CT Chest Routine

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

Indications - cough, shortness of breath, chest pain, infection, pneumonia, hemoptysis, dyspnea, lung nodule, lung mass, abnormal chest radiograph, etc.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. 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 end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast: 100 mL Omnipaque-300, inject at 2 mL/sec, 30 secs scan delay.
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	Bl57 / 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
AX THINS	1.0	0.8	Br40 / B41f	mediastinum	3	head/feet
AX MIPS	8.0	3.0	Br40 / B41f	lung	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

CT Chest Routine

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**
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
AX THINS	1.25	1.0	std full	400/40	head/feet
AX MIPS	8.0	3.0	std full	1600/-600	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.5	2.5	std full	400/40	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
AX THINS	1.0	0.75	B	mediastinum	3	head/feet
AX MIPS	8.0	2.0	B	lung	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	B	mediastinum	3	head/feet

CT Chest Low-Dose

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

Use this protocol when ordered/protocoled as low-dose, when recommended on a prior CT report or when a screening CT patient doesn't meet screening criteria.
This protocol's dose is intermediate between a screening chest dose and a routine chest dose.
Use regular CT chest charges. Do not use CT Lung RADS Screening / Follow-up charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. 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 end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
Recons are the same as routine chest protocol.
IV Contrast: 100 mL Omnipaque-300, inject at 2 mL/sec, 30 secs scan delay.
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	**60**	on	NA	1.15	16	0.75	0.5	10.9
Go Up 32	spiral	130	**31**	on	on 80	1.50	32	0.7	0.8	7.1
Sensation 64	spiral	120	**60**	on	NA	1.40	64	0.6	0.5	5.6
Definition 64	spiral	120	**66**	on	on	1.20	64	0.6	0.5	6.5
Go Top 64	spiral	120	**37**	on	on 80	1.20	64	0.6	0.33	2.1
Drive 128	spiral	120	**40**	on	on	1.20	128	0.6	0.5	3.3
Force 192	spiral	110	**31**	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	Bl57 / 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
AX THINS	1.0	0.8	Br40 / B41f	mediastinum	3	head/feet
AX MIPS	8.0	3.0	Br40 / B41f	lung	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).
Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

CT Chest Low-Dose

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	100-300	**25.46**	on	2.5	20	1.375	27.50	0.5	NA	NA	5.5
Opt 540	helical	large	120	100-300	**25.46**	on	2.5	20	1.375	27.50	0.5	NA	NA	5.5
LS VCT 64	helical	large body	120	50-300	**25.46**	on	2.5	40	0.984	39.375	0.5	30	70	3.8
Disc VCT 64	helical	large body	120	50-300	**25.46**	on	2.5	40	0.984	39.375	0.5	NA	NA	3.8

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX LUNG	**2.5**	**2.5**	**lung**	**1600/-600**	**head/feet**
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
AX THINS	1.25	1.0	std full	400/40	head/feet
AX MIPS	8.0	3.0	std full	1600/-600	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.5	2.5	std full	400/40	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	**55**	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
AX THINS	1.0	0.75	B	mediastinum	3	head/feet
AX MIPS	8.0	2.0	B	lung	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	B	mediastinum	3	head/feet

CT Lung Cancer Screening

Updated 04/28/25
Reviewed 05/14/25

Indications - lung cancer screening **only** in patients who meet criteria (see patient questionnaire) and follow-up of prior screening CT (unless prior report indications a routine or low-dose protocol).
If patient doesn't meet screening criteria, use the low-dose protocol and use CT Chest w/o Contrast charge.
Per ACR guidelines, this exam should have a CTDI of less than 3.00 mGy for a normal size patient.
Use CT Lung RADS for Screening Follow-up charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. 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 **lung bases** (obtained during end inspiration).
Do not image through adrenal glands as is done with routine chest CT.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
Recons are the same as routine chest protocol.
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	**25**	on	NA	1.15	16	0.75	0.5	10.9
Go Up 32	spiral	Sn110	**62**	on	on 15	0.80	32	0.7	0.8	13.4
Sensation 64	spiral	120	**25**	on	NA	1.40	64	0.6	0.5	5.6
Definition 64	spiral	120	**28**	on	on	1.20	64	0.6	0.5	6.5
Go Top 64	spiral	Sn100	**179**	on	on 15	0.80	64	0.6	0.33	3.2
Drive 128	spiral	120	**20**	on	on	1.20	128	0.6	0.5	3.3
Force 192	spiral	Sn100	**101**	on	on	1.20	192	0.6	0.5	2.2

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX LUNG	3.0	3.0	Bl57 / 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
AX THINS	1.0	0.8	Br40 / B41f	mediastinum	3	head/feet
AX MIPS	8.0	3.0	Br40 / B41f	lung	3	head/feet

CT Lung Cancer Screening

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	40-130	**29.50**	on	2.5	20	1.375	27.50	0.5	NA	NA	5.5
Opt 540	helical	large	120	40-130	**29.50**	on	2.5	20	1.375	27.50	0.5	NA	NA	5.5
LS VCT 64	helical	large body	120	30-110	**34.00**	on	2.5	40	0.984	39.375	0.5	0	70	3.8
Disc VCT 64	helical	large body	120	30-110	**34.00**	on	2.5	40	1.375	55.00	0.5	0	70	2.7

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX LUNG	**2.5**	**2.5**	**lung**	**1600/-600**	**head/feet**
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
AX THINS	1.25	1.0	std full	400/40	head/feet
AX MIPS	8.0	3.0	std full	1600/-600	head/feet

Must be first recon.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	**23**	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
AX THINS	1.0	0.75	B	mediastinum	3	head/feet
AX MIPS	8.0	2.0	B	lung	3	head/feet

CT Chest Routine High-Res

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

The following history/indications trigger a routine HRCT protocol whether or not ordered as HRCT: interstitial lung disease (ILD), pulmonary fibrosis, interstitial pulmonary fibrosis (IPF), usual interstitial pneumonitis (UIP), nonspecific interstitial pneumonitis (NSIP), bronchiectasis, asbestosis, sarcoidosis, hypersensitivity pneumonitis, connective tissue disease, rheumatoid, scleroderma and pneumoconiosis.

Use this **routine** HRCT protocol unless instructed to use the **full** HRCT protocol.

Use CT chest HRCT charges. Do not use regular CT chest charges.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. 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 end inspiration).

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

Scan parameters are the same as routine chest protocol.

IV Contrast: 100 mL Omnipaque-300, inject at 2 mL/sec, 30 secs scan delay.

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.

CT Chest Routine High-Res

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	Bl57 / 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
AX HRCT	1.0	5.0	Bl57 / B70f	lung	3	head/feet
COR HRCT	1.0	5.0	Bl57 / B70f	lung	3	front/back
AX THINS	1.0	0.8	Br40 / B41f	mediastinum	3	head/feet
AX MIPS	8.0	3.0	Br40 / B41f	lung	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

CT Chest Routine High-Res

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**
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
AX HRCT	1.25	5.0	bone plus full	1600/-600	head/feet
COR HRCT	1.25	5.0	bone plus full	1600/-600	front/back
AX THINS	1.25	1.0	std full	400/40	head/feet
AX MIPS	8.0	3.0	std full	1600/-600	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.5	2.5	std full	400/40	head/feet

CT Chest Routine High-Res

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
AX HRCT	1.0	5.0	YA	lung	3	head/feet
COR HRCT	1.0	5.0	YA	lung	3	front/back
AX THINS	1.0	0.75	B	mediastinum	3	head/feet
AX MIPS	8.0	2.0	B	lung	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	B	mediastinum	3	head/feet

CT Chest Full High-Res

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

Indications - interstitial lung disease (ILD), pulmonary fibrosis, interstitial pulmonary fibrosis (IPF), usual interstitial pneumonitis (UIP), nonspecific interstitial pneumonitis (NSIP), bronchiectasis, asbestosis, sarcoidosis, hypersensitivity pneumonitis, connective tissue disease, rheumatoid, scleroderma and pneumoconiosis.

