CT Chest Olympus (Endobronchial Valve)

Updated 05/01/24
Reviewed 05/14/25

Indications - pre procedural imaging prior to endobronchial valve placement and should be ordered as Olympus protocol by Pulmonology.

Use CT Chest without Contrast charge.

GENERAL SCAN NOTES

The patient's arms must be over his/her head.

Remove any metal from the imaging field of view.

Have the patient cough a few times to clear secretions. This reduces incidence of small lung nodules.

Topogram - lung apices through diaphragm (obtained during end inspiration).

Craniocaudal scan coverage - lung apices through adrenal glands (obtained during **maximum** end inspiration).

Adjust FOV (field of view) on topogram to smallest without cropping anatomy.

Scan parameters are the same as routine chest protocol.

See end of protocol for requirements for the **axial TLC thins** recons.

IV Contrast: not given for this protocol.

For **GE scanners**, it is essential for the 1st recon thickness on the scanner to match the 1st recon thickness in this protocol book for the prescribed Noise Index to be valid. The 1st recon should generally be the thickest recon in the protocol.

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	100	on	NA	1.15	16	0.75	0.5	10.9
Go Up 32	spiral	130	51	on	on 80	1.50	32	0.7	0.8	7.1
Sensation 64	spiral	120	100	on	NA	1.40	64	0.6	0.5	5.6
Definition 64	spiral	120	110	on	on	1.20	64	0.6	0.5	6.5
Go Top 64	spiral	120	62	on	on 80	1.20	64	0.6	0.33	2.1
Drive 128	spiral	120	66	on	on	1.20	128	0.6	0.5	3.3
Force 192	spiral	110	51	on	on	1.20	192	0.5	0.5	2.6

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction	
AX LUNG	3.0	3.0	Br57 / B70f	lung	3	head/feet	
AX SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet	
COR SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	front/back	
SAG SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	left/right	
TLC INSP	**1.0**	**1.0**	**Br44 / B41f**	**mediastinum**	**3**	**head/feet**	**Olympus specific recon.**
AX MIPS	8.0	3.0	Br40 / B41f	lung	3	head/feet	

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GE PARAMETERS & RECONS

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR	Scan Time
LS 16	helical	large	120	100-440	16.36	on	2.5	20	1.375	27.50	0.5	NA	NA	5.5
Opt 540	helical	large	120	100-440	16.36	on	2.5	20	1.375	27.50	0.5	NA	NA	5.5
LS VCT 64	helical	large body	120	100-650	18.38	on	2.5	40	1.375	55.00	0.4	50	50	2.2
Disc VCT 64	helical	large body	120	100-650	18.38	on	2.5	40	1.375	55.00	0.4	NA	NA	2.2

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
AX LUNG	**2.5**	**2.5**	**lung**	**1600/-600**	**head/feet**	**Must be first recon.**
AX SOFT	2.5	2.5	std full	400/40	head/feet	
COR SOFT	2.5	2.5	std full	400/40	front/back	
SAG SOFT	2.5	2.5	std full	400/40	left/right	
TLC INSP	**1.25**	**1.25**	**std full**	**400/40**	**head/feet**	**Olympus specific recon.**
AX MIPS	8.0	3.0	std full	1600/-600	head/feet	

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	92	19	on	1.00	64	0.625	0.75	5.6

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction	
AX LUNG	3.0	3.0	YA	lung	3	head/feet	
AX SOFT	3.0	3.0	B	mediastinum	3	head/feet	
COR SOFT	3.0	3.0	B	mediastinum	3	front/back	
SAG SOFT	3.0	3.0	B	mediastinum	3	left/right	
TLC INSP	**1.0**	**1.0**	**B**	**mediastinum**	**3**	**head/feet**	**Olympus specific recon.**
AX MIPS	8.0	2.0	B	lung	3	head/feet	

