

A solid water/cylindrical phantom is machined to create a spiral cavity for placing radiographic/radiochromatic film in a spiral configuration. This spiral phantom predicts samples and measures data in a 3D subspace. The predicted data is obtained by projecting the patient plan data on the spiral phantom in the treatment planning software. The measured data is obtained by irradiating the spiral phantom (with film in the spiral cavity) as per the treatment plan. The predicted and measured data are converted to a 2D matrix and plotted as a spirialogram. Comparison of these predicted and measured spirialograms provides a quantitative comparison and thus validation of treatment delivered as planned. A software script is being written to automate the entire process of projection, data sampling and comparison.

The spiral phantom is a simple, cost-effective approach to sample 3D data from complexly shaped multiple beams. Design aspects and some examples of dose verification will be presented. The usefulness of the spiral phantom for IMRT and dynamic field shaping will be discussed.