Only use this full HRCT protocol if ordered as full HRCT or protocoled by rad.

Use CT chest HRCT charges. Do not use regular CT chest charges.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. 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:

Supine end inspiration phase - **lung apices** through **adrenal glands** (obtained during end inspiration).

Supine end expiration phase - **lung apices** through **diaphragm** (obtained during end inspiration).

Prone end inspiration phase - **carina** through **diaphragm** (obtained during end inspiration).

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

Scan parameters for the supine end inspiratory phase are the same as routine chest protocol.

Scan parameters for the supine end expiratory and prone end inspiratory phases are the same as low-dose chest protocol.

IV Contrast: 100 mL Omnipaque-300, inject at 2 mL/sec, 30 secs scan delay.

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.

CT Chest Full High-Res

SIEMENS PARAMETERS & RECONS

For the **Supine End Inspiration** phase:

	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 INSP LUNG	3.0	3.0	Bl57 / B70f	lung	3	head/feet
AX INSP SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR INSP SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG INSP SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	left/right
AX INSP HRCT	1.0	5.0	Bl57 / B70f	lung	3	head/feet
COR INSP HRCT	1.0	5.0	Bl57 / B70f	lung	3	front/back
AX INSP THINS	1.0	0.8	Br40 / B41f	mediastinum	3	head/feet
AX INSP MIPS	8.0	3.0	Br40 / B41f	lung	3	head/feet

For the **Supine End Expiration** and **Prone End Inspiration** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	**60**	on	NA	1.15	16	0.75	0.5	10.9
Go Up 32	spiral	130	**31**	on	on 80	1.50	32	0.7	0.8	7.1
Sensation 64	spiral	120	**60**	on	NA	1.40	64	0.6	0.5	5.6
Definition 64	spiral	120	**66**	on	on	1.20	64	0.6	0.5	6.5
Go Top 64	spiral	120	**37**	on	on 80	1.20	64	0.6	0.33	2.1
Drive 128	spiral	120	**40**	on	on	1.20	128	0.6	0.5	3.3
Force 192	spiral	110	**31**	on	on	1.20	192	0.5	0.5	2.6

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX EXP HRCT	1.0	5.0	Bl57 / B70f	lung	3	head/feet
AX PRONE HRCT	1.0	5.0	Bl57 / B70f	lung	3	head/feet

CT Chest Full High-Res

GE PARAMETERS & RECONS

For the **Supine End Inspiration** phase:

	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 INSP LUNG	**2.5**	**2.5**	**lung**	**1600/-600**	**head/feet**
AX INSP SOFT	2.5	2.5	std full	400/40	head/feet
COR INSP SOFT	2.5	2.5	std full	400/40	front/back
SAG INSP SOFT	2.5	2.5	std full	400/40	left/right
AX INSP HRCT	1.25	5.0	bone plus full	1600/-600	head/feet
COR INSP HRCT	1.25	5.0	bone plus full	1600/-600	front/back
AX INSP THINS	1.25	1.0	std full	400/40	head/feet
AX INSP MIPS	8.0	3.0	std full	1600/-600	head/feet

Must be first recon.

For the **Supine End Expiration** and **Prone End Inspiration** phases:

	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	100-300	**36.20**	on	1.25	20	1.375	27.50	0.5	NA	NA	5.5
Opt 540	helical	large	120	100-300	**36.20**	on	1.25	20	1.375	27.50	0.5	NA	NA	5.5
LS VCT 64	helical	large body	120	50-300	**36.01**	on	1.25	40	0.984	39.375	0.5	30	70	3.8
Disc VCT 64	helical	large body	120	50-300	**36.01**	on	1.25	40	0.984	39.375	0.5	NA	NA	3.8

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX EXP HRCT	**1.25**	**5.0**	**bone plus full**	**1600/-600**	**head/feet**
AX PRONE HRCT	1.25	5.0	bone plus full	1600/-600	head/feet

Must be first recon.

CT Chest Full High-Res

PHILIPS PARAMETERS & RECONS

For the **Supine End Inspiration** phase:

	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 INSP LUNG	3.0	3.0	YA	lung	3	head/feet
AX INSP SOFT	3.0	3.0	B	mediastinum	3	head/feet
COR INSP SOFT	3.0	3.0	B	mediastinum	3	front/back
SAG INSP SOFT	3.0	3.0	B	mediastinum	3	left/right
AX INSP HRCT	1.0	5.0	YA	lung	3	head/feet
COR INSP HRCT	1.0	5.0	YA	lung	3	front/back
AX INSP THINS	1.0	0.75	B	mediastinum	3	head/feet
AX INSP MIPS	8.0	2.0	B	lung	3	head/feet

For the **Supine End Expiration** and **Prone End Inspiration** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	**55**	19	on	1.00	64	0.625	0.75	5.6

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX EXP HRCT	1.0	5.0	YA	lung	3	head/feet
AX PRONE HRCT	1.0	5.0	YA	lung	3	head/feet

CT Chest Teton High-Res

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

Indication - interstitial pulmonary fibrosis (IPF).
Use CT chest HRCT without Contrast charge. Do not use regular CT chest charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. 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 on both phases (obtained during end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
Scan parameters for the supine end inspiratory phase are the same as routine chest protocol.
Scan parameters for the supine end expiratory phase are the same as low-dose chest protocol.
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.

CT Chest Teton High-Res

SIEMENS PARAMETERS & RECONS

For the **Supine End Inspiration** phase:

	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 INSP LUNG	3.0	3.0	Br57 / B70f	lung	3	head/feet	
AX INSP SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet	
COR INSP SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	front/back	
SAG INSP SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	left/right	
AX INSP HRCT	**1.0**	**0.8**	**Bl57 / B80f**	**lung**	**3**	**head/feet**	**Teton specific recon.**
COR INSP HRCT	1.0	5.0	Br57 / B70f	lung	3	front/back	
AX INSP MIPS	8.0	3.0	Br40 / B41f	lung	3	head/feet	

For the **Supine End Expiration** phase:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	**60**	on	NA	1.15	16	0.75	0.5	10.9
Go Up 32	spiral	130	**31**	on	on 80	1.50	32	0.7	0.8	7.1
Sensation 64	spiral	120	**60**	on	NA	1.40	64	0.6	0.5	5.6
Definition 64	spiral	120	**66**	on	on	1.20	64	0.6	0.5	6.5
Go Top 64	spiral	120	**37**	on	on 80	1.20	64	0.6	0.33	2.1
Drive 128	spiral	120	**40**	on	on	1.20	128	0.6	0.5	3.3
Force 192	spiral	110	**31**	on	on	1.20	192	0.5	0.5	2.6

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction	
AX EXP HRCT	**1.0**	**0.8**	**Bl57 / B80**	**lung**	**3**	**head/feet**	**Teton specific recon.**

CT Chest Teton High-Res

GE PARAMETERS & RECONS

For the **Supine End Inspiration** phase:

	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 INSP LUNG	**2.5**	**2.5**	**lung**	**1600/-600**	**head/feet**	**Must be first recon.**
AX INSP SOFT	2.5	2.5	std full	400/40	head/feet	
COR INSP SOFT	2.5	2.5	std full	400/40	front/back	
SAG INSP SOFT	2.5	2.5	std full	400/40	left/right	
AX INSP HRCT	**1.25**	**1.0**	**bone plus full**	**1600/-600**	**head/feet**	**Teton specific recon.**
COR INSP HRCT	1.25	5.0	bone plus full	1600/-600	front/back	
AX INSP MIPS	8.0	3.0	std full	1600/-600	head/feet	