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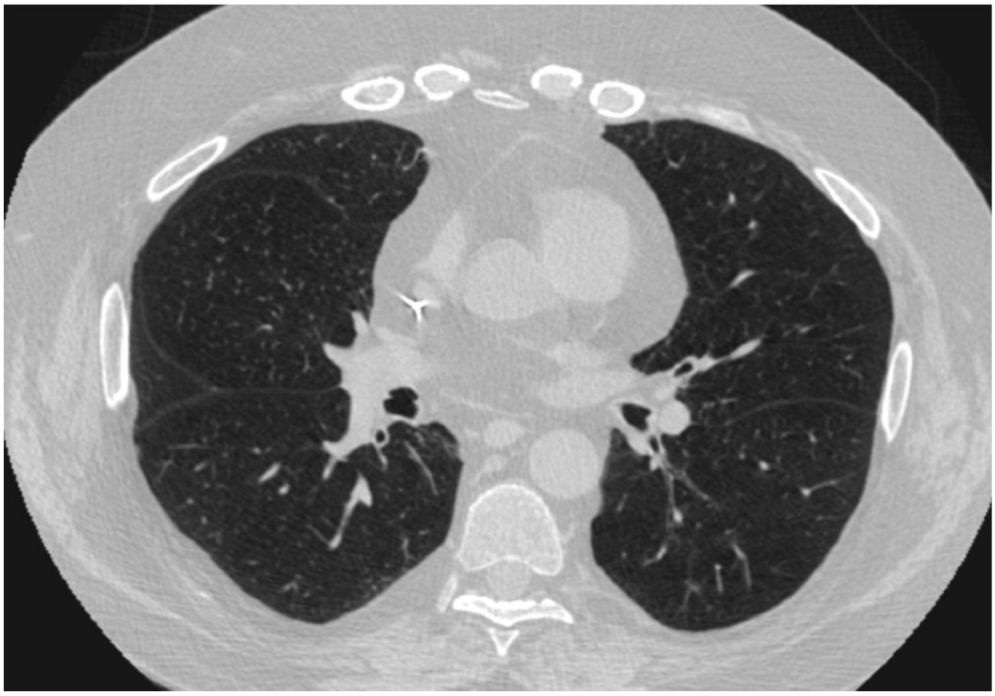
For the **Axial TLC Thins** recons:

The cranial/top image should begin 1-2 slices above the top of both lungs.

The caudal/bottom image should stop 1-2 slices below the bottom of both lungs.

The FOV of the transverse/axial plane should tightly fit the lungs (outer rib to outer rib at widest part of the chest).



Transverse/Axial FOV

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CT Acquisition Guidelines
Quick Reference Guide

NOTE: To ensure an optimal QCT Analysis, please adhere to the following guidelines. It is important that the patient fully understands the breath hold and scanning procedure, and that any concerns are addressed prior to performing the CT scan. The technologist will ask women if they might be pregnant and will not scan them if they answer affirmatively.

CT Parameters

- Slice thickness of ≤1.5 mm
- Slice spacing ≤ slice thickness
- Complete anatomic coverage of lungs
- Smooth reconstruction kernel
- Breath-hold at TLC
- No severe motion artifacts
- Non-contrast-enhanced

Breath-Holding Instructions

1. **For the static TLC scan**, the patient is told to "take your biggest breath in until you feel your lungs are completely full, in the same way you do in the lung function laboratory and hold the breath."

2. **Technologist should watch the chest to ensure that the breath hold maneuver is done properly and that the scanning only starts when the patient has reached breath hold and relaxed their body.**

Subject Positioning

1. The patient will lie in the **supine position going head first** into the CT gantry.

2. Place patient in a supine position, arms positioned comfortably above the head in a head-arm rest, lower legs supported. Using the laser positioning lights, line up the patient so the chest is at the iso-center (in the middle: left-right; up-down) of the CT gantry. Move the table so the patient is in the correct position for a chest CT scan.

