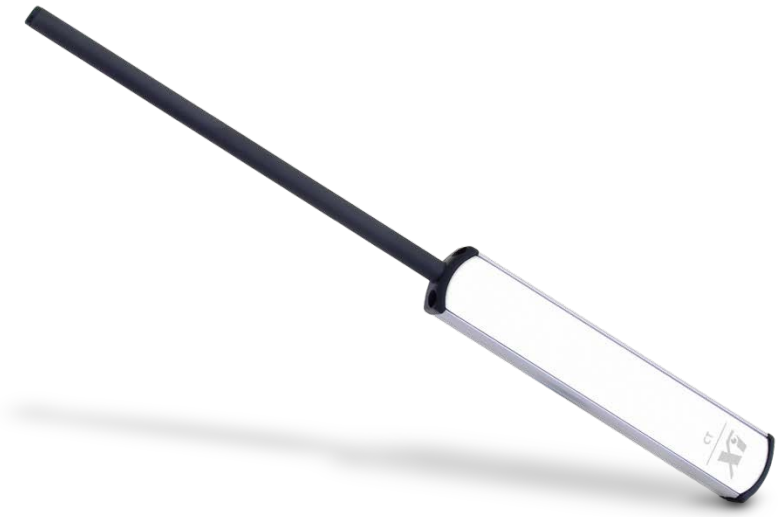
# High and low dose rate measurements with RaySafe Xi and Solo CT detector



## BACKGROUND

Due to rapid development of CT scanners during recent years both high dose rate and low dose rate measurements challenge the limits of the RaySafe Xi/Solo CT detector.

This Application Note covers:

- Measurement with high mA in combination with a wide X-ray beam. This measurement can give too **high signal** to the instrument.
- Measurement with **low signal** in phantom where dose rate becomes so low that the instrument registers more than one exposure during one axial scan.

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# INSTRUCTION FOR HIGH SIGNAL

When measuring on a too high signal for the RaySafe Xi/Solo CT detector the signal can be reduced to the detector by:

- Decreasing the mA and keep everything else the same
- Decreasing the beam width and keep everything else the same
- Decrease both mA and beam width
- Increase the measuring distance

To measure the same dose but reducing the signal to the detector you can:

- Decrease the mA to half and double the exposure time.
- Decrease the beam width to half and double the exposure time.
- Decrease both mA and beam width to half and multiply the exposure time by 4.
- Measure at a longer distance and recalculate dose and dose rate with the *FDD Compensation* function in Xi View to give the reading at iso-center.

# INSTRUCTION FOR LOW SIGNAL

When measuring in phantom with low dose rate, you may experience that one exposure unintentionally is cut into many measurements. You can reduce this problem by:

- If possible, increasing mA to give high enough dose rate for a single measurement per axial scan exposure.
- Selecting a longer Calc. delay in the Xi settings so that the instrument does not retrigger during the scan. Default is 0.5 s second and from CT detector firmware version 6.05 (released May 2012) up to 7 seconds is selectable.
- For older versions and very long scan times please use Xi View to export the measurement to Excel and use the time stamp to add the measurements from the same axial exposure.

# CONTACT

Please visit http://www.raysafe.com for more information.

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