



# CT Accreditation Testing Instructions

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# GENERAL INSTRUCTIONS

You must read and understand the documents listed below before beginning this process:

- A. *ACR Diagnostic Modality Accreditation Program Overview*
- B. *ACR CT Accreditation Program Requirements*
- C. *ACR CT Accreditation Clinical Image Quality Guide* (Ensure that your facility's protocols meet the minimum requirements before continuing)

You will also need the following items from the ACR website ([http://www.acr.org/accreditation/computed/qc\\_forms.aspx](http://www.acr.org/accreditation/computed/qc_forms.aspx)):

1. This *Testing Instructions* document
2. *Phantom Order Form* if you do not have access to the Gammex 464 phantom for accreditation testing and technologist QC
3. *ACR CT Accreditation Phantom Instructions*
4. *Clinical Data Forms* (these are generic forms designed to assist you in gathering data. **Do not submit these forms.** You must log on to the ACR accreditation database ACredit (<https://acredit.acr.org>) to enter the data in your online testing package, submit the package online, then print the forms for submission.)
5. *Phantom Data Form* (these are generic forms designed to assist you in gathering data. **Do not submit these forms.** You must log on to the ACR accreditation database ACredit (<https://acredit.acr.org>) to enter the data in your online testing package, submit the package online, then print the forms for submission.)
6. *Phantom Dose Form* (these are generic forms designed to assist you in gathering data. **Do not submit these forms.** You must log on to the ACR accreditation database ACredit (<https://acredit.acr.org>) to enter the data in your online testing package, submit the package online, then print the forms for submission.)

You may also need the following, also available from the ACR Website:

7. DesAcc order form to convert phantom and/or clinical images to CD if you are unable to burn your images according to our instructions.
8. Frequently Asked Questions (FAQs) are available on the Accreditation section of the ACR website for all accreditation programs under the Testing and QC Forms link.

You will also need these items (sent to you by mail):

9. Bar coded identification labels for all images and forms

If you need assistance after reading the documents listed above, ACR staff is available Monday through Friday, from 8:30 a.m. to 5:00 p.m. (ET) to answer any questions you may have about the process. The telephone number is 800-770-0145, and the email address is [ctaccred@acr.org](mailto:ctaccred@acr.org).

Apply all instructions to every unit being reviewed for accreditation. Every unit must apply for all patient types performed on that unit, and all modules routinely performed on

that unit, for a facility to be accredited. Keep copies of everything (images and forms) submitted to ACR for your records.

There are three portions to your ACR CT Accreditation submission:

1. Annual System Performance Evaluation
2. Phantom Testing
3. Clinical Testing

You **must** utilize the services of a qualified medical physicist for the Annual System Performance Evaluation, oversight of your facility's technologist quality control program and the dosimetry portion of your phantom testing. The ACR strongly recommends using the services of a qualified medical physicist for the image quality control portion of your phantom submission and optimizing your facility's routine protocols.

After your application is processed, the ACR assigns your facility a unique identification number (CTAP #). This number appears on all correspondence from the ACR, your online records and on all of the barcode labels. Please use this number on all submitted materials and to identify your facility when contacting the ACR for assistance.

The ACR website ([www.acr.org](http://www.acr.org)) provides a listing of accredited facilities and facilities that are under review. If a third party payer requests verification of your participation in one of the accreditation programs, please refer them to the ACR website.

## Materials due date

The labels mailed to you have image submission due dates. You must collect your test images and return them with your completed application to the ACR by the date indicated on the labels. Failure to meet this due date will jeopardize completion of your accreditation. Thus, if your facility is renewing its accreditation, we cannot guarantee completion in a timely fashion before your ACR certificate expires. If your site cannot submit the required materials by your due date, notify the ACR **immediately**.

## Image collection time period for phantom and clinical images

The ACR recommends that your facility select clinical examinations acquired within **one (1) month before or one (1) month after you scan your phantom**. If you have any difficulty collecting images within the recommended time frame, select an examination as close as possible to the date that the phantom was scanned.

