Application Note

Black Piranha - kV on Siemens CT

This application note gives recommendation on selection of calibration for non-invasive kV measurement on Siemens CT units.

Note that the information hereafter is valid for Black Piranha with product version 5.5. The information is not valid for Red Piranha or Barracuda MPD.

Introduction

Evaluation of the Black Piranha has been performed at various sites for the Siemens CT units, without having the ability to verify against any invasive references. However, the data has shown to be consistent, and therefore it can be assumed that the kV calibration from manufacturing is consistent and accurate too.

Application Note

Straton Tube

For the Siemens Straton tubes the special developed calibration C3 is recommended. For the Straton tube the x-ray spectrum is significantly different from other x-ray tubes. Using any other calibration for the Straton tubes will lead to significantly too high kV readings.

Use C3 (Straton)

Chronon Tube

For the Siemens Chronon tubes the standard calibration C1 (W/Al) is recommended. The Chronon tube has a spectrum that is similar to conventional R/F tubes with anode angles in the range 10 to 16 degrees.

Use C1 (W/Al)

Athlon and Vectron Tube

The Athlon tube has an anode angle of 7 degrees with an output spectrum that is relatively normal for a Tungsten anode at such an anode angle. For the Athlon and Vectron tube it has been verified that the Piranha calibration C6 (GECT 10.5°) can be used. The C6 calibration ranges from 65 to 150 kV.

Notice: Also the C4 (GECT 7°) gives good result with lower kV readings of about 0.5%on average, but the kV range where C4 is valid is limited to 75-145 kV.

Use C6 (GECT 10.5°)

Cross Reference - System / Tube

Straton is used in	SOMATOM Definition SOMATOM Definition AS SOMATOM Definition Edge SOMATOM Definition Flash SOMATOM Definition Drive
Vectron is used in	SOMATOM Force
Chronon is used in	go.Now go.Up
Athlon is used in	go.All go.Top

Data are stated in the according System Owner Manuals.

*** END ***