MORE INSTRUCTIONS ON REVERSE

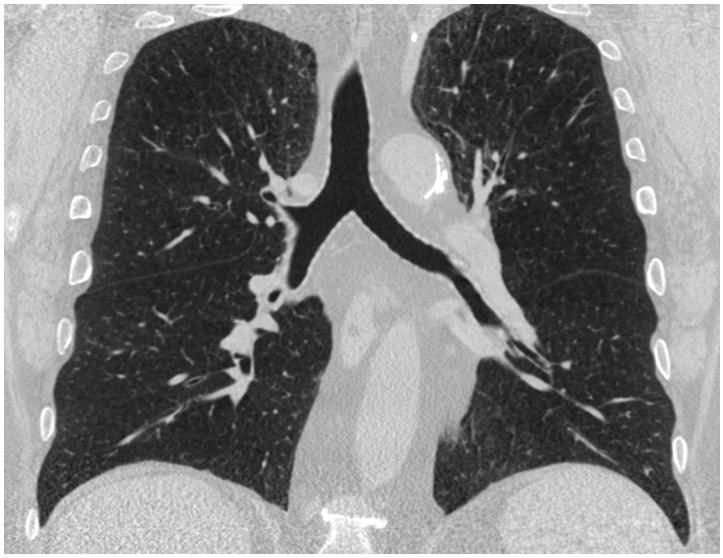
CT Acquisition Guidelines
Quick Reference Guide

2

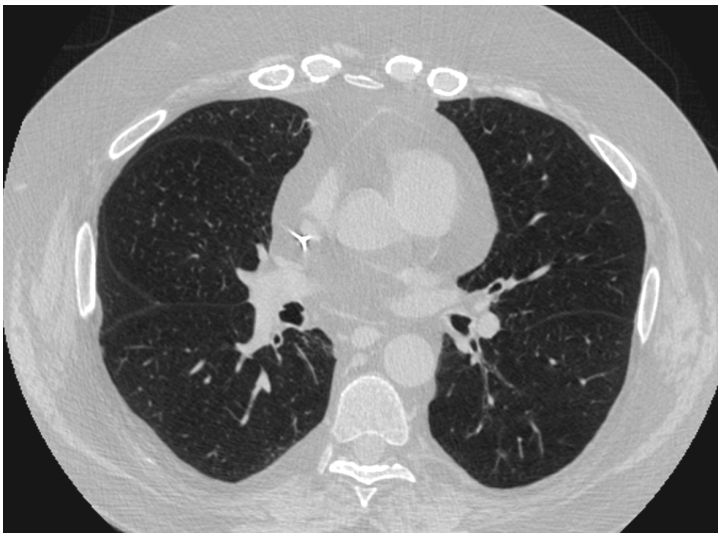
NOTE: To ensure an optimal QCT Analysis, please adhere to the following guidelines. It is important that the patient fully understands the breath hold and scanning procedure, and that any concerns are addressed prior to performing the CT scan. The technologist will ask women if they might be pregnant and will not scan them if they answer affirmatively.

Scan Coverage

1 CT scan must include the lungs, but ONLY the lungs. Start the scan precisely at the apex of the lungs and stop it once the scan is through the base of the lungs.



2 The DFOV should tightly fit the TLC lung (i.e. outer rib to outer rib at widest part of chest) for the QCT reconstruction.



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CT Acquisition Guidelines for SeleCT Portal

Quick Reference Guide

NOTE: To ensure an optimal QCT Analysis, please adhere to the following guidelines. It is important that the patient fully understands the breath hold and scanning procedure, and that any concerns are addressed prior to performing the CT scan. The technologist will ask women if they might be pregnant and will not scan them if they answer affirmatively.

