

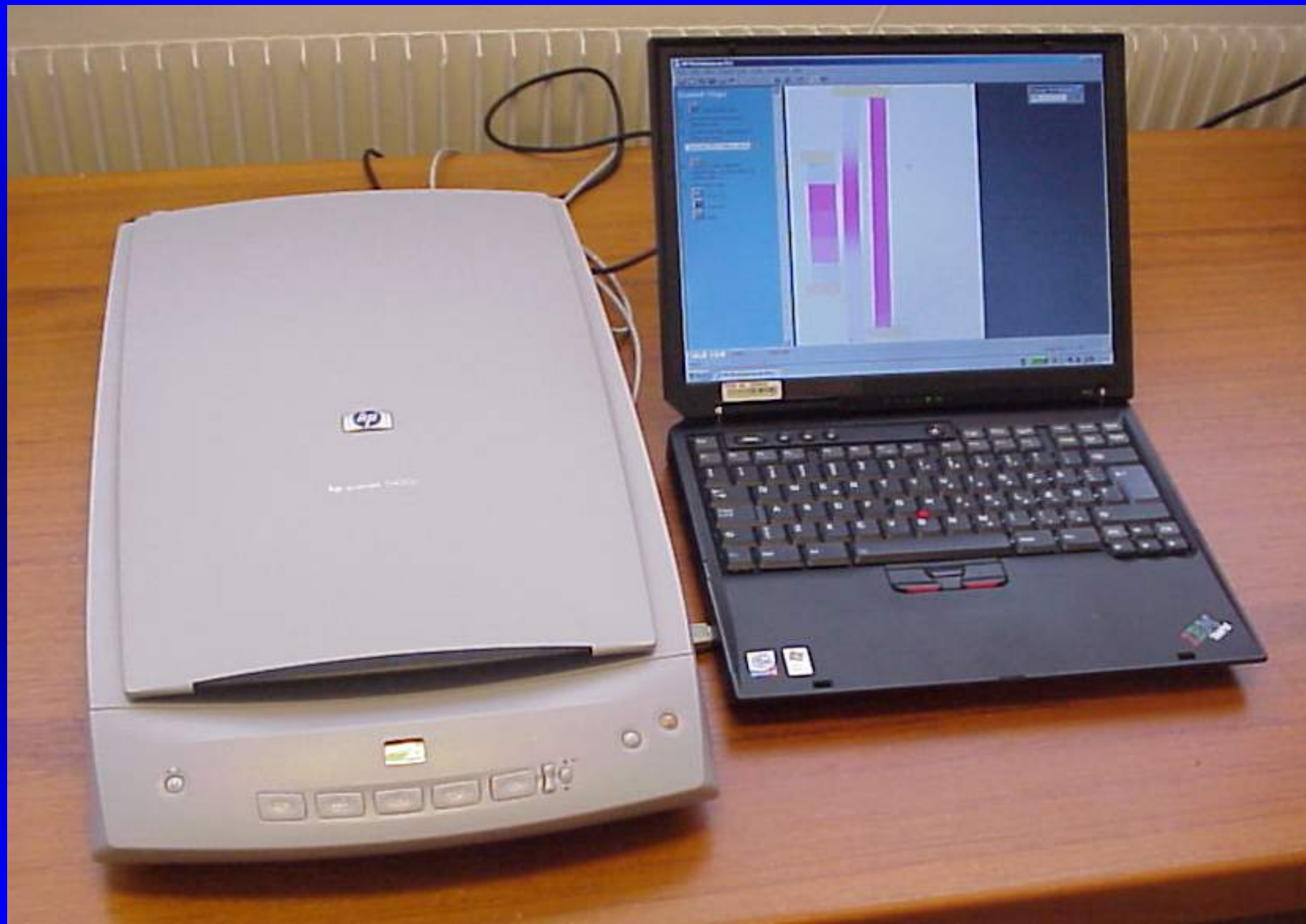
# RisøScan

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for complete details



# RisoeScan is:

- a software package for image analysis of dosimeter films,
- used for analysis of images of any dosimeter that colours visibly,
- useful for depth dose curves and surface dose profiles,
- based on LabView programming language from National Instruments,
- utilizing scanned images from a flatbed scanner.

