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Calibration Procedure  
for  
Single Spot Ionization Chamber  
using Pre-Amplifier Board 61059G

The following adjustments apply to the calibration of a 61059G pre-amplifier board for a single spot ion chamber. The procedure assumes that the installation of the Automatic Exposure Control (AEC) is complete and that the AEC and x-ray generator are in proper working condition. After making the necessary interconnections between the ion chamber and the AEC, power up the system.

**CAUTION: THIS PROCEDURE REQUIRES THE PRODUCTION OF X-RAYS. TAKE THE NECESSARY SAFETY PRECAUTIONS.**

**Calibration/Test Setup:**

Set the generator for 80kVp and maximum backup time. For 80kVp use 8 inches (20cm) of water or plastic as a phantom. Metals such as copper, aluminum or lead are not suitable for use as phantoms. Make sure the phantom is homogeneous and completely covers the spot chamber field. Center the x-ray beam on the spot chamber field. Collimate the x-ray beam so that it completely covers the spot chambers field but does not extend beyond the limits of the phantom.

**Chamber Gain Adjustment:**

Typically the chamber gain is the only adjustment needed when installing an ICX series ion chamber. Use the master gain potentiometer, 61059G R18, to match the spot ion chamber sensitivity with that of any other stationary chambers connected to the system. Note that 61059G R18 is a multi-turn potentiometer. A clockwise adjustment of 61059GR18 will increase the chamber gain and cause the length of the exposure (mAs) to decrease. Make exposures and process the films. Adjust the chamber gain for the desired optical density.

If the master gain potentiometer does not have sufficient range to accommodate your screen-film combination, then adjust the minor gain potentiometer, 61059G R7, to complete the calibration. 61059G R7 is a multi-turn potentiometer. A counter-clockwise adjustment of 61059G R7 will increase the chamber gain and cause the length of the exposure (mAs) to decrease.

**Drift Adjustment:**

The drift adjustment potentiometer, 61059G R8, is preset at the factory for a rate < 30mV/10 seconds. It is not to be adjusted on site. If the drift adjustment is incorrect return the ion chamber to the factory for recalibration.