A tomotherapy workbench has been developed and commissioned. Several dose calculation and planning systems have been developed in conjunction with that workbench. However, before the merits of each system could be defined and improved, a method had to be developed to reliably measure the predicted dose distributions that were delivered. The dosimetry is complicated by the very narrow field of the slit beam defined by the tomotherapy collimator. That unmodulated 4 MV field is 18 cm wide at an isocenter 93 cm away, but its 50% to 50% dose profile is 7.6 mm high (as measured at a depth of 1 cm). Therefore, there is only a window of ~2-3 mm in the center of the field where the dose profile is uniform. Such a narrow field precludes the use of most ion chambers, which can be several centimeters long and, therefore exhibit a partial volume effect. Another complication is the desire to have high spatial resolution (~ 1 mm^2 pixels) over an extended range (100 cm^2). Only radiographic film was deemed capable of accurately and cost effectively providing this resolution on a routine basis. The difficulties associated with film, such as its limited dynamic range, energy dependence, and random variations are discussed, as well as their solutions. In spite of the drawbacks, it is shown that film is capable of providing high resolution tomotherapy dosimetry accurate to within ~2%. Some of the custom made tomotherapy phantoms used in accordance with film are explained.