

Entrance Exposures during On-Board kV imaging

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Purpose: To estimate entrance exposure levels during on-board kV imaging (Version 1.2) on Trilogy (Varian Medical Systems). **Methods and Materials:** The patient was simulated by phantom using 40 cm and 20 cm of 40 x 40cm² water equivalent slabs. Exposure measurements were acquired for 80 and 90 cm source-to-surface distances using a 150 cc Fluke ionization chamber (96020C) and an Innovision 3050A dosimeter. The measurements were performed for various preset techniques that are commonly used in the clinic such as AP pelvis, Lat Pelvis, AP head, AP thorax, and AP extremity. Exposure rate levels were also measured during pulsed fluoroscopy with the automatic background control option activated. For comparison purposes, the exposure levels on a conventional simulator were also measured. **Results:** The entrance exposure levels on the on-board imager vary between 0.13 mSv for an extremity technique to 4.9 mSv for a lateral pelvis technique and were comparable to the conventional simulator measurements. On-board imaging pulsed fluoroscopy exposure levels were higher than those measured using the continuous fluoroscopy technique on the conventional simulator. **Conclusions:** Though the exposure and exposure rates are relatively low and inconsequential to the overall course of prescribed therapy, it is important to document exposures received. This documentation is essential for imaging protocols that may exceed normal imaging and localization exposure levels.