## ONLINE APPLICATION

The application for ACR CT Accreditation is found online through the ACR website at <https://acredit.acr.org>. If your facility has applied for CT Accreditation previously, you will receive instructions to log into your existing account with your renewal notice. If your facility has **never** applied for accreditation before, you will "register" as a new facility. After you submit your application online, you must log into your account, and fill out all of the forms for your Testing Package. You may print generic forms from the CT Accreditation section of the ACR website so you can fill them out online later, but the data must be submitted online. You will then print the completed forms, and submit them along with your images to the ACR.

# ANNUAL SYSTEM PERFORMANCE EVALUATION AND QUALITY CONTROL TESTING

Medical physicists for all sites applying for accreditation or renewal must demonstrate compliance with the ACR requirements for quality control (QC) and Annual System Performance Evaluation or Acceptance Testing Evaluation (for new units) **performed by a medical physicist**.

If you have been conducting QC for less than one quarter, you may perform QC testing every business day for two weeks to achieve baseline data and set up your action limits. Additionally, if the Annual System Performance Evaluation and/or weekly on-site QC data show performance deficits (e.g. problems with the system and/or data outside of the action limits), the facility must take steps to correct the problems and submit documentation of the corrective action with the image submission.

Submit the following:

1. Annual System Performance Evaluation (to include evaluation of the technologist QC)
2. Documentation of any corrective action taken if recommended in the Annual System Performance Evaluation (i.e. test failures or data outside of action limits)

Staple all forms together, and place the barcode label on the first page.

## PHANTOM TESTING

### Step 1: Scanning the phantoms

In order to proceed with this part of your image collection process, you must have an ACR phantom (Gammex 464), as well as 16 and 32 cm CTDI phantoms. The Gammex 464 phantom is scanned on the table top, and will be used by all facilities. An order form for the phantom is available on the ACR website. All the instructions you and/or your physicist will need to scan your phantom are in the *CT Accreditation Phantom Instructions*. When you and your physicist have completed your phantom scans, proceed to step 2.

### STEP 2: Evaluating your phantom image quality

After scanning the phantom, you and/or your physicist will use the *CT Accreditation Phantom Instructions* to evaluate your images using the same procedures that ACR physicist reviewers will use. If the images do not pass, the physicist will inform the supervising physician and service engineer, as corrective action may be warranted. If your site service engineer makes system adjustments and/or the supervising physician makes scan protocol changes, repeat step 1. If your facility makes changes to any clinical protocols used in the phantom portion of your accreditation submission, make sure that clinical images you submit reflect these changes.

Once your images pass, proceed to step 3.

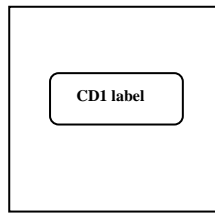
### Step 3: Prepare phantom image data for submission

After scanning the Gammex 464 and all needed CTDI phantoms according to the CT Phantom Instructions, prepare your images for submission:

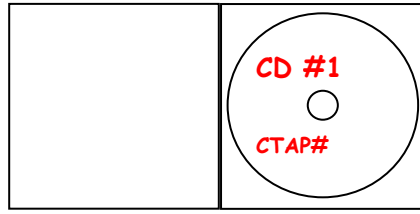
1. You must submit your phantom images on 5 ¼ inch CD or DVD media, 3 inch discs are not acceptable.
2. Burn a total of 2 discs for each unit on your application. Separate units must be burned onto separate discs. Each disc must contain all required images.
  - a. Any localizers you may have performed (Do not include images used for positioning.)
  - b. One set of images per protocol scanned (adult head, adult abdomen, pediatric head and pediatric abdomen, depending on your use of the unit and the patient type and modules on your application) on the Gammex 464 phantom (do not include more than one set of images per protocol)
  - c. One set of images per protocol scanned on the appropriate CTDI phantom
3. The discs **must** include an embedded viewer that can perform the following functions:
  - a. Easy access to the complete and accurate DICOM header
  - b. Window/level adjustments
  - c. Distance measurement
  - d. Region of interest (including measurement of area, pixel mean and pixel standard deviation)
  - e. Magnification
  - f. Show cross reference lines for slice location
4. After burning the discs, you **must open and check each disc** to ensure the embedded viewer contains all necessary functionality **and** to check that the appropriate images are all included and available.

