Verification that light and radiation fields from a linear accelerator agree with the console values and with each other is an essential part of a routine quality control program. In this report we describe an extension of previous work in which we investigated the use of a simple lead test tool for this aspect of Q.C. The test tool consists of a 2.1mm thick lead plate with an array of angled slots mounted on an 18mm thick acrylic plate. The image receptor, positioned behind the test tool, was either verification film or one of three EPIDs mounted on Siemens linear accelerators. Images were assessed by seven experienced observers.

We find that the precision of locating a field edge is 0.41mm (standard deviation) or better for both film and EPIDs. Typical accuracy for film measurements is 0.61mm or better and for EPID measurements 0.89mm or better. It is noted however that the accuracy of EPID measurements is variable and depends on the unit used. Our experiment did not indicate sensitivity of either statistical parameter to photon energy (6 or 23MV).

This simple test tool has been shown to be capable of yielding precise results. We consider the accuracy to be limited by i) set up uncertainty ii) identification of the field edge in a high dose gradient region and iii) EPID acquisition and display settings.