CT Parameters

The following CT scan radiographic parameters have been optimized in order to provide appropriate inputs to the StratX® Lung Analysis Platform.

In order to produce quality output parameters displayed in the StratX Report, it is recommended to adhere as closely as possible to the ideal parameters detailed on page 2. If a scan can't be obtained with the ideal parameters, we have specified acceptable scan parameters on pages 3 and 4. Significant deviation from these parameters may result in reduced accuracy or an inability to analyze the CT scan.

For more specific information related to scan parameters or if your CT scanner manufacturer is not listed below, please contact us directly for support at:

stratxussupport@pulmonx.com

General Information

1. Ensure all files are in standard DICOM format

2. Only **SUPINE** position chest CT scans with **arms positioned above the head** are supported. Scans obtained in PRONE position can NOT be analyzed.

3. The CT scans must have a **slice thickness of 1.5 mm or less** (smaller slices provide more information for fissure completeness) in the axial plane. **Reconstruction slice thickness must be greater than or equal to acquisition slice thickness.**

4. The input image should NOT be reconstructed with a slice spacing larger than the slice thickness (**slice spacing should be less than or equal to slice thickness**, no gaps in the 3D volume are allowed).

5. The **complete lung** must be present on the CT scan. If parts of the lung are missing, the output parameters will be compromised.

6. Only **non–contrast TLC (inspiration) scans** are accepted for analysis.

7. Technologist should instruct the patient to take a **full inspiration breath** and hold. The scan should start once the patient has reached breath hold and relaxed their body.

8. Ensure the CT scan is not of poor quality (e.g., movement artifacts, artifacts due to metal, high noise levels due to dose level, etc.).

9. Please ensure the CT scan does NOT suffer from image artifacts such as streak artifacts from implants.

10. Scans taken from CT scanners with less than 16 detector rows are not recommended.

11. Any series containing less than 120 images will be automatically removed by the system.

Please note that CT scanners with less than 16 detector rows are not recommended.

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Ideal Scan Parameters

Following these parameters will achieve the highest quality report possible

Highest Quality Report Parameters				
PARAMETERS	SIEMENS	PHILIPS	TOSHIBA	GE
Kernel Standard	B30	B	FC08	Standard
Tube Current	Regular Patient (<30 BMI): 80 mAs Large Patient (>30 BMI): 100 mAs ***No tube current modulation**			
KV	120			
Slice Thickness	0.625 mm			
Reconstruction Interval (Slice Spacing)	≤0.625 mm			
Pitch	Range: 0.5–1.2	Range: 0.5–1.2	Range: 0.5–1.0	Range: 0.5–1.375
Rotation or Gantry Speed (sec)	≤0.5			
Iterative Reconstruction	None			
Contrast	None			

Acceptable Scan Parameters
CT Scan Parameters WITHOUT Iterative Reconstruction

*No iterative reconstruction preferred

3–4mSv Dose				
PARAMETERS	SIEMENS	PHILIPS	TOSHIBA	GE
Tube Current	0 mA–900 mA ***No tube current modulation preferred**	20 mA–450 mA ***No tube current modulation preferred**	20 mA–600 mA ***No tube current modulation preferred**	30 mA–770 mA ***No tube current modulation preferred**
KV	120			
Dose Modulation	CareDose ON CarekV OFF	Z-Dom ON	SURE Exposure ON	Smart mA ON
Pitch	Range: 0.5–1.2	Range: 0.5–1.2	Range: 0.5–1.0	Range: 0.5–1.375
Rotation or Gantry Speed (sec)	$\leq$0.5			
Kernel Standard	$\leq$B45f	B, C	$\leq$FC45	Bone, Standard
Slice Thickness	$\leq$1.5 mm ***Thinnest slice possible preferred**			
Slice Spacing	$\leq$slice thickness			
Average mSv	<4.0			
Contrast	None			

Acceptable Scan Parameters
CT Scan Parameters WITH Iterative Reconstruction

*No iterative reconstruction preferred

| 1–2mSv Dose				
PARAMETERS	SIEMENS	PHILIPS	TOSHIBA	GE
Tube Current	0 mA–900 mA ***No tube current modulation preferred**	20 mA–450 mA ***No tube current modulation preferred**	20 mA–600 mA ***No tube current modulation preferred**	30 mA–770 mA ***No tube current modulation preferred**
KV	120			
Dose Modulation	CareDose ON CarekV OFF	V-Dom ON	SURE Exposure ON	Smart mA ON
Pitch	Range: 0.5–1.2	Range: 0.5–1.2	Range: 0.5–1.0	Range: 0.5–1.375
Rotation or Gantry Speed (sec)	≤0.5			
Iterative Reconstruction	Use SAFIRE, ADMIRE	Use IMR	Use ADIR 3D standard	Use VEO, ASiR
Iterative Strength	3	Routine 2	Standard	30–50
Kernel Standard	≤B45f	B, C	≤FC45	Bone, Standard
Slice Thickness	≤1.5 mm ***Thinnest slice possible preferred**			
Slice Spacing	≤slice thickness			
Average mSv	<2.0			
Contrast	None			

How StratX® Results Are Determined

StratX reports utilize Hounsfield units to measure fissure completeness, destruction scores, and lobar volumes. The quality of the uploaded CT images directly influences the Hounsfield unit of measurement. Below are examples of reasons why images will be rejected:

