

IMRT QA process can be tedious and the film dosimetry verification on intensity map can also be very time consuming. EPID device provide an alternative way to reduce the human effort for the IMRT QA. For checking the intensity map with multiple beam angles, EPID provides a better solution since the imager can be positioned with an oblique beam orientation, which is quite difficult in taking regular films. A new video-optic based system of EPID was installed and tested at our center to identify the clinical benefits of patient positioning verification, which is critical in IMRT treatment. The image quality is determined by the signal to noise ratio (SNR) characteristics of the radiation detector. Therefore, the detective quantum efficiency (DQE(f)) is determined as: $DQE(f) = [SNR_{out}(f)/SNR_{in}(f)]^2$. The DQE(f) gives a measure of how efficiently a radiation detector, or imaging system, makes use of the information contained in a radiation beam. A typical setup for obtaining the lateral portal with head and neck region is reduced from 9 MUS to 2 MUS with 6X photon beam. Though the absolute dosimetry information of the intensity map was not generated during the normalization process, the visualization with DRR and treatment location of the patient can provide the IMRT with higher level of delivery confidence. Intensity map of multiple angles of beam orientation can be acquired using the same procedure that might be quite difficult using the film dosimetry method. EPID system provides a efficient way to verify IMRT dose maps.