

DAILY CLINAC QA RESULTS WITH ARCCHECK IN ELEKTA SYNERGY

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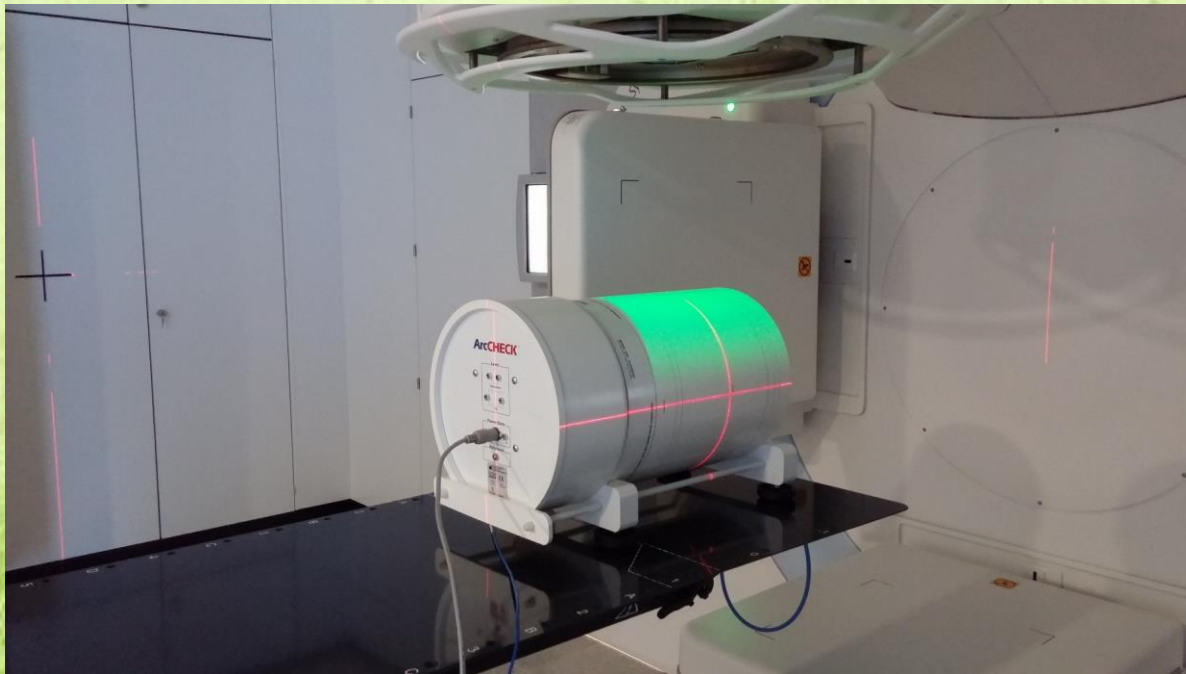
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Introduction & Purpose

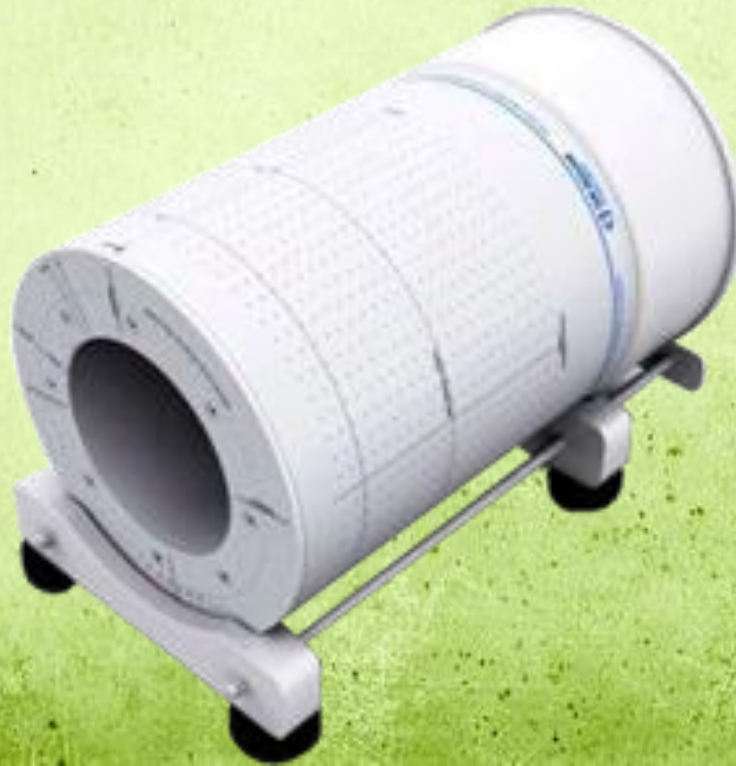
LINAC Daily QA using ArcCheck phantom (Sun Nuclear, Inc) to check constancy of dosimetric parameters.

