

Ultrasound (US) imaging is used in radiotherapy for soft tissue target localization. Its primary application is for prostate localization, but has an evolving role for breast and other treatment sites. Guidance regarding quality assurance of these systems is presented in the pending TG 154 report. US imaging possesses characteristics that differentiate it from other radiotherapy image-guided localization techniques, including good soft tissue contrast, the absence of additional radiation risk and cost-effectiveness. Image interpretation can be challenging due to limited penetration depth and image noise. The AAPM charged Task Group 154 to devise quality assurance recommendations for radiotherapy US localization systems.

Guidance regarding periodic quality assurance is provided in the report and will be presented. Emphasis is placed on spatial, mechanical and imaging quality assurance techniques. Participants in the workshop will be able to practice spatial calibration assessment and periodic quality assurance procedures. Interpretation of image quality parameters will be demonstrated.

Learning Objectives:

1. Understand the recommended periodic quality assurance procedures for US-guided external beam radiotherapy technologies.
2. Be able to assess compliance with recommended system tolerances.
3. Understand potential corrective actions for performance components that exceed acceptable limits.