# Scanner properties

- A scanner is not a precision instrument
  - Only 255 grey-scale levels.
  - One scan may differ from the next due to different lamp temperature, stability of electronics etc.
- Scans are not identical if the scanner settings are not kept constant.
- Different scanners will make different scans.

# B3 Film Reference Tablet

- In order to correct for possible instabilities, a reference is measured for each scan.
- The reference links the calibration to the measurement of the unknown dosimeter.

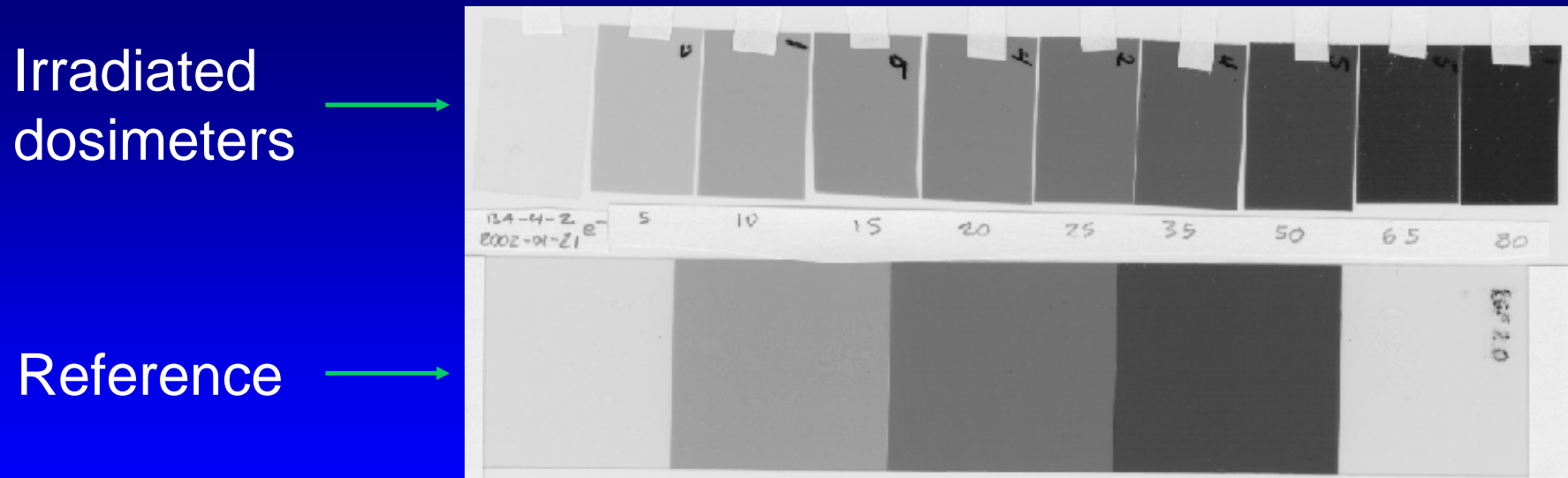


We use laminated B3 film dosimeters irradiated to 12, 25 and 50 kGy as a reference.

# Calibration

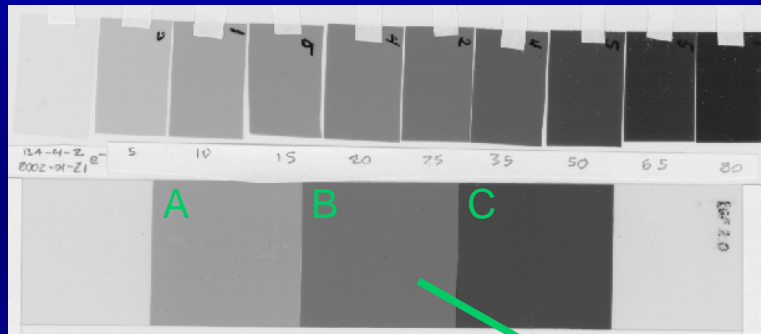
The reference is measured in the same scan as the calibration dosimeters.

