

STEP WEDGE X-RAY FILM QUALITY ASSURANCE PHANTOM

X-Ray quality assurance test images should be taken regularly using a high-quality aluminum Step Wedge. Step Wedges have a staircase-like appearance, which creates a test image with varying shades from light gray to nearly black. By comparing an image taken under these conditions against subsequent test images, problems with either exposure or development will be discovered quickly.

The Step Wedge performs two important quality assurance functions:

- 1) It may indicate the possible need for exposure calibration.
- 2) For film processors, it helps to determine the condition of the processing chemicals.

DIRECTIONS FOR MAKING THE CONTROL IMAGE

- 1) Place the Step Wedge with the steps facing up over a film or sensor.
- 2) Position the X-Ray field directly over the Step Wedge.
- 3) Take an exposure (for film processors, develop as you would a normal film.)
- 4) Count the individual steps on the test image. If all steps are not apparent, adjust the exposure up or down until they are all distinctly visible. If the lightest steps (from the thickest part of the Wedge) are indistinct, increase the exposure. If the darkest steps (from the thinnest part of the Wedge) are indistinct, decrease the exposure.
- 5) When the optimum exposure is achieved, record the date, operatory, machine, kVp, mA, exposure time, source-to-image distance and developing time.
- 6) Save this image as a reference image.

QUALITY ASSURANCE TIPS

- 1) For consistent results, future test images should be created in the same manner above and compared to the reference image.
- 2) If you notice a change in density, corrective action should be taken before diagnostic quality suffers.
- 3) An added benefit of this Step Wedge is that by helping to maintain X-Ray quality, unnecessary patient exposure is reduced.