For the **Supine End Expiration** phase:

	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	100-300	**36.20**	on	1.25	20	1.375	27.50	0.5	NA	NA	5.5
Opt 540	helical	large	120	100-300	**36.20**	on	1.25	20	1.375	27.50	0.5	NA	NA	5.5
LS VCT 64	helical	large body	120	50-300	**36.01**	on	1.25	40	0.984	39.375	0.5	30	70	3.8
Disc VCT 64	helical	large body	120	50-300	**36.01**	on	1.25	40	0.984	39.375	0.5	NA	NA	3.8

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
AX EXP HRCT	**1.25**	**1.0**	**bone plus full**	**1600/-600**	**head/feet**	**Teton specific recon.**

CT Chest Teton High-Res

PHILIPS PARAMETERS & RECONS

For the **Supine End Inspiration** phase:

	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 INSP LUNG	3.0	3.0	YA	lung	3	head/feet	
AX INSP SOFT	3.0	3.0	B	mediastinum	3	head/feet	
COR INSP SOFT	3.0	3.0	B	mediastinum	3	front/back	
SAG INSP SOFT	3.0	3.0	B	mediastinum	3	left/right	
AX INSP HRCT	**1.0**	**0.8**	**YA**	**lung**	**3**	**head/feet**	**Teton specific recon.**
COR INSP HRCT	1.0	5.0	YA	lung	3	front/back	
AX INSP MIPS	8.0	2.0	B	lung	3	head/feet	

For the **Supine End Expiration** phase:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time
Incisive 128	helical	120	**55**	19	on	1.00	64	0.625	0.75

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction	
AX EXP HRCT	**1.0**	**0.8**	**YA**	**lung**	**3**	**head/feet**	**Teton specific recon.**

Table 1: Historical HRCT Imaging Parameters (Screening/V1)	
Parameter	**Description**
Collimation	Sub-millimeter
Rotation Time	Shortest possible
Pitch	Highest possible
Tube Potential*	120 kVp
Tube Current*	≤ 240 mAs
Radiation Dose Control	Per institutional requirements (1-3 mSv recommended for inspiratory acquisition; ultralow-dose CT with < 1 mSv should be avoided)
Reconstruction Slice Thickness	≤ 1.5 mm (series with slices thicker than 1.5 mm will not be accepted)
Reconstruction Slice Gap	**Contiguous, overlapping. or interspaced slices (slice gap > 0 mm is permitted)**
Reconstruction Algorithm	High spatial frequency (bone/sharp); iterative reconstruction if available and validated
Reconstruction Orientation	Axial
Field-of-View (FOV)	Thoracic axial slices from most extreme lung apices to most extreme lung bases (costophrenic recesses included)
Acquisitions**	Single breath-hold full inspiration Single breath-hold full expiration
Image format	DICOM
Artifact	Images should not be significantly degraded by motion or metal artifact

**Tube current and potential should be adjusted based on subject size and dose control protocol*
*** Full inspiration is mandatory for all HRCT timepoints; expiratory scans are recommended for assessment of air trapping*

Table 2 below provides the minimum specifications for diagnostic on-study HRCT scan required for IPF assessment[1]

Table 2: On-Study HRCT Imaging Parameters (Screening/V2)	
Parameter	**Description**
Collimation	Sub-millimeter
Rotation Time	Shortest possible
Pitch	Highest possible
Tube Potential*	120 kVp
Tube Current*	≤ 240 mAs
Radiation Dose Control	Per institutional requirements (1-3 mSv recommended for inspiratory acquisition; ultralow-dose CT with < 1 mSv should be avoided)
Reconstruction Slice Thickness	≤ 1.5 mm (series with slices thicker than 1.5 mm will not be accepted)
Reconstruction Slice Gap	**Contiguous or overlapping (slice gap > 0 mm is NOT permitted)**
Reconstruction Algorithm	High spatial frequency (bone/sharp); iterative reconstruction if available and validated
Reconstruction Orientation	Axial
Field-of-View (FOV)	Thoracic axial slices from most extreme lung apices to most extreme lung bases (costophrenic recesses included)
Acquisitions**	Single breath-hold full inspiration Single breath-hold full expiration
Image format	DICOM
Artifact	Images should not be significantly degraded by motion or metal artifact

**Tube current and potential should be adjusted based on subject size and dose control protocol*
*** Full inspiration is mandatory for all HRCT timepoints; expiratory scans are recommended for assessment of air trapping*

During QC of Historical **Screening/V1** HRCT scans, ERT QC will raise a query if any of the following is detected:

- Field-of-view coverage does not include the entire left and right lung

Appendix 1: The Image Management Solution (IMS)

1.0 IMS Access and Training

1.1 Site User Access and Training

ERT will provide web-based training sessions for sites detailing the processes required to create subjects, add timepoints for subjects, and upload timepoint images in the IMS. Detailed instructions, workflows, and descriptions of IMS eCRF content are also provided in the Appendix of this document.

Following the training and completion of training documentation, ERT will email trained site users with a link to ERT's Global Single Sign-on (GSSO) page and associated registration instructions. If the site user has not previously registered for an ERT study, he/she will be required to self-register. **Note sites must use the Google Chrome internet browser to access and use the ERT IMS platform (Internet Explorer/Microsoft Edge do not support the IMS functionality).**

Site users should only use their designated accounts to access the study. If the person responsible for transferring imaging via the IMS is absent for an extended period, a new user at the site should be identified with a training request submitted to ERT for the user. Additionally, if a site user is no longer employed at the site or participating in the study, the site should notify ERT to inactivate the user's access to the study. Sites should contact the ERT Customer Care for any technical issues pertaining to the use of the IMS. Detailed instructions for image upload will be provided to the site in the IMS Image Transfer Instructions document.

1.2 Sponsor User Access and Training

ERT will provide a representative(s) from United Therapeutics access to the "data review" user role in the IMS. This is a read-only user role for United Therapeutics to review the information completed by the site user(s), QC user(s), and/or central reviewer(s). The data review user(s) will be able to:

- View all subject timepoints and their current workflow status
- View submitted images for timepoints within the IMS (post-QC)
- View reader annotations (read-only)
- View completed eCRFs/Reports:
    - Timepoint Submission
    - Reader Assessments
    - Timepoint QC
- Download Reports:
    - Site Compliance Report - provides an overview of site submission information, current workflow states, and number of submission cycles for each timepoint
    - QC Compliance Report - provides an evaluation of QC performance for each timepoint (outstanding query information and turnaround time)
    - Image Analysis Compliance Report - provides an evaluation of a central reviewer's performance for timepoint (read status and turnaround time)
    - User Access and Activity Report - provides a summary of the users that have access to the study, their training dates, activation status, and date/time of last access to the study
    - Imaging Study Tracker Report - provides an overall status for each timepoint created in the study and any associated queries
    - Eligibility Reports

The data review user(s) must complete an ERT IMS training session before ERT will grant the user access to the study.

2.0 IMS Image Upload

Following the creation of timepoints in the IMS, sites will be required to upload associated HRCT images prior to timepoint IMS eCRF signoff. The IMS platform does not require the sites to install or download any plugins to support the upload process.

The expected format of the images for this study is DICOM. The process for upload is detailed below:

- Images for upload can be selected as single files, multiple files within a folder or by selecting an entire folder of images.
    - For reduced size and faster transfers, it is recommended that images required for upload are placed in a single folder, “zipped” and uploaded as a single file.
- The IMS will display the number and total size of files selected for upload and will display a status bar indicating the transfer progress.
    - Note that the site user may use the browser and computer to perform other tasks during the upload but should not close the upload page to avoid interruption of the transfer.
- Once the upload is complete, the uploaded images will be queued and processed by ERT’s server.
    - The upload page will indicate how many images are in the queue (“pending”) and processing (“running”). When all images have been processed the transfer status will move to “Loading Complete”.
- After all files are uploaded, several items including thumbnails, acquisition date, series description, number of images per series, and modality will be shown for each image/series uploaded.
- If the site user believes an image/series was uploaded in error, he/she may “archive” the image/series preventing downstream user (ERT QC, readers, etc.) access. A change reason will be required and stored in the study’s audit trail.