The green channel is selected for best S/N ratio. The image is presented in grey scale.

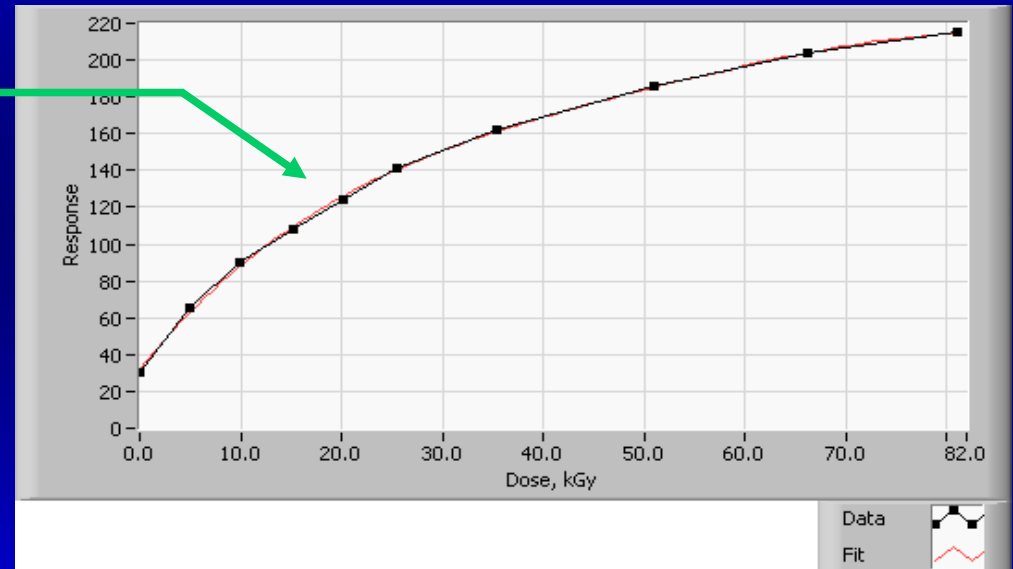


# Calibration

Calibration curve is based on measurements of the individual dosimeter films.



Ref. name	Ref. values
A	98.89
B	142.18
C	184.30

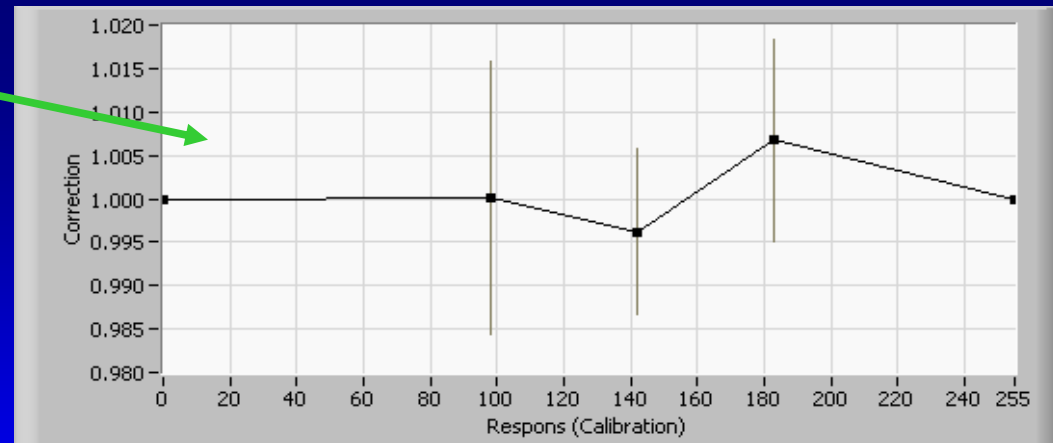


Reference values are stored together with the calibration curve.

# Measurement of dose

Reference values obtained during the calibration are compared with reference values obtained during measurement of unknown dosimeters.

Differences are used to correct the measured dose.

