

In IMRT, the time sequence of MLC settings are derived from an fluence map as a postoptimization process using a software module called a “leaf sequencer.” The accuracy of the dynamic delivery depends on the module’s functionality. So it is important to verify independently the correctness of the leaf sequences for each field of a clinical plan for patient treatment. The measurement tests using radiographic film, EPID or other devices are labor intensive and time consuming. The separation of quality assurance of the leaf sequencer from the dynamic MLC delivery system is proposed by using a simple computer algorithm. It reads in the leaf sequences and simulates the motion of the MLC leaves for the verification. We applied this idea in our IMRT system and make an algorithm. The generated fluence map is compared quantitatively with the reference map from the treatment planning system. This approach has been used to validate the CORVUS (NOMOS Co., Sewickley, PA) and Pinnacle treatment plans.