3.0 IMS Image De-Identification

During the “processing” step of the image upload process described above, a copy of the original images will be created and common DICOM header tags that often contain PHI will be cleared or replaced. The Patient ID DICOM tag will be replaced with the Subject ID and the Accession DICOM tag will be replaced with the Timepoint ID (a full description of DICOM tags that will be edited will be defined in the study’s Requirements Specification). Original images will be archived and encrypted, preventing downstream users of the IMS (ERT QC, readers, etc.) from accessing or downloading the images.

Post-processing, ERT QC Specialists will review HRCT to determine if additional sources of PHI such as annotations of the subject’s name or medical record number are present in the images. If any images contain such PHI, they will be archived preventing downstream user access. If these images are required for centralized review, ERT QC will perform a redaction of the PHI.

4.0 IMS Image Display

Once a given image/series is processed by the ERT server, it may be viewed in the IMS by ERT study personnel, the site user, ERT reviewers, and sponsor/CRO. The IMS viewer will allow the users to zoom, pan, adjust window/level, view DICOM header tags and advance frames/slices (note that central reviewers will not be able to view DICOM header tags).

Additionally, manufacturer, serial number, date of birth, gender DICOM tags extracted from HRCT image series prior to de-identification will be presented above the viewer (visible to all users except the central reviewers).

CT Chest ION (Navigational)

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

Indications - pre navigational biopsy of a lung nodule, mass, lesion or opacity and should be ordered as ION 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 end inspiration).

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

Scan parameters are the same as routine chest protocol.

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	**0.75**	**0.5**	**Br40 / B41f**	**mediastinum**	**3**	**head/feet**	**ION specific recon.**
AX MIPS	8.0	3.0	Br40 / B41f	lung	3	head/feet	

CT Chest ION (Navigational)

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	**0.75**	**0.5**	**std full**	**400/40**	**head/feet**	**ION 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	**0.75**	**0.5**	**B**	**mediastinum**	**3**	**head/feet**	**ION specific recon.**
AX MIPS	8.0	2.0	B	lung	3	head/feet	

ION Protocol Parameters

Table A-1 Minimum radiation dose (CTDIvol; unit mGy)

Recon. Method / Patient Size	Small-Average (BMI ≤25)	Larger (BMI>25)
Using non-iterative reconstruction	6	10
Using iterative reconstruction	3	5

Table A-2 Scanner Settings

Parameter	Rationale	Recommended Values
kVp	Reduced artifacts in the lung apexes	110 – 140 kV
Pitch	Reduced motion artifacts from breathing or cardiac cycle	≥ 1.0
Rotation time	Fastest rotation time reduces motion artifacts	NA
Slice spacing	Ensure high resolution to identify peripheral airways	0.5 mm – 0.8 mm
Slice thickness	Zero or slight overlap	0.5 mm – 1.0 mm
Field of View	Minimize the field of view to the lungs	≤ 32 cm
Iterative reconstruction	Low to medium strengths are compatible; defer to department specific lung imaging protocols	NA

Table A-3 Scanner Settings, Reconstruction Kernel

Parameter	Rationale	Recommended Values			
Reconstruction kernel	Multiple reconstruction kernels are compatible; medium sharpness is ideal	Siemens™	Philips™	GE™	Toshiba[3]
		B31f	C 0	Standard Body	FC05

Information taken from - PlanPoint Software IFU Appendix - PN554076

Intuitive Rep Gabbie Owens – Gabbie.Owens@intusurg.com – 904-655-3209

CT Chest Veran (Navigational)

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

Indications - pre navigational biopsy of a lung nodule, mass, lesion or opacity and should be ordered as Veran protocol by Pulmonology.
Use CT Chest without Contrast charge.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Have patient lift chin up.
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 on both phases (obtained during end inspiration).
Use smallest FOV without cropping anatomy or excluding vPad. Use the same FOV for both scans.
The vPad tracker should be clearly visible in the FOV.
The patients arms are **over his/her head** for the **end inspiratory phase**.
The patients arms are **by his/her side** for the **end expiratory phase**.
IV Contrast: not given for this protocol.
Veran Rep: Noel Kane 618-600-5922, noel.kane@veranmedical.com.

SIEMENS PARAMETERS & RECONS

For the **Supine End Inspiration** and **Supine End Expiration** phases:

	Scan Mode	kV	Eff mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	**100/150**	**off**	NA	1.00	16	0.75	0.5	12.5
Go Up 32	spiral	120	**100/150**	**off**	**off**	1.00	32	0.6	0.5	7.8
Sensation 64	spiral	120	**105/160**	**off**	NA	1.00	64	0.6	0.5	7.8
Definition 64	spiral	120	**105/160**	**off**	**off**	1.00	64	0.6	0.5	7.8
Go Top 64	spiral	120	**105/160**	**off**	**off**	1.00	64	0.6	0.5	3.9
Drive 128	spiral	120	**110/170**	**off**	**off**	1.00	128	0.6	0.5	3.9
Force 192	spiral	120	**110/170**	**off**	**off**	1.00	128	0.6	0.5	3.9

Use lower mAs for BMI ≤25 or higher mAs for BMI >25.

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction	
AX LUNG	3.0	3.0	Br57 / B70f	lung	none	head/feet	
AX SOFT	3.0	3.0	Br40 / B41f	mediastinum	none	head/feet	
COR SOFT	3.0	3.0	Br40 / B41f	mediastinum	none	front/back	
SAG SOFT	3.0	3.0	Br40 / B41f	mediastinum	none	left/right	
TLC INSP	**0.75**	**0.5**	**Qr36 / B35f**	**mediastinum**	**none**	**head/feet**	**Veran specific recon.**
AX MIPS	8.0	3.0	Br40 / B41f	lung	none	head/feet	
TLC EXP	**0.75**	**0.5**	**Qr36 / B35f**	**mediastinum**	**none**	**head/feet**	**Veran specific recon.**

CT Chest Veran (Navigational)

GE PARAMETERS & RECONS

For the **Supine End Inspiration** and **Supine End Expiration** phases:

	Scan Type	SFOV	kV	**Manual mA**	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR	Scan Time
LS 16	helical	large	120	**180/270**	off	0.625	10	1.375	13.75	0.5	NA	NA	10.9
Opt 540	helical	large	120	**180/270**	off	0.625	10	1.375	13.75	0.5	NA	NA	10.9
LS VCT 64	helical	large body	120	**180/270**	off	0.625	40	0.984	39.37	0.5	off	none	3.8
Disc VCT 64	helical	large body	120	**180/270**	off	0.625	40	0.984	39.37	0.5	NA	NA	3.8

Use 180 mAs for BMI ≤25 or 270 mAs for BMI >25.

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
TLC INSP	**0.625**	**0.5**	**std full**	**400/40**	**head/feet**	**This must be the first recon.**
AX LUNG	2.5	2.5	lung	1600/-600	head/feet	**Veran specific 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	
AX MIPS	8.0	3.0	std full	1600/-600	head/feet	
TLC EXP	**0.625**	**0.5**	**std full**	**400/40**	**head/feet**	**Veran specific recon.**

PHILIPS PARAMETERS & RECONS

For the **Supine End Inspiration** and **Supine End Expiration** phases:

	Scan Mode	kV	**Manual mA**	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	**130/190**	off	0.923	64	0.625	0.5	4.1

Use 130 mAs for BMI ≤ 25 or 190 mAs for BMI >25.