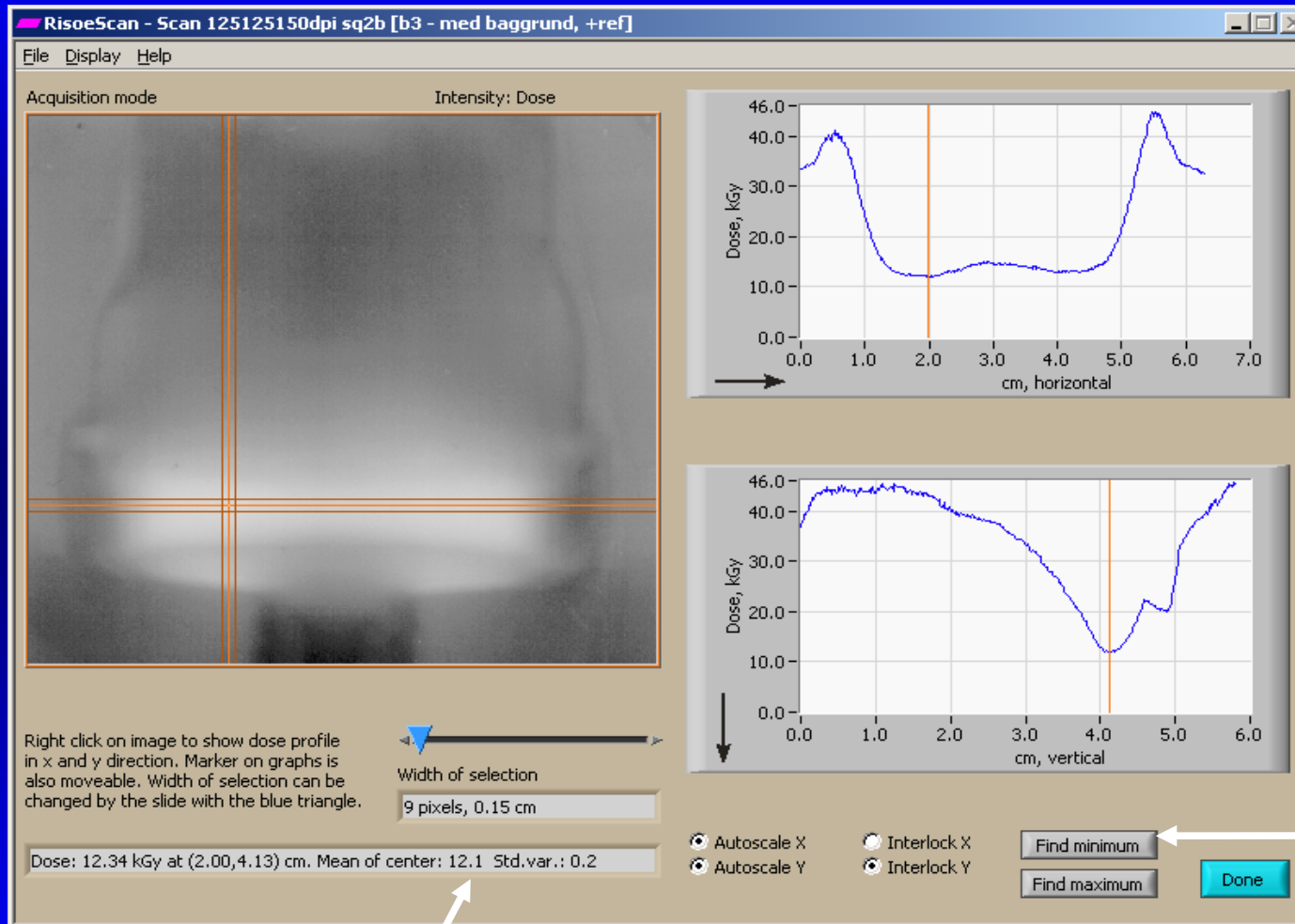


Typical correction: <1%

Typical standard deviation on a reading: 1-2%



# Surface dose profile



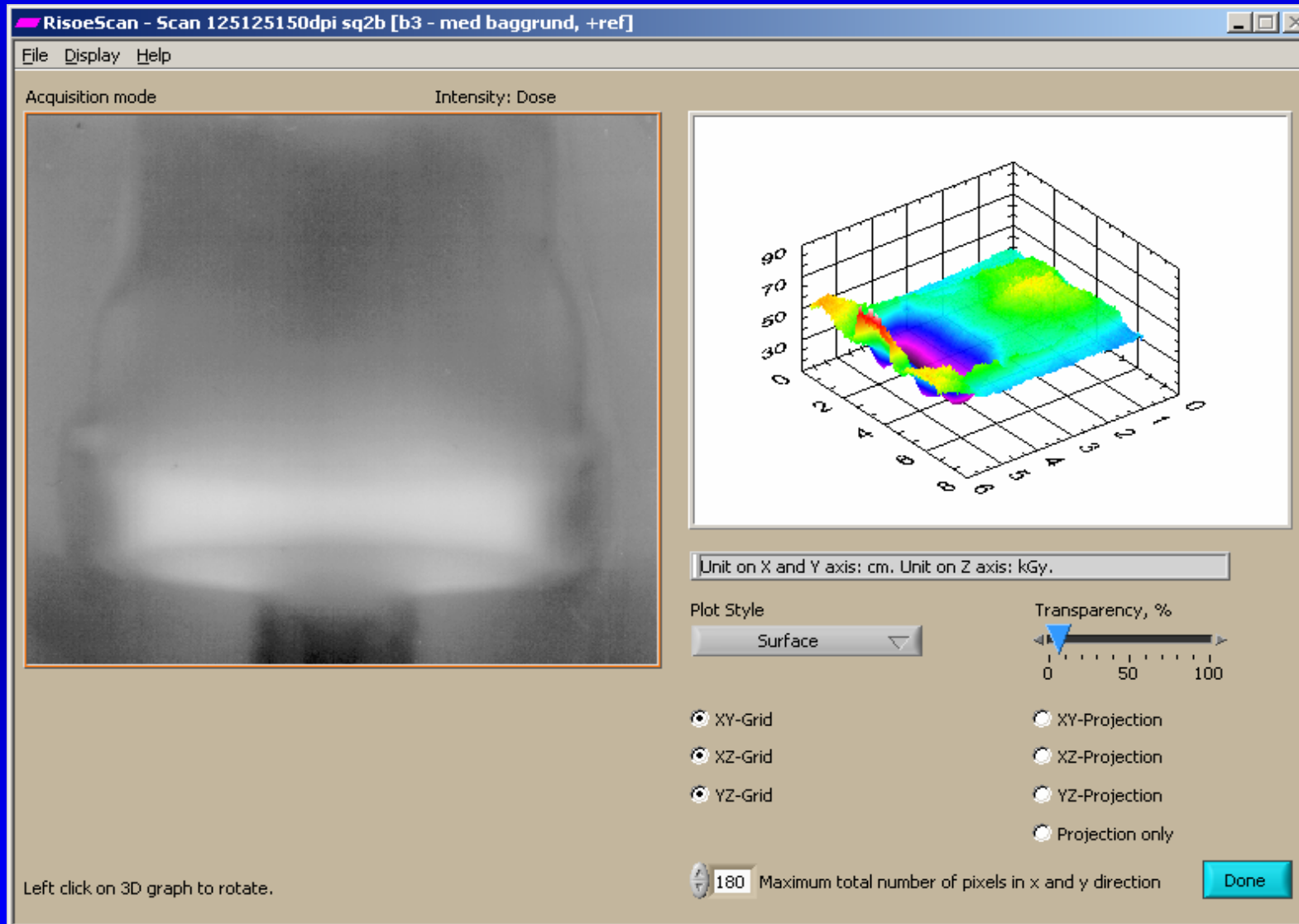
Dose along horizontal axis

Dose along vertical axis

Option to find minimum and maximum dose

Dose at centre of cross-hair

# 3D Surface dose profile



# Measurement of E-beam energy

- Average and most probable electron energy are calculated based on the descending slope of a depth dose profile.
- Calculation of  $R_{50}$ ,  $R_{ex}$  and  $E_A$  and  $E_P$  are based on user defined equations (ISO/ASTM).