**NOTE:** If you are unable to burn your images onto a disc with an embedded viewer that meets these requirements, contact DesAcc using the order form at the CT Accreditation Program Testing and QC Forms webpage. They will save your images onto a CD with an acceptable viewer.

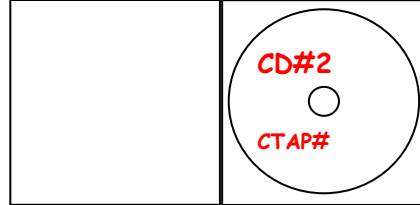
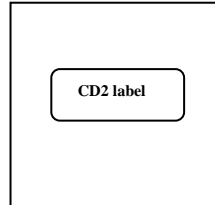
5. Label the discs and forms –
  - a. The forms you need will be printed from the ACredit database when you finish and submit your online testing package for each unit. Use the barcodes to label the phantom data form.
  - b. Place the appropriate CD labels on the disc case. **DO NOT PUT LABELS ON THE DISC.**
  - c. Use a permanent marker to label the discs with your CTAP #



Place ACR label on case



Write CD # and CTAP # on disc with permanent marker



**IMPORTANT:** The correct labeling of your images, forms and discs is critical to properly identify the materials submitted for accreditation. Incorrect or incomplete labeling will delay the accreditation process. The ACR will return your package to you if your images are not labeled properly.

## CLINICAL TESTING

### Step 1: Evaluate your facility's protocols

1. Read the *CT Accreditation Clinical Image Quality Guide* – The entire first section and any tables that are pertinent to the clinical examinations you will be submitting for accreditation.
2. Compare your site's protocols to those listed in the *CT Accreditation Clinical Image Quality Guide*.
3. With your supervising physician, ensure that all of your facility's protocols meet the minimum requirements listed in the *CT Accreditation Clinical Image Quality Guide*.

### Step 2: Select images for submission

- Select examples of your best work and have them approved by your supervising physician prior to submission. Your supervising physician should review **all** materials submitted for accreditation.
- You must submit localizer or scout sequences with all examinations with cross-reference locations.
- Sites cannot submit examinations performed on models or volunteers.
- The images submitted for each individual examination must be from the same patient (i.e., all brain images must be from the same brain study).

### Step 3: Prepare clinical images for submission

Listed below are parameters that are necessary for the reviewer to have easy access to in order to completely review your clinical images. The list is categorized as if you are submitting on hard copy film. If you are submitting your clinical images on CD, all parameters should be displayed on the image, or easily accessed through the DICOM header.

**The following identifying demographic data must be displayed on each image:**

- First and last name
- Medical record number
- Institution name
- Date and time of examination
- Date-of-birth or age
- Gender of patient

**Adding the technologist's identification number, name, or initials to at least one image of the examination is recommended.**

**The following scan and display parameters must be displayed on each image:**

- Anatomic orientation label
- mA/kV
- Pitch/table feed
- Scan time
- Series number (if applicable)/image number
- Size scale
- Slice thickness
- Table position
- Window width/level

**The following scan and display parameters are recommended on each image:**

- Contrast use
- Field-of-view
- Reconstruction algorithm

### Hard Copy submission of clinical images

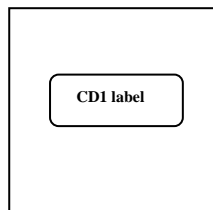
1. Place one barcode label on each sheet of film of the examination for both clinical and phantom.
2. Place all films belonging to one type of examination in its own film jacket. You will have four to six clinical film jackets (depending on the number of modules in your application) and one phantom film jacket, which ***you must identify*** with the "film jacket" label for the type of examination. You will have separate jackets for each examination.
3. Place the appropriate completed and labeled data form in each film jacket.

