

RPC WEBPAGE NEWSLETTER

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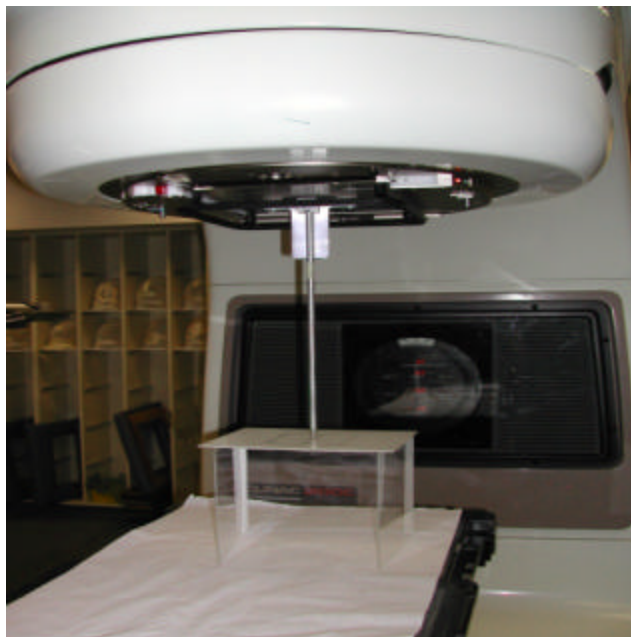
IRRADIATION INSTRUCTIONS FOR RPC TLD BLOCKS

The RPC is aware that some physicists have questions about the TLD irradiation procedure. Those physicists who are irradiating TLD for the first time often find the somewhat unusual technique slightly disconcerting. The following step-by-step instructions and accompanying photographs are intended to answer questions about the procedure, and to provide reassurance that the setup is correct.

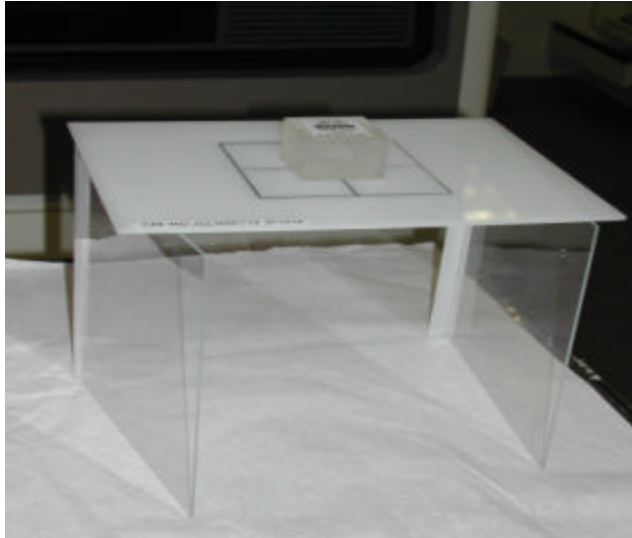
As always, questions and suggestions may be directed to RPC@mdanderson.org or to 713-745-8989.

PHOTON BLOCKS

- Place the plastic platform on the treatment table under the beam and set your normal isocentric distance to the top surface of the platform. (Not to the top, or middle of the TLD block). See figure below.



- Set a 10 cm x 10cm field and align the platform surface (marks etched in top). Place the TLD block, with the labeled side toward the source, on the platform in the center of the field. Do not adjust the SSD. See picture below.



block energy range

TLD blocks for different photon energies.

- Be sure that the block is designed for the photon energy you are testing. Each TLD block is designed to provide sufficient buildup for specific photon energy. See pictures below.