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction	
AX LUNG	3.0	3.0	YA	lung	none	head/feet	
AX SOFT	3.0	3.0	B	mediastinum	none	head/feet	
COR SOFT	3.0	3.0	B	mediastinum	none	front/back	
SAG SOFT	3.0	3.0	B	mediastinum	none	left/right	
TLC INSP	**0.67**	**0.5**	**B**	**mediastinum**	**none**	**head/feet**	**Veran specific recon.**
AX MIPS	8.0	2.0	B	lung	none	head/feet	
TLC EXP	**0.67**	**0.5**	**B**	**mediastinum**	**none**	**head/feet**	**Veran specific recon.**

- Breathe and relax (*Give the patient a few relax breaths. Talk the patient to insure they understand and will tolerate the breath hold. If they cannot hold their breath instruct them to do the best they can and set scanner to scan base to apex*)

- Now we are ready to scan so please
- Take a deep breath in (*watch chest to insure a deep breath in*)
- Let it out (*watch chest to insure air is out*)
- Now breathe all the way IN..IN..IN (*watch chest to insure a deep breath in as far as possible – begin scanning*)
- Keep holding your breath – DO NOT BREATHE!
- *At end of scan*: Breathe and relax

1.3 End Expiration CT Scan

- For the second part of this scan, I am going to ask you to take a couple of deep breaths in and out before we have you hold your breath all the out.
- First, let's practice
- Take a deep breath in (*watch chest to insure a deep breath in*)
- Let it out (*watch chest to insure air is out*)
- Take another deep breath in (*watch chest to insure a deep breath in*)
- Now let it out and hold it (*watch chest to insure subject is holding before starting the scan*)
- Keep holding your breath – DO NOT BREATHE! (*count 10 seconds*)
- Breathe and relax (*Give the patient a few relax breath. Talk the patient to insure they understand and will tolerate the breath hold. If they cannot hold their breath instruct them to do the best they can and set scanner to scan base to apex*.)
- Now we are ready to scan so please
- Take a deep breath in (*watch chest to insure a deep breath in*)
- Let it out (*watch chest to insure air is out*)
- Take another deep breath in (*watch chest to insure a deep breath in*)
- Now let it out and hold. (*watch chest to insure subject is holding – begin scanning*)
- Keep holding your breath out – DO NOT BREATHE!
- At end of scan: Breathe and relax

1.4 CT Patient Positioning

- Place patient in a supine position, lower legs supported.
- Inspiration CT (TLC) scan - the arms should be placed comfortably over the head in a head arm rest. The vPad (patient tracker) should be clearly visible in the scanner field of view.
- Expiration CT scan – the arms should be placed comfortably at the patient's sides. The vPad (patient tracker) should be clearly visible in the scanner field of view. Optimal navigation registration is obtained with the full expiration scan.
- Using the laser positioning lights, line up the patient so the chest is iso-center (in the middle) of the CT gantry.
- Move the table so the patient is in the correct position for a chest CT scan

VERAN MEDICAL TECHNOLOGIES

1.5 CT Parameters for Inspiration (TLC) and Expiration scans

- The scout scan uses default parameters (only one scout AP/PA)
- TLC (Inspiration) scan is performed with **arms above** head.
- The expiration scan is performed with **arms down** at patient's sides.
- To select the proper Display FOV (DFOV) perform the TLC scan first and set the DFOV to be the smallest possible including lungs and vPad. Use the same DFOV set for the inspiration scan on the expiration scan to maintain the same scan resolution for both scans

Table 1: CT Protocol Siemens Definition AS PLUS, Siemens Definition AS, Siemens Sensation64 & GE VCT, Philips Brilliance 64, Philips Brilliance iCT

Scanner make	**SIEMENS**	**SIEMENS**	**SIEMENS**	**SIEMENS**	**PHILIPS**	**PHILIPS**
Scanner model	Definition (AS Plus) 128 slice	Definition (AS) 64 slice	Sensation 64 slice	Somotom 64 Slice Dual 64	Brilliance 64 slice	Brilliance iCT 256 slice
Scan Type	Spiral	Spiral	Spiral	Spiral	Spiral Helix	Spiral Helix
Scan FOV	No Selection	No Selection	No Selection	No Selection	No Selection	No Selection
Rotation Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Det. Configuration	(128) 64 x 0.6	64 x 0.6	(64)32 x 0.6	64 x 0.6	64 x 0.625	2 x 128 x 0.625 mm
Pitch	1.0	1.0	1.0	1.0	0.923	0.929
kVp	120	120	120	120	120	120
Siemens = Eff. mAs GE = mA setting Philips = mAs	Effective mAs: M-110 L-170	Effective mAs: M-105 L-160	Effective mAs: M-100 L-150	Effective mAs: M-105 L-160	mAs: M-130 L-190	mAs: M-115 L-175
Dose modulation	Care Dose OFF	Care Dose OFF	Care Dose OFF	Care Dose OFF	Dose Right (ACS) OFF	Dose Right (ACS) OFF
Beam Hardening Correction						
Recon 1 Algorithm	B35	B35	B35	B35	B	B
Additional Filter	No selection	No Selection	No Selection	No Selection	Do not use Adaptive filters	Do not use Adaptive filters
Thickness (mm)	0.75	0.75	0.75	0.75	0.67	0.67
Interval (mm)	0.5	0.5	0.5	0.5	0.5	0.5
Iterative recon (noise reduction algorithm)	Do Not use IRIS	Do Not use IRIS	No Selection	Do Not use IRIS	Do Not use iDose	Do Not use iDose
Scan Time (Sec) 30cm length	<10	<10	<10	<10	<10	<10

Scanner make	TOSHIBA	TOSHIBA	GE	GE	GE
Scanner model	Aquilion 64	Aquilion 16 Slice	VCT 64 slice	VCT Select 32 Slice	Lightspeed 16 Slice
Scan Type	Helical	Helical	Helical	Helical	Helical
Scan FOV	No Selection	No Selection	Large	Large	No Selection
Rotation Time (s)	0.5	0.5	0.5	0.5	0.5
Det. Configuration	64 x 0.5	16 x 1.0	64 x 0.625	20 x 0.625	16 x 0.625
Pitch	0.9 ≤ 1.1	0.9 < 1.1	0.984	0.969	1.375
kVp	120	120	120	120	120
Siemens = Eff. mAs GE = mA setting Philips = mAs	mAs: M – 140 L – 210 mA Field: M-280 L-420	mAs: M-140 L- 210 mA Field: M-280 L-420	mA: M-180 L-270	mA: M-180 L-270	mA: M-180 L-270
Dose modulation	OFF	OFF	Auto mA OFF	Auto mA OFF	Auto mA OFF
Beam Hardening Correction	Boost On	Boost On			
Recon 1 Algorithm	FC01	FC01	Standard	Standard	Standard
Additional Filter	No Selection	No Selection	No Selection	No Selection	No Selection
Thickness (mm)	1.0	1	0.625	0.625	0.625
Interval (mm)	0.5	0.5	0.5	0.5	0.5
Iterative recon (noise reduction algorithm)	Do Not Use	Do Not Use	Do Not use ASIR	Do Not use ASIR	Do Not use ASIR
Scan Time (Sec) 30cm length	<10	<15	<10	<10	<15

1.6 CT Radiation Dose Standardization

- CT Dose is standardized so each manufacturer and model are matched within ± 3% of the Target CTDIvol.

Table 1.6.1 (CTDIVol selection)

Body Size	CTDIvol mGy/cm
Large – L	11.4
Medium – M	7.6

1.7 Size Definition (mAs selection)

- Body Mass Index will be used to determine large or medium mAs setting. The technologist will use the chart below to select the mAs setting for a given BMI.