## CD submission of clinical images

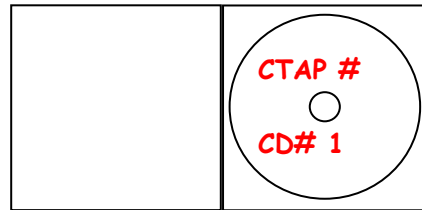
1. You must submit your phantom images on 5 ¼ inch CD or DVD media, 3 inch discs are not acceptable.
2. Burn a total of 2 discs for each unit on your application. Separate units must be burned onto separate discs. Each disc must contain all required images.
  - d. Any localizers you may have performed
  - e. One set of images per examination listed on your application
3. The discs **must** include an embedded viewer that can perform the following functions:
  - f. Easy access to the complete and accurate DICOM header
  - g. Window/level adjustments
  - h. Distance measurement
  - i. Region of interest (including measurement of area, pixel mean and pixel standard deviation)
  - j. Magnification
  - k. Show cross reference lines for slice location
4. After burning the discs, you **must open and check each disc** to ensure the embedded viewer contains all necessary functionality **and** to check that the appropriate images are all included and available.

**NOTE:** If you are unable to burn your images onto a disc with an embedded viewer that meets these requirements, contact DesAcc using the order form at the CT Accreditation Program Testing and QC Forms webpage. They will save your images onto a CD with an acceptable viewer.

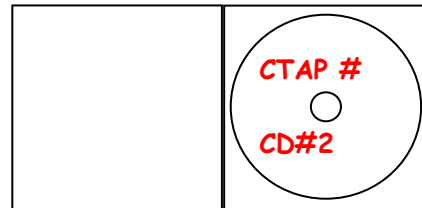
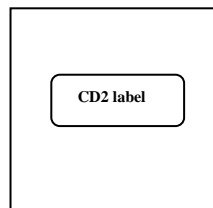
5. Label the discs and forms –
  - l. The forms you need will be printed from the ACRedit database when you finish and submit your online testing package for each unit. Use the barcodes to label the phantom data form.
  - m. Place the appropriate CD labels on the disc case. **DO NOT PUT LABELS ON THE DISC.**
  - n. Use a permanent marker to label the discs with your CTAP #



Place ACR label on case



Write CD # and CTAP # on disc with permanent marker





**IMPORTANT:** The correct labeling of your images, forms and discs is critical to properly identify the materials submitted for accreditation. Incorrect or incomplete labeling will delay the accreditation process. The ACR will return your package to you if your images are not labeled properly.

## CT ACCREDITATION CHECKLIST

Be sure to keep copies of the completed application, submitted images and any additional submitted information for your records.

Please ensure that all items below are complete before returning the submission to the ACR for accreditation review. The review process will not begin until your submission is complete. All items must be submitted for each unit being accredited.

- Annual System Performance Evaluation performed by a medical physicist/MR Scientist (Appropriately labeled)
- Corrective Action Documentation for any problems found on the Annual System Performance Evaluation
- Two sets of phantom images (if applicable) on CD-ROM in DICOM format, uncompressed. **Phantom images must be on separate CD from clinical images.**
- Phantom Data Form and Phantom Dose Form (printed from online testing package and appropriately labeled)
- Clinical Data Forms (one for each examination, printed from online testing package and appropriately labeled).
- Clinical images on film or two CD-ROM'S (NOT BOTH FILM AND CD's) with appropriate labels. If submitting by film, use labels for the applicable exam only. For example, do not use cervical spine labels for a lumbar spine exam or vice versa. **Do not send any images without labels.**
- Place all of your testing materials in a box and ship to ACR headquarters at the address indicated on the labels in your packet. Please take care in packaging your materials. Damaged testing materials will be returned to your site for replacement. The ACR highly recommends that you send your materials via a traceable shipping method. The ACR also recommends that you track the shipment of your materials with your respective shipping company to verify delivery.

# MAILING INSTRUCTIONS

Submit all phantom CDs and forms, clinical CDs and forms and your annual system performance evaluation by a traceable method to:

CT Accreditation Program  
American College of Radiology  
1891 Preston White Dr.  
Reston, Virginia 20191-4397

All images submitted for review will be returned once the accreditation evaluation is complete.