**Film Dosimetry Using** [**Radiochromic.com**](radiochromic.com)

# Description

For a while, my clinic planned to use Radiochromic.com in our film dosimetry workflow as a backup for Delta4 for IMRT QA. These are some notes from a procedure described in a paper [1] [linked](https://radiochromic.com/publications.php) on the [Radiochromic](radiochromic.com) site.

# Notes

* EBT3 film can be used for ≤20 Gy, but preferably for ≤10 Gy.
* Humidity and temperature uncertainty for film can be ignored at ≤60°C.
* Handling:
  + Keep film in the dark.
  + Use gloves to handle.
  + Minimize water submersion.
* Scanning procedure:

To avoid inconveniently narrow scanning windows, scan 24h after irradiation *and keep constant*.

1. Warm up scanner for 30”.
2. Perform five empty scans to stabilize the lamp.
3. Use a frame to position the film on the scanner.
4. Save fixed scanning area in scanning software.
5. Perform five scans and discard the first. Scan in 48-bit mode using no image processing tools. Use 50–75 dpi (0.51–0.35 mm), or 100–150 dpi (0.25–0.17 mm) for small fields.

The reference dose is homogeneous along the axis parallel to the lamp, and it should cover the dose range with no extrapolation.

* Film cal:

Image unexposed film for lateral correction. Use homogeneous dose by 25×25 flattening filter. The error should be 1–2.5 percent if dose ≥1.5 Gy. For smaller doses, minimize error by scaling MUs.

1. Cut unexposed film into approximately seven strips.
2. Leave the first strip unexposed.
3. One by one, irradiate the remaining strips in a water-equivalent phantom at reference conditions.
4. Scan all fragments.
5. Leave the unexposed strip on the scanner until the next cal.

* Dose calc:

Scan the unexposed strip and the irradiated film.

# Reference

1. Méndez, I., et al. "A protocol for accurate radiochromic film dosimetry using Radiochromic.com." Radiology and Oncology 55.3 (2021): 369-378.