CT Parameters

	SIEMENS	PHILIPS	TOSHIBA	GE
Breathhold AT	TLC	TLC	TLC	TLC
Slice Thickness	≤1.5mm	≤1.5mm	≤1.5mm	≤1.5mm
Slice Spacing	Contiguous	Contiguous	Contiguous	Contiguous
Anatomic Coverage (For guidance see Scan Coverage section)	Full coverage of the lungs	Full coverage of the lungs	Full coverage of the lungs	Full coverage of the lungs
Smooth Kernel Reconstruction	≤ B45, ≤ I45, ≤ Br45	B, C, or D	≤ FC52	Bone, Standard, Lung
Severe Motion Artifact	Absent	Absent	Absent	Absent
Contrast Enhanced	None	None	None	None

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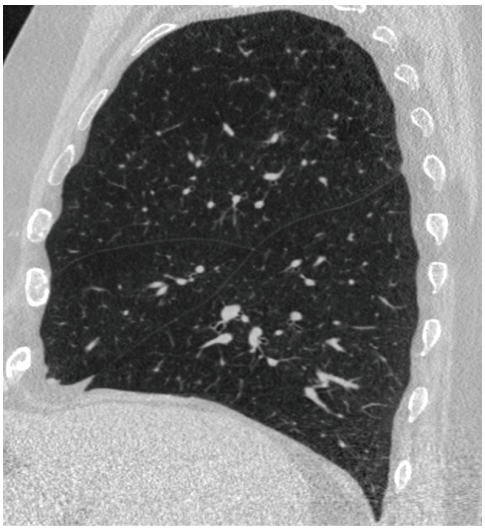
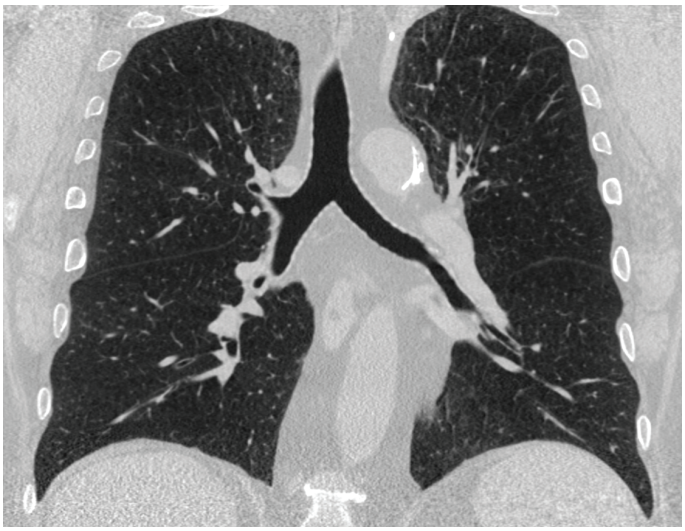
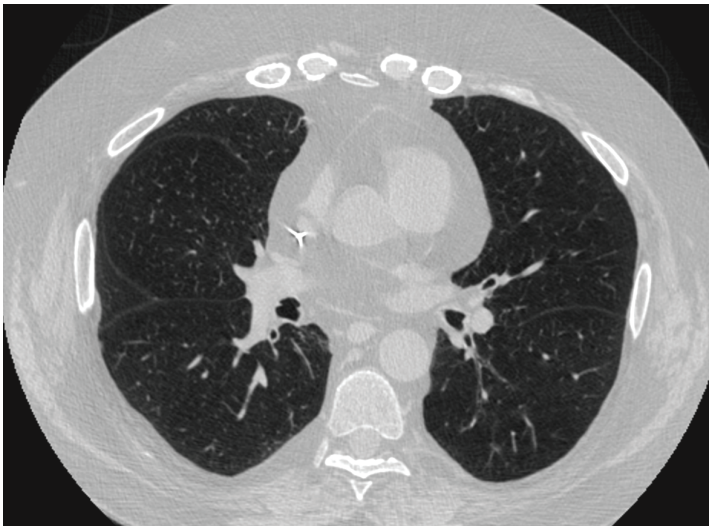




2 The DFOV should tightly fit the TLC lung (i.e. outer rib to outer rib at widest part of chest) for the QCT reconstruction.



Should you have any questions regarding the CT acquisition guidelines, please contact your Olympus Sales Representative or SeleCT by MedQIA customer service at 855-832-0144.

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