Results evaluation over 5 months.



Material & Methods

- ArcCheck (AC) with cavity plug. AC is a 4D detector phantom mainly designed to check IMRT-VMAT treatments.
- 0.125 cc ionization chamber (IC) with electrometer.



Material & Methods

LINAC: Elekta Synergy

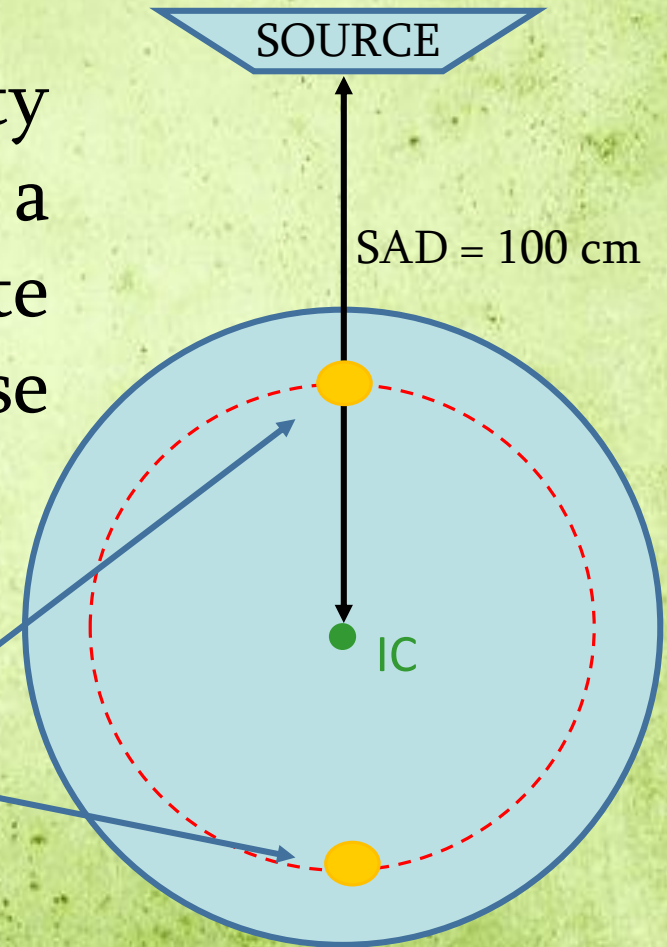
QA steps are:

1. Open warm-up arc field to check the alignment of the sagittal laser with the room sagittal direction, using a Gamma analysis.

