

Abstract Submission

Purpose: The use of an EPID in the clinic typically requires manual translations of the device based on light fields. These manipulations potentially are time-consuming and prone to errors; accidental irradiations of the electronics components of EPIDs can shorten their lifetime and degrade the image quality. To eliminate these laborious manipulations in the treatment room, we have developed a custom application dedicated to the verification and correction of the portal imager position.

Method and Materials: The application has been developed in Matlab and was compiled as a standalone application. Two versions were developed to accommodate the particularities of the two EPIDs available at our institution (aS500 (Varian) and iViewGT (Elekta)). Based on the treatment plans of the requested patient, the software loads the parameters required to simulate treatment fields. The graphical user interface shows the selected fields with the detector limits, so that the user can modify the fields requiring double exposition or cropping for imaging. Afterward, the user verifies the portal imager positioning and manually or automatically finds, if necessary, the proper imager translation.

Results: At our institution, this application allows technologists to prepare EPID positioning while they are doing the final plan verification of a patient. Since the introduction of this application, the treatment time of plans having large or asymmetrical fields was reduced of at least one minute (of a 15 to 30 min time slots every day) and the risk of irradiating EPID's electronics was decreased or eliminated.

Conclusion: This application streamlines the clinic workflow and saves time in the treatment room. In addition, because it has the potential to reduce accidental EPID's electronics irradiations, it can help to preserve their image quality in the long term.