

Document  
Development  
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**Exam: CT Thorax for interstitial lung disease**

Protocol:

- Oral Contrast: none

- IV Contrast: none

- Acquisitions:

**1) Supine, Inspiration**

**Breathing instructions for inspiratory scout and CT acquisition:**

*“For the first part of this study I am going to give you specific breathing instructions. Try to follow as best you can.”*

*“Take in a deep breath....and let it out.”*

*“Take in another deep breath....and let it out.”*

*“Take in another deep breath, and hold your breath in. Keep holding your breath!”*

Scout views: PA and Lateral to include all of chest

Scan Range: Lung apices to base

Inspiratory CT acquisition parameters

<u>Detector Collimation</u>	<u>kV</u>	<u>mAs</u>	<u>pitch</u>	<u>rotation</u>	<u>Tube current modulation</u>
Helical 1.2mm	120 (may be lower as tolerated by interpreting physician)	230 (may be lower as tolerated by interpreting physician)	~1.0	0.5sec (or faster)	on

**Image reconstruction parameters**

<u>Image Processing plane</u>	<u>Field of view</u>	<u>Reconstruction algorithm</u>	<u>Slice reconstruction thickness</u>	<u>Slice reconstruction interval</u>	<u>Window</u>	<u>Source</u>
Axial	Variable	Soft tissue (e.g. Siemens B31f, GE standard, Philips B, Toshiba Body Std.)	3 mm	3 mm	Mediastinum	raw
Axial thin section	≤ 2 cm beyond lung margin	Moderate edge-enhancing algorithm (e.g. Siemens B45f, GE Bone, Philips D or YB, Toshiba Lung Std.)	1 mm	1 mm	Lung	raw

<b>Optional Axial thick section</b>	≤ 2 cm beyond lung margin	Moderate edge-enhancing algorithm (e.g. Siemens B45f, GE Bone, Philips D or YB, Toshiba Lung Std.)	3 mm	3 mm	Lung	raw
<b>Axial MIP</b>	≤ 2 cm beyond lung margin	Moderate edge-enhancing algorithm (e.g. Siemens B45f, GE Bone, Philips D or YB, Toshiba Lung Std.)	6 mm	3 mm	Lung	raw
<b>Coronal</b>	≤ 2 cm beyond lung margin	Moderate edge-enhancing algorithm (e.g. Siemens B45f, GE Bone, Philips D or YB, Toshiba Lung Std.)	2.5 mm	2.5 mm	Lung	raw
<b>Sagittal</b>	≤ 2 cm beyond lung margin	Moderate edge-enhancing algorithm (e.g. Siemens B45f, GE Bone, Philips D or YB, Toshiba Lung Std.)	2.5 mm	2.5 mm	Lung	raw

**\* Technologist must review scans immediately after acquisition and repeat as appropriate if there is motion artifact or inadequate inspiration (in clearly non-diagnostic cases) or must contact a radiologist immediately while the patient is on the scanner gantry to determine whether repeating or adding any additional scans is necessary. Also perform prone scans if there is dependent density on supine images.**

## **2) Supine, Expiration**

### **Breathing instructions for expiratory scout and CT acquisition:**

*“For the next part of this study we will ask you to breathe out and hold your breath.”*

*“Take in a deep breath....and let it out.”*

*“Take in another deep breath....and let it out.”*

*“Take in another deep breath, let it out and hold your breath out! Do not breathe!”*

Scout views: PA and Lateral to include all of chest

Scan Range

2cm below lung apices to base

Expiratory CT acquisition parameters

<u>Detector Collimation</u>	<u>kV</u>	<u>mAs</u>	<u>Scan interval</u>	<u>rotation</u>	<u>Tube current modulation</u>
Axial 2 x 1.0mm	120	150	20 mm	1.0 sec	on

**\* Technologist must review scans immediately after acquisition and repeat as appropriate if there is motion artifact or inadequate expiration**

**Image reconstruction parameters**

<u>Image Processing plane</u>	<u>Field of view</u>	<u>Reconstruction algorithm</u>	<u>Slice reconstruction thickness</u>	<u>Slice reconstruction interval</u>	<u>Window</u>	<u>Source</u>
Axial thin section	≤ 2 cm beyond lung margin	Moderate edge-enhancing algorithm (e.g. Siemens B45f, GE Bone, Philips D or YB, Toshiba Lung Std.)	2 mm	20 mm	Lung	raw

**3) Prone, Inspiration (do this series only if dependent density noted on HRCT)**

**Breathing instructions for prone inspiratory scout and CT acquisition:**

*“Take in a deep breath....and let it out.”*

*“Take in another deep breath....and let it out.”*

*“Take in another deep breath, and hold your breath in. Keep holding your breath!”*

Scout views: PA and Lateral to include all of chest

Scan Range: Carina to lung base

Prone Inspiratory CT acquisition parameters

<u>Detector Collimation</u>	<u>kV</u>	<u>mAs</u>	<u>Scan interval</u>	<u>rotation</u>	<u>Tube current modulation</u>
Axial 2 x 1.0mm	120	150	20 mm	1.0 sec	on

**Image reconstruction parameters**

<u>Image Processing plane</u>	<u>Field of view</u>	<u>Reconstruction algorithm</u>	<u>Slice reconstruction thickness</u>	<u>Slice reconstruction interval</u>	<u>Window</u>	<u>Source</u>
Axial thin section	≤ 2 cm beyond lung margin	Moderate edge-enhancing algorithm (e.g. Siemens B45f, GE Bone, Philips D or	2 mm	20 mm	Lung	raw

		YB, Toshiba Lung Std.)				
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**\* Technologist must review scans immediately after acquisition and repeat as appropriate if there is motion artifact or inadequate inspiration.**