Material & Methods

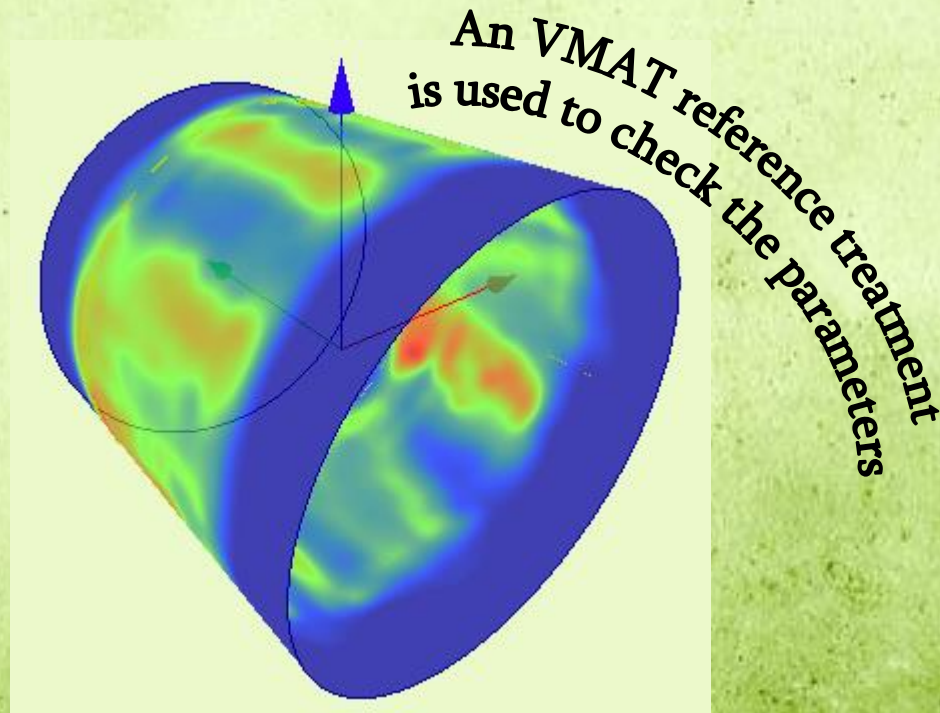
2. Evaluate beam shape, quality and reference dose with a 10x10 cm open field. Evaluate the difference in ref. dose between diodes and IC.

Quality factor is analyzed by using two diode measures



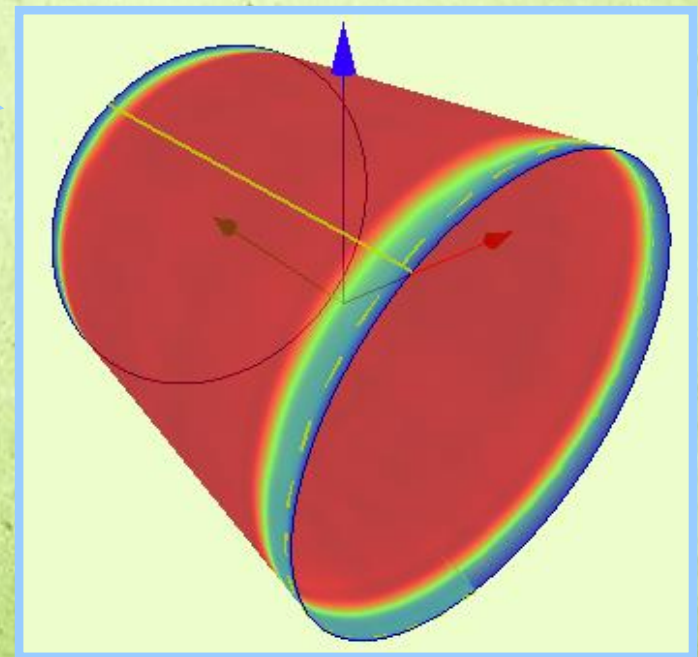
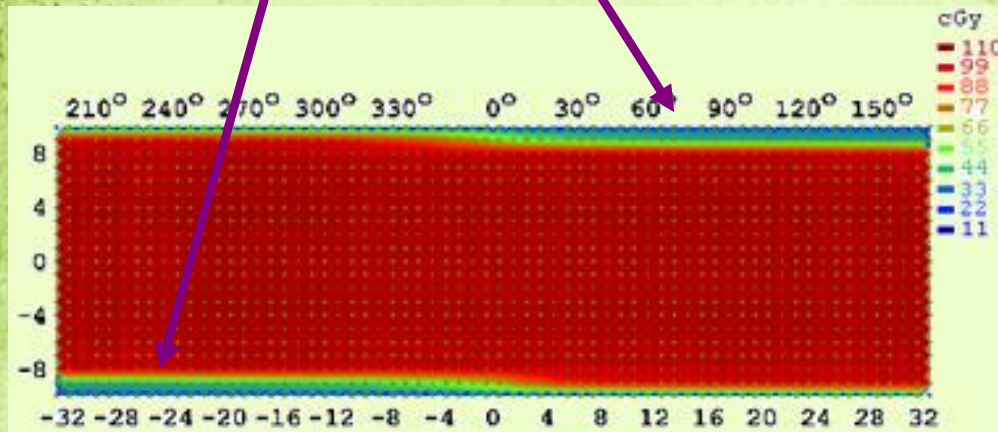
Material & Methods