Table 1.4.1 (mAs selection)

BMI range	mAs selection
>25	Large
≤25	Medium

B. CT Dose Calculation Estimates

- Veran airway segmentation software has the capability to function with a much lesser dose than used on a standard clinical chest CT scan.
- Veran functionality will allow this protocol to include an inspiration & expiration scan while only using the dose equal to or below one standard clinical CT scan.

Effective Dose (E) mSv

- Effective dose (E) is used in radiation protection, to compare the stochastic risk of a non-uniform exposure of ionizing radiation, with the risks caused by a uniform exposure of the whole body. The stochastic risks are carcinogenesis and hereditary effects. It is not intended as a measure for acute or threshold effects of radiation exposure such as erythema, radiation sickness or death.

Cumulated Dose (One scan session)

- The effective dose (E) for a one scan session: Inspiration & Expiration is estimated to be 7mSv. The maximum amount of radiation from the clinical related radiation procedures (E) for subjects having a one scan session of this clinical protocol is equivalent to approximately 14% of the annual radiation limit for a medical worker.

Statement regarding dose estimates

- Although there are no proven harmful effects from this amount of radiation, long-term effects on the patient's health cannot be ruled out with certainty. This dose estimate takes into account only the exposure to procedures in this clinical procedure. If the patient has experienced other radiation exposure, they should be aware that the risk of effects of radiation exposure is thought to add up across all their exposures(including studies performed as part of your medical care).

Statement regarding breast shields

- It is recommended to have an offset or foam pad between the patient and the breast shield of at least 1 to 2 inches. This allows for optimal sensor recognition and airway segmentation.

C. CT Data Transfer

Data will be transferred via network DICOM or to a CD or USB device depending on each site's transfer mechanism.

Statement regarding the above Protocol:

Parameters such as slice thickness, slice spacing, rotation speed, pitch, and matrices, should be followed as per the above protocol or significant degradation of the scan airway segmentation will occur. The exposure settings (mA, mAs, or kv) settings in this protocol are only a recommendations based on the goals set forth in this protocol. The final determination and selection of the exposure parameters (mA, mAs, or kv) is the sole responsibility of the imaging institution performing these scans. Although there are no proven harmful effects from this amount of radiation, long-term effects on health cannot be ruled out with certainty.

CT Chest Pulmonx Zephyr (Endobronchial Valve)

Updated 06/08/24
Reviewed 05/14/25

Indications - pre procedural imaging prior to endobronchial valve placement and should be ordered as Pulmonx Zephyr 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.

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	Can't scan this protocol on Sensation 16 due to thin slice limitations.									
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	**≤0.625**	**≤0.625**	**Br38f / B30f**	**mediastinum**	3	**head/feet**	**Pulmonx specific recon.**
AX MIPS	8.0	3.0	Br40 / B41f	lung	3	head/feet	

CT Chest Pulmonx Zephyr (Endobronchial Valve)

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	10	1.375	13.75	0.5	NA	NA	10.9
Opt 540	helical	large	120	100-440	16.36	on	2.5	10	1.375	13.75	0.5	NA	NA	10.9
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	**≤0.625**	**≤0.625**	**standard**	**400/40**	**head/feet**	**Pulmonx 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	**≤0.625**	**≤0.625**	**B**	**mediastinum**	**3**	**head/feet**	**Pulmonx specific recon.**
AX MIPS	8.0	2.0	B	lung	3	head/feet	

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 **info@pulmonxstratxusa.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 1.5mm or less** (smaller slices provide more information for fissure completeness).
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.

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	0.625mm			
Reconstruction Interval (Slice Spacing)	≤0.625mm			
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	0mA - 900 mA ***No tube current modulation preferred**	20mA - 450 mA ***No tube current modulation preferred**	20mA – 600mA ***No tube current modulation preferred**	30mA – 770mA ***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)	≤0.5			
Kernel Standard	≤B45f	B, C	≤FC45	Bone, Standard
Slice Thickness	≤1.5mm ***Thinnest slice possible preferred**			
Slice Spacing	≤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	0mA - 900 mA ***No tube current modulation preferred**	20mA - 450 mA ***No tube current modulation preferred**	20mA – 600mA ***No tube current modulation preferred**	30mA – 770mA ***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	≤1.5mm ***Thinnest slice possible preferred**			
Slice Spacing	≤slice thickness			
Average mSv	<2.0			
Contrast	None			

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D1005EN_A – April 2020 4-page CT Parameters

pulmonx®

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	

CT Chest Olympus (Endobronchial Valve)

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	

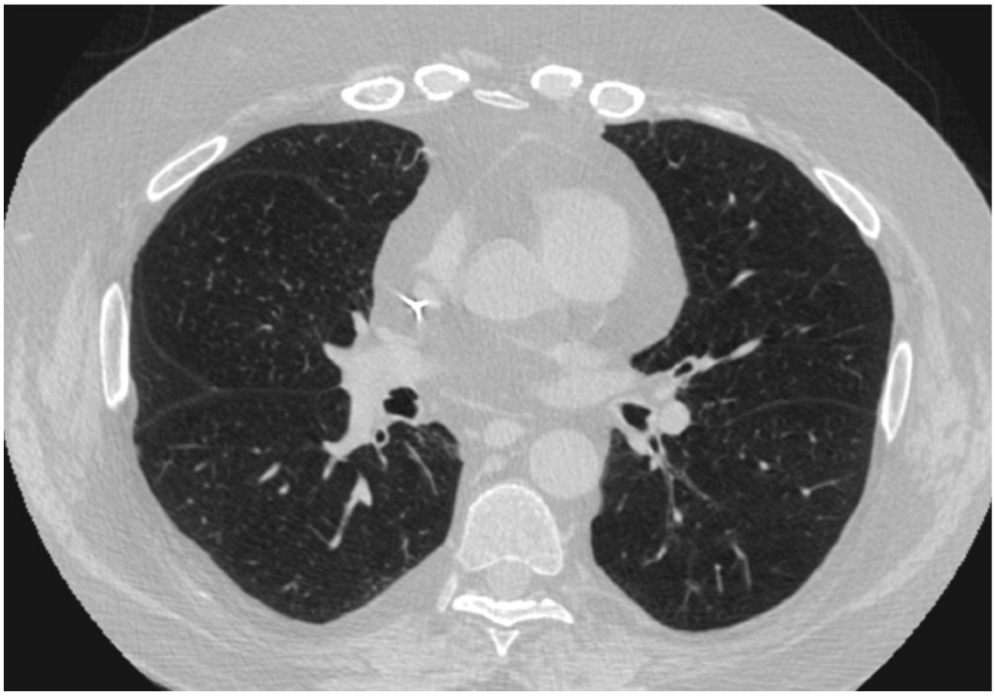
CT Chest Olympus (Endobronchial Valve)

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.

