

Qualification application and Standard Operating procedures can be found on the web at:
<http://www.acrin.org/Default.aspx?tabid=127>

I. Materials Required

Submit the following for each scanner to be used in ACRIN research:

1. Two test patient studies
2. Uniform phantom images (DICOM) with the SUV measurement
3. PET qualification application available at: <http://www.acrin.org/Default.aspx?tabid=127>

II. Test Patient Image Requirements

Submit images of two unidentified patients consisting of three volume or multi-slice files as follows:

1. Whole body (torso) transmission (or CT from PET/CT scanner).
2. Whole body (torso) emission with attenuation correction (A/C).
3. Whole body (torso) emission without A/C. (Note that the whole-body transmission images will represent the reconstructed attenuation information that was used to apply attenuation correction.)

III. Uniform Phantom Scan Requirements

A. For Water-filled Uniform Phantoms: Fill the phantom with water and inject a known amount of F-18 (either as fluoride or FDG) into the phantom. The activity injected should be determined by measurement of the syringe before and after the injection in a properly calibrated dose calibrator. The injected activity should be chosen to result in an activity concentration similar to that encountered in clinical FDG imaging, i.e., 1 to 1.5 mCi of F-18 should be added to the 6,283 mL phantom, 2 mCi for the 9,293 mL phantom.

Thoroughly combine the mixture and then scan the phantom with the same protocol used for patient imaging. Reconstruct the images with the same algorithm and filters used for patient imaging. Draw a circular or elliptical region of interest (ROI) covering most of the phantom's interior over all slices. Measure and report the average SUV and standard deviation in the PET Instrument Technical Specification form. **The expected SUV for the uniform phantom is 1.0 and the acceptable range is 0.9 to 1.1**

B. For Ge-68/Ga-68 Calibration Phantoms: Scan the phantom with the same protocol used for patient imaging. Report the assay date and activity from the calibration certificate of this phantom on the PET Instrument Technical Specification form. Reconstruct the images with the same algorithm and filters used for patient imaging. Draw a circular or elliptical region of interest (ROI) covering most of the interior of the phantom over all slices. Measure and report the average SUV and standard on the PET Instrument Technical Specification form. **The expected SUV for the uniform phantom is 1.0 and the acceptable range is 0.9 to 1.1.**



Qualification Procedures for PET or PET/CT Imaging

IV. Image Transmission

Submit test studies and uniform phantom images in DICOM format to ACRIN's Imaging Core Lab on DVD, Magneto-Optical Disk (MOD), or Compact Disc (CD).

For questions related to PET or PET/CT qualification for ACRIN trials please contact:

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E-mail the completed electronic application to:

PetCoreLab@phila.ace.org (Preferred to ensure data accuracy.)

Or mail or fax to:

American College of Radiology Imaging Network

ATTN: PET Core Laboratory

1818 Market Street 16th floor

Philadelphia, PA. 19103

Fax: 215.923.1737