3. Check the constancy of monitor unit system, gantry speed and MLC of a VMAT treatment over the time, using a Gamma analysis.



Results

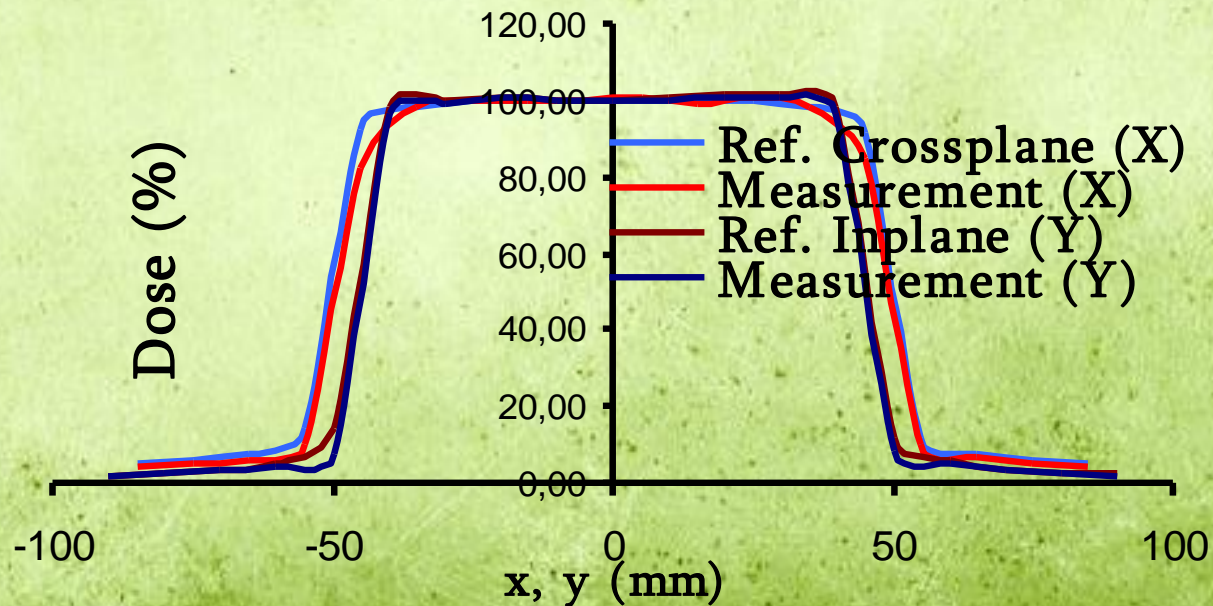
Using an open warm-up arc field, a deviaton of less than $0,3^\circ$ in the sagittal laser has been detected...