Low energy block

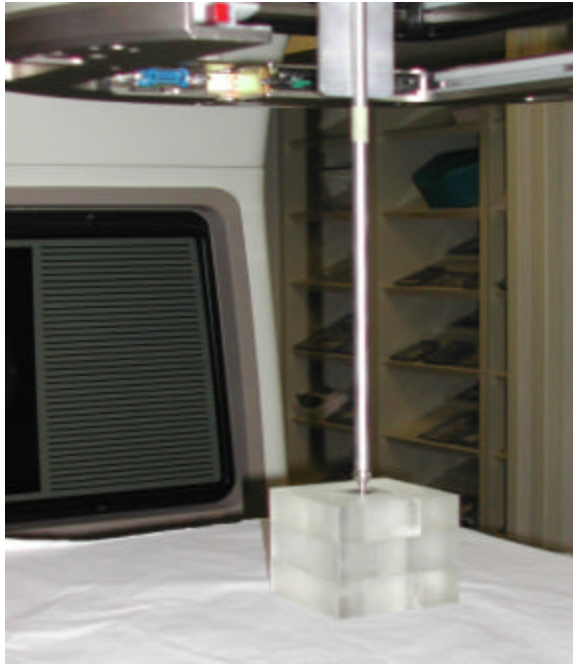


High energy block

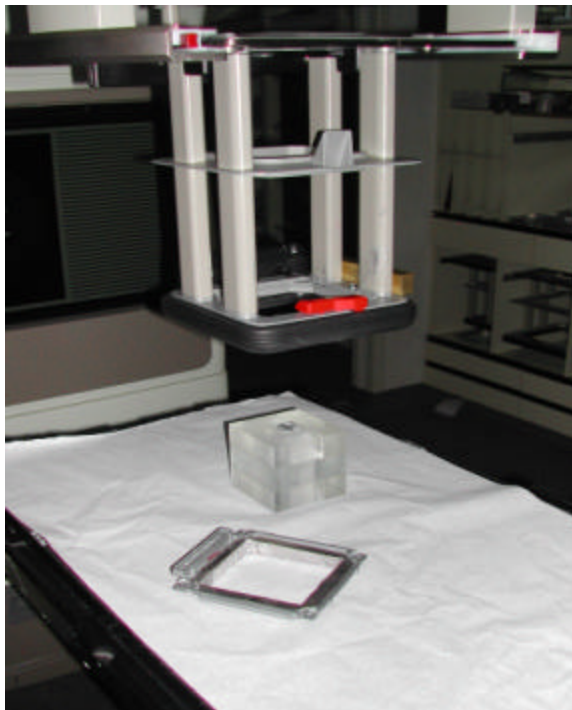
- Set your MU to deliver 300 cGy to your dose specification point. The dose specification point is the distance from the source at which your calibration dose rate is specified. For example, if the beam is adjusted to maintain 1.000 cGy/MU at 100 cm SSD at the depth of maximum dose (d_{max}), then your dose specification point is at 100 cm plus d_{max} and the MU set will be 300 MU.
- The RPC will make the necessary corrections to the TLD readings to account for the distance from the source to the capsules in the block, and the lack of scatter.
- Please record the output of the machine at the time of the TLD irradiation. If you measure output immediately before irradiating the TLDs (preferred) record the measured output.
- Fill out the Photon Beam TLD Irradiation Form.

ELECTRON BLOCKS

- Place the electron TLD block in the plastic phantom on the treatment table (Do not use the plastic platform). Center the TLD block in the plastic phantom with the central axis of the beam and set the normal SSD used for calibration to the top surface of the TLD block. See picture below.



- Attach the standard electron cone with the appropriate standard cone insert. See picture below. (Note: the couch was lowered for this photograph.)



- Insert the appropriate TLD block in the mini phantom with the labeled side toward the beam. **Each electron TLD block has been designed for a particular range of electron energies**, with TLD positioned at or near d_{max} and on the steep part of the %DD curve. See picture below.



- Set the MU to deliver 300 cGy to your depth of maximum dose (d_{max}).
- The RPC will make the necessary correction to the TLD readings to account for the depth of the TLD capsules in the TLD block.
- Fill out the “Electron Beam TLD Irradiation Form,” including the output at the time of TLD irradiation.
- Enclose a copy of the electron percentage depth dose data for the energies and cone sizes tested. These data are used for comparison with the TLD measurement of %DD; therefore it is important that the data submitted to the RPC be the most currently used clinically.