Motion Artifact Scan Rejection

Motion Artifact Image Distortion

Taking a CT scan while a patient is moving distorts the image quality, making it appear blurry or fuzzy. The image distortion directly impacts the accuracy of destruction, fissure, and volume scoring. A StratX report will not be provided if a motion artifact is detected.
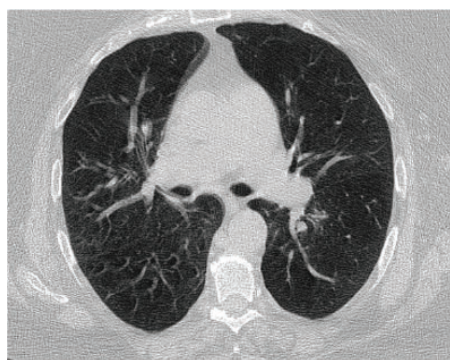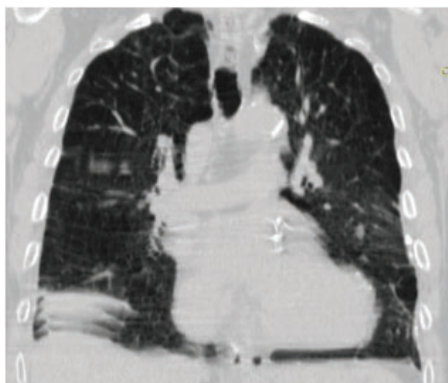
Inadequate Breath-Hold Scan Rejection

Expiratory Scans

Expiratory scans are noted by the raised diaphragm and lobar compression. Expiratory scans will lead to artificially low destruction scores and inaccurate lobar volumes. A StratX report will not be provided if an expiratory scan is detected.
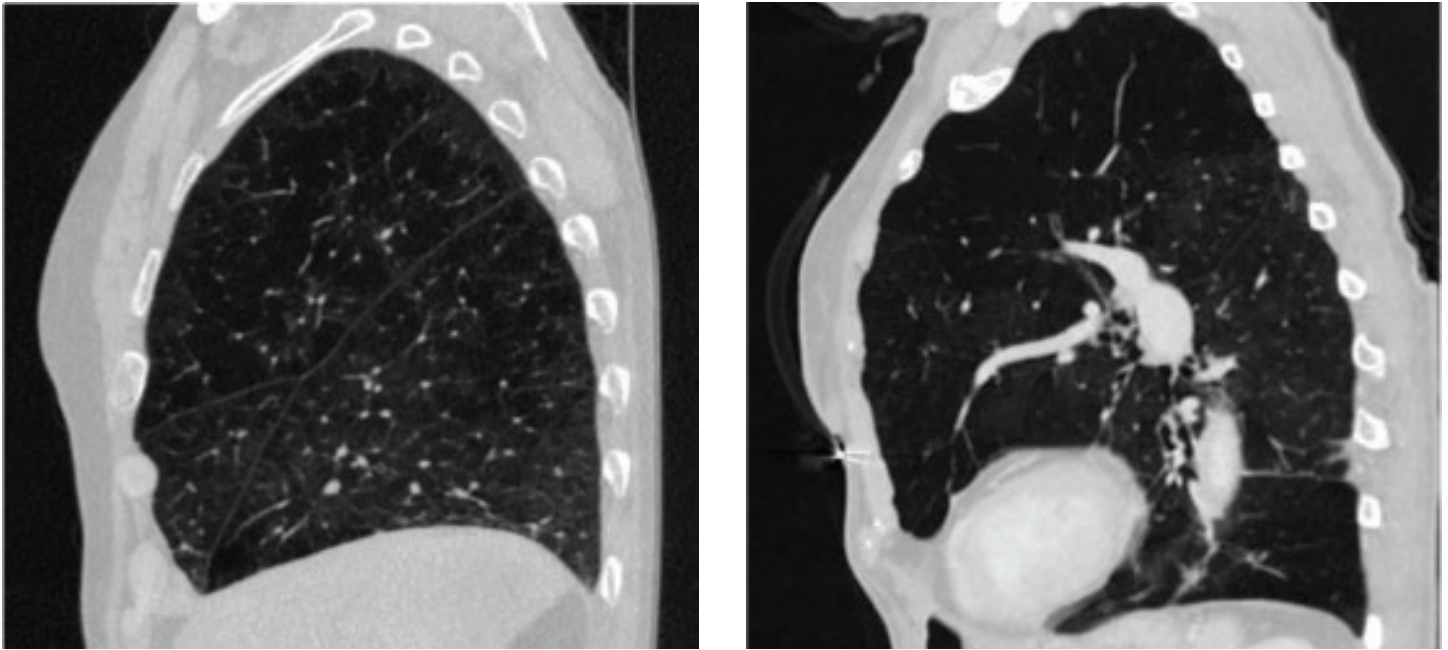
Raised Diaphragm

Inspiratory   Expiratory

Contrast Scan Rejection

Scans with Contrast

If an image is taken with contrast, the vasculature will appear bright and will permeate into lung tissue resulting in artificially low destruction scores. A StratX® report will not be provided if a scan with contrast is detected.

Incorrect Kernel

Images reconstructed with an incorrect kernel may result in inaccurate destruction scores. In the example below, an incorrect kernel has added noise to the image, resulting in an artificially low destruction score. If an incorrect kernel is detected, a StratX report will be provided with a warning that the report may be inaccurate.

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