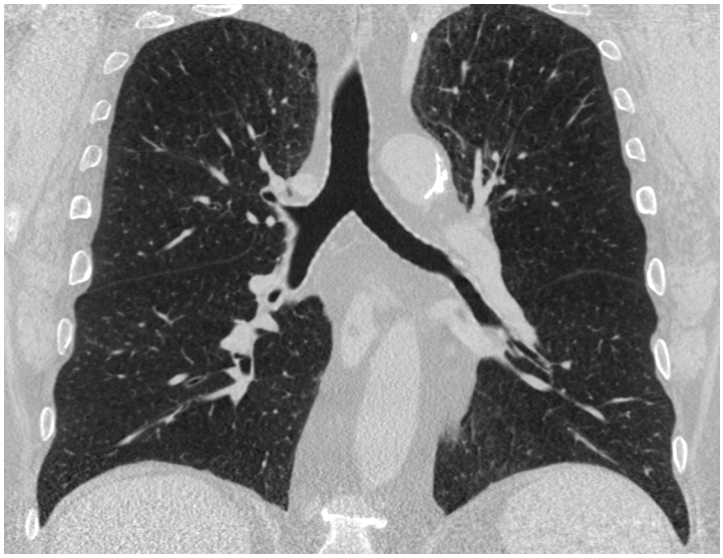
MORE INSTRUCTIONS ON REVERSE

CT Acquisition Guidelines
Quick Reference Guide

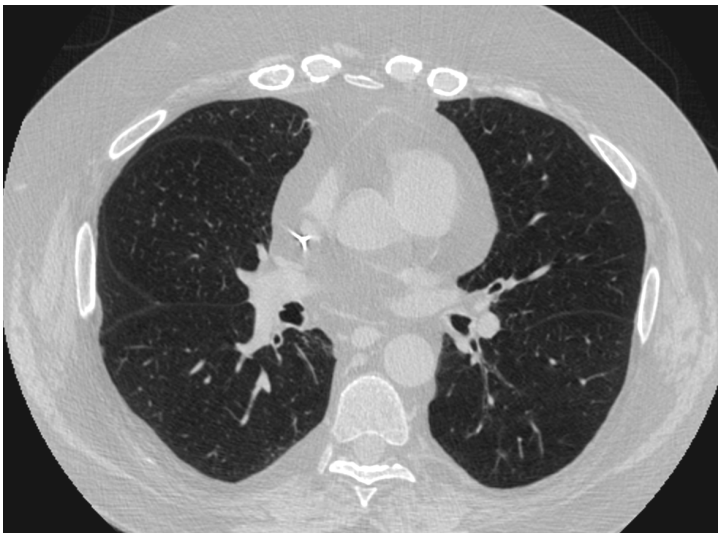
NOTE: To ensure an optimal QCT Analysis, please adhere to the following guidelines. It is important that the patient fully understands the breath hold and scanning procedure, and that any concerns are addressed prior to performing the CT scan. The technologist will ask women if they might be pregnant 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

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.

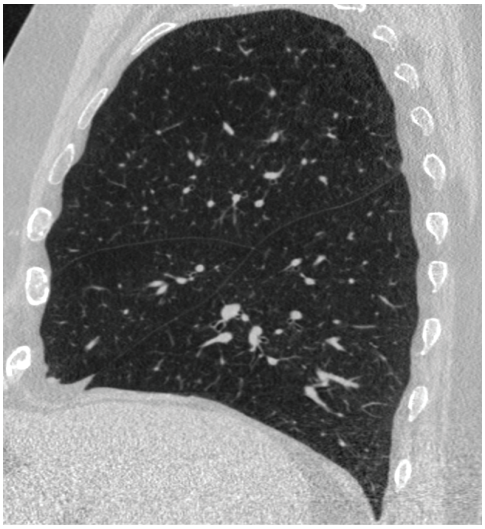
MORE INSTRUCTIONS ON REVERSE

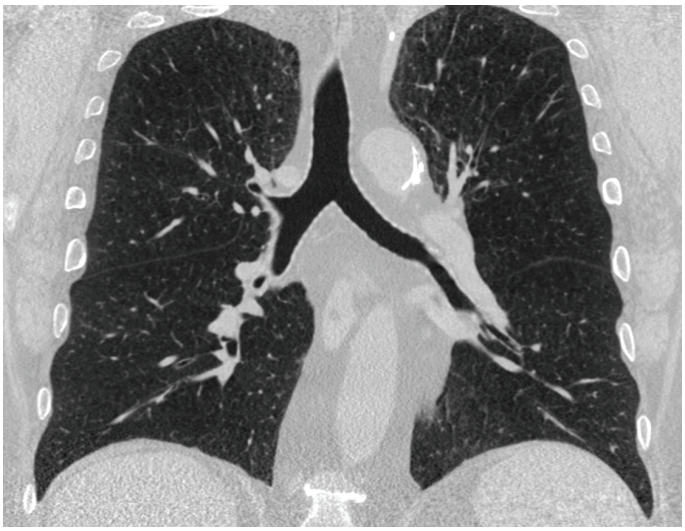
CT Acquisition Guidelines for SeleCT Portal

Quick Reference Guide

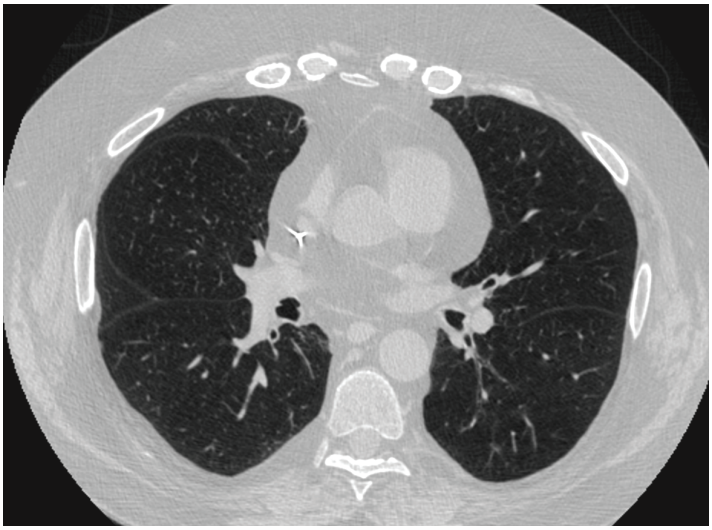
Scan Coverage

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.



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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CT Chest VIDA (Quantitative)

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

Indications - quantitative CT (QCT) imaging in the setting of airway obstruction /COPD and should be ordered as VIDA 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.
Technique (mAs, kV, etc) and FOV must be the same for every scan for a given patient.
See end of protocol for requirements for the **axial thins** recons.
IV Contrast: not given for this protocol.

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	Eff mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	**90/110/160**	**off**	NA	1.00	16	0.75	0.5	12.5
Go Up 32	spiral	110	**90/110/160**	**off**	**off**	1.20	32	0.75	0.8	8.3
Sensation 64	spiral	120	**80/100/150**	**off**	NA	1.00	64	0.6	0.5	7.8
Definition 64	spiral	120	**80/100/150**	**off**	**off**	1.00	64	0.6	0.5	7.8
Go Top 64	spiral	120	**80/100/150**	**off**	**off**	1.00	64	0.6	0.5	3.9
Drive 128	spiral	120	**100/125/180**	**off**	**off**	1.00	128	0.6	0.5	3.9
Force 192	spiral	120	**100/125/180**	**off**	**off**	1.00	128	0.6	0.5	3.9

Use lower mAs for BMI <20, mid mAs for BMI 20-30 and higher mAs for BMI >30.

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX LUNG	3.0	3.0	Br57 / B70f	lung	none	head/feet
AX SOFT	3.0	3.0	Br40 / B41f	mediastinum	none	head/feet
COR SOFT	3.0	3.0	Br40 / B41f	mediastinum	none	front/back
SAG SOFT	3.0	3.0	Br40 / B41f	mediastinum	none	left/right
TLC INSP 1	**0.75**	**0.5**	**Qr36f / B35f**	**mediastinum**	**none**	**head/feet**
TLC INSP 2	**0.75**	**0.5**	**Br46f / B45f**	**mediastinum**	**none**	**head/feet**
AX MIPS	8.0	3.0	Br40 / B41f	lung	none	head/feet

VIDA specific recons.

