunity for hands-on exposure to the practical aspects of display performance evaluation, 4) to provide an opportunity to informally interact with experts and ask questions, and 5) to offer a panel discussion on the issues about which there might be less consensus among experts. Representatives from the TG18 committee and from industry will be present to demonstrate and discuss display evaluation issues.

Part I

1:30-2:20

Introduction

Evaluation of Medical Displays, E Samei, Duke University

2:20-3:20

Vendor lectures

2:20-2:30

Compensation for ambient conditions, K Compton, National Display Systems

2:30-2:40

AAPM implementation using Barco software, J Charette, Barcoviev, LLC

2:40-2:50

Quality Control Solutions based on AAPM TG18 from Eizo Nanao, N Hashimoto, Eizo Nanao Corp

2:50-3:00

The CFS (Calibration Feedback System) Toolkit, D Sorensen, Richardson Electronics

3:00-3:10

Totoku's Medical Display QA Solutions "i-model", M Hasegawa, Totoku Electric Co., Ltd.

3:10-3:20

The Priorities in the Medical Displays Parameters, A Abileah, Planar Systems