Results

Data is automatically imported and processed.
The difference of ref. dose dev. between diodes and IC are less than 1% over time:

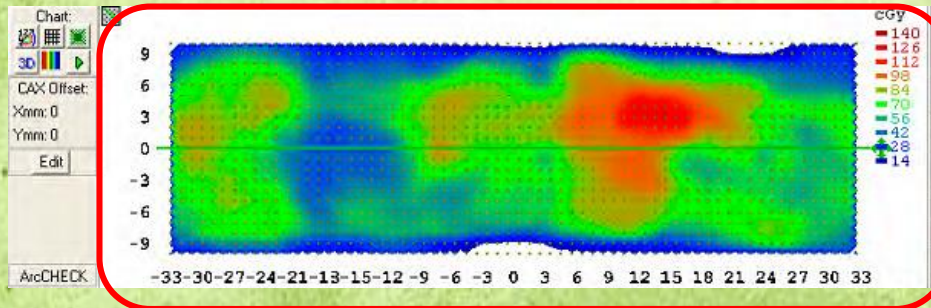
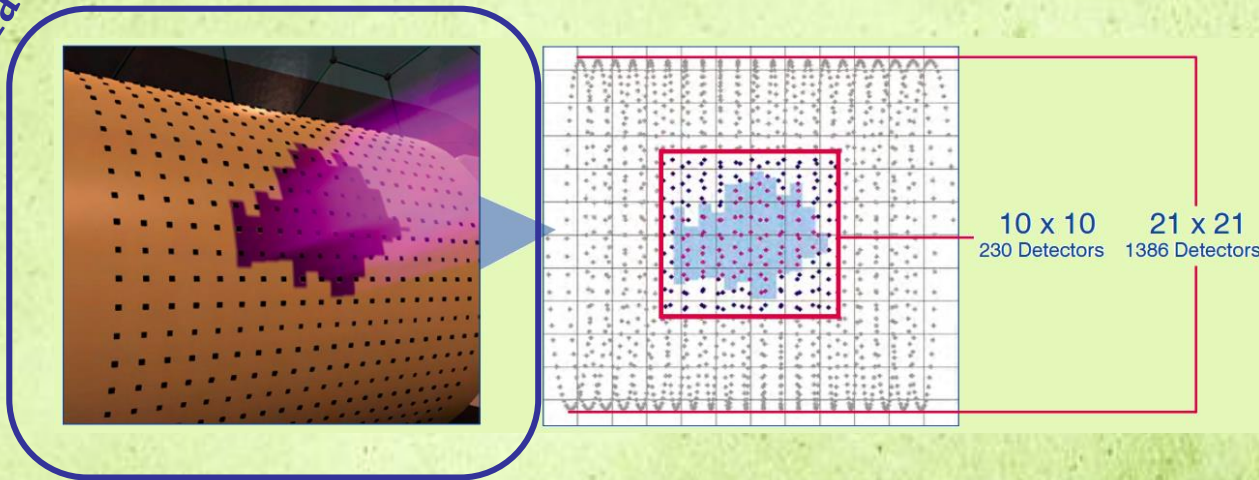
10x10 FIELD



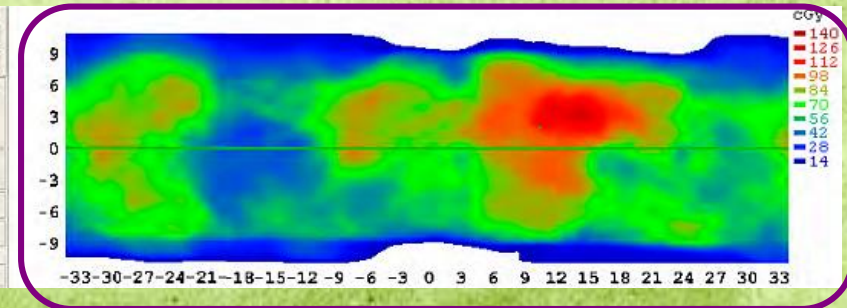
Results

Gamma analysis has more than 95% of daily coincidence.

ArcCheck been irradiated



Daily measurement



Reference

Conclusion

Measurement, data import and automatic calculation take less than 8 min, fast process. The daily QA implemented with ArcCheck is fast, complete and effective.