CT Chest VIDA (Quantitative)

GE PARAMETERS & RECONS

	Scan Type	SFOV	kV	**Manual mA**	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR	Scan Time
LS 16	helical	large	120	**145/180/270**	off	0.625	20	1.375	27.50	0.5	NA	NA	5.5
Opt 540	helical	large	120	**145/180/270**	off	0.625	20	1.375	27.50	0.5	NA	NA	5.5
LS VCT 64	helical	large body	120	**145/180/270**	off	0.625	40	0.984	39.37	0.5	off	none	3.8
Disc VCT 64	helical	large body	120	**145/180/270**	off	0.625	40	0.984	39.37	0.5	NA	NA	3.8

Use lower mAs for BMI <20, mid mAs for BMI 20-30 and higher mAs for BMI >30.

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
TLC INSP	**0.625**	**0.5**	**std full**	**400/40**	**head/feet**	**This must be the first recon.**
AX LUNG	2.5	2.5	lung	1600/-600	head/feet	**VIDA specific 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	
AX MIPS	8.0	3.0	std full	1600/-600	head/feet	

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	**mA**	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	**105/130/190**	off	0.923	64	0.625	0.5	4.1

Use lower mAs for BMI <20, mid mAs for BMI 20-30 and higher mAs for BMI >30.

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction	
AX LUNG	3.0	3.0	YA	lung	none	head/feet	
AX SOFT	3.0	3.0	B	mediastinum	none	head/feet	
COR SOFT	3.0	3.0	B	mediastinum	none	front/back	
SAG SOFT	3.0	3.0	B	mediastinum	none	left/right	
TLC INSP	**0.75**	**0.5**	**B**	**mediastinum**	**none**	**head/feet**	**VIDA specific recon.**
AX MIPS	8.0	2.0	B	lung	none	head/feet	

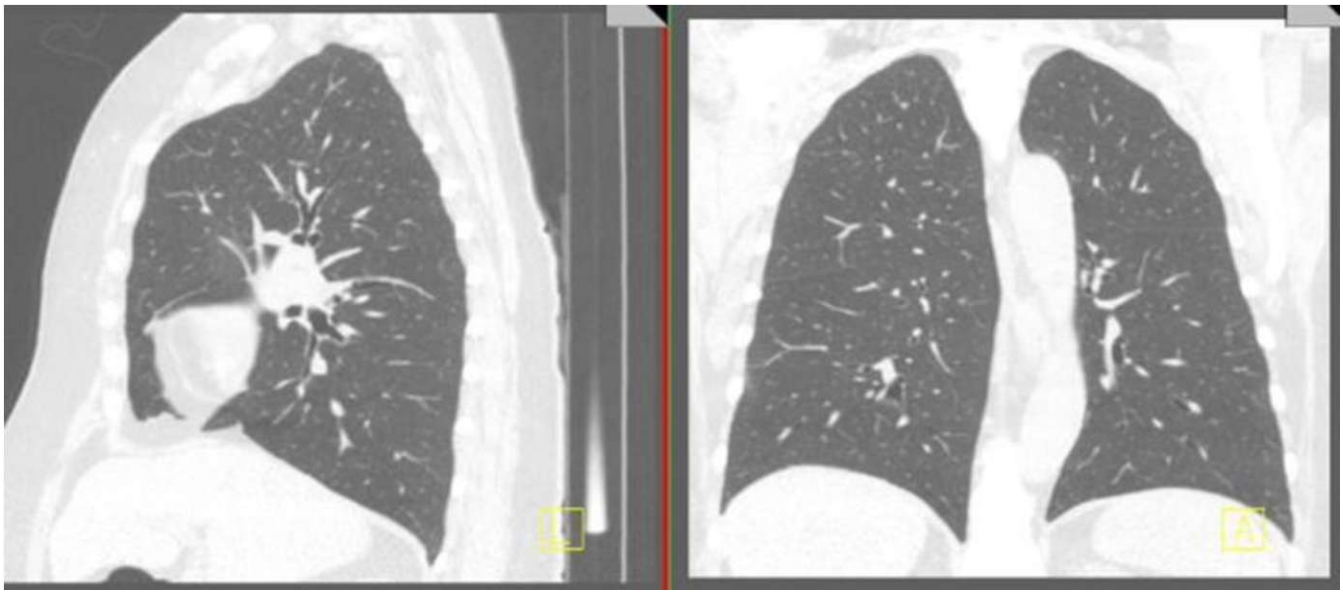
CT Chest VIDA (Quantitative)

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).



It is important that the subject fully understands the breath hold and scanning procedure and that all concerns are addressed prior to performing the CT scan. If this is a subsequent visit to the baseline visit, participants must be scanned with the same CT acquisition and reconstruction parameters used during the baseline CT visit.

Subject Positioning

- Place subject 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 subject so the chest is iso-center (in the middle: left-right; up-down) of the CT gantry. *Correcting an off-center subject during image reconstruction is not acceptable. Proper positioning must be ensured prior to scanning.*
- Move the table so the subject is in the correct position for a chest CT scan.
- Once the subject is comfortably and properly positioned, remain in the scanner room and work with the subject to rehearse the breathing instructions used during CT acquisition several times. *It is important that the subject fully understands the breath hold and scanning procedure and that all concerns are addressed prior to performing the CT scan.*

Scan Coverage

CT scan must include the entire 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 as shown in Figure 1.

- The DFOV should tightly fit the TLC lung for the QCT reconstruction as shown in Figure 2.
- The same DFOV should be used for all time points of a given subject.

Figure 1

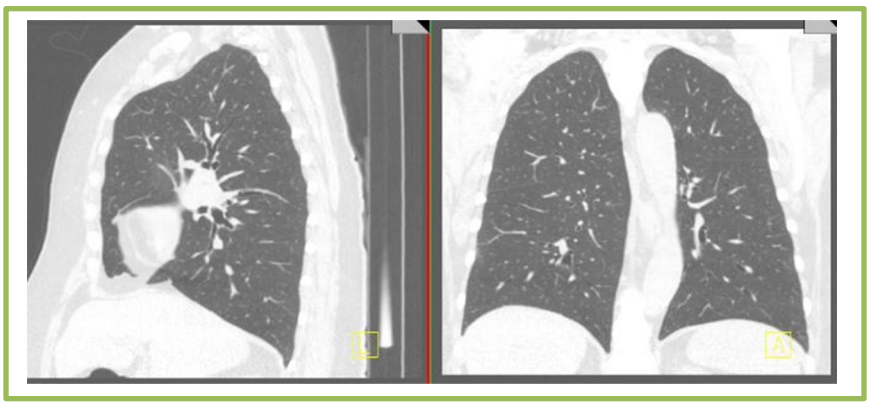


Figure 2

CT Parameters

- The following parameters must be implemented for these CT scans.
- Scout scan uses default parameters (Site discretions on type and number of scouts, however must maintain ALARA principle).

Table 1: CT Protocol Siemens Somatom Drive

	INSPIRATION (TLC)
Scanner	Siemens Somatom Drive
Scan Type	Spiral
Rotation Time (s)	0.5
Det. Configuration	128 x 0.6mm
kV	120
Pitch	1.0
Dose Modulation	Off
Recon Algorithm 1 (For QCT analysis)	B35
Recon Algorithm 2 (For Visual analysis)	B45
Iterative Recon (noise reduction)	Do not use IRIS or SAPHIRE
Thickness (mm)	0.75
Interval (mm)	0.5
Est. Scan Time (Sec) 30cm length	<10

Effective mAs Selection

Small, medium or large effective mAs settings for these scans are based upon the Body Mass Index (BMI). The BMI must be provided to the technologist to set the effective mAs.

All subject scanning visits post-screening will be assigned to a different dose category only if the BMI changes between clinical visits by more than 3 AND crosses the 20 or 30 BMI thresholds.

Please use the table below to select the correct effective mAs setting based on the subject's BMI.

Inspiration (TLC)
Effective mAs as a function of BMI: TLC Scan

BMI Range	Size	Eff. mAs setting to be used
< 20	Small (S)	100
20-30	Medium (M)	125
> 30	Large (L)	180

The following breathing instructