TG-142 Mechanical Field Size Checks on Elekta

# Purpose

This procedure describes how to perform a monthly (or quarterly) check of the field size on Elekta-1 or Elekta-2 according to TG-142. This test is part of the TG-142 suite that will replace TG-51, which will now be done annually instead of monthly.

# Steps

## In Physics

1. Take a notebook and a writing utensil. Get the IC Profiler from the hot lab. The hot lab key is in the cabinet to the right of Kaley’s desk.

## In Elekta treatment room

1. Place the indexing bar at 0 (or somewhere around there). Align the IC Profiler against the indexing bar. The electronics should face away from the gantry.
2. Unplug the DailyQA3 device in the closet and plug the cord into the IC Profiler.
3. Use the hand pendant to set the gantry and collimator angles to zero.
4. Align the IC Profiler with the x- and y-lasers.
5. Press the DIST button on the hand pendant to turn on the optical distance indicator (ODI). Use the ODI to set the IC Profiler to 100 SSD.
6. Log into Service Mode in the linac software. (You can switch from MOSAIQ by clicking Ctrl+Ctrl+2.)
7. On the MLC tab, set the field size to 20×20.
8. For each X+, X-, Y+, and Y-, use a ruler (in the physics cabinet) to measure the distance between the line on the IC Profiler, and the edge of the field. As a rule of thumb, the edge of the field is halfway between the lightest and darkest parts. The field sizes in the x- and y-directions are defined by the MLCs and jaws, respectively. Since the MLCs are higher than the jaws, expect the x measurements to be slightly larger than the y measurements.
9. Repeat steps 8 and 9 for a 10×10 field.
10. Set the field size to 5×5. Use a ruler to measure the total field size in the x- and y-directions.
11. Unplug the IC Profiler and plug in the DailyQA3 device.
12. Log back into Clinical Mode if the therapists will be using the machine again today.
13. Restore the table setup to the way it was when you entered the room. Lower the table completely.

## In Physics

1. Make a copy of “TG-142 Mechanical Field Size Checks on Elekta GENERIC.xlsx” and name it “TG-142 Mechanical Field Size Checks on Elekta <month> <year>.xlsx”. The test passes if all field edges are within 1 mm of the IC Profiler field lines.
2. In “Physicist Periodic QA Checklist Cookeville <year>,” check off **Mechanical Checks (TG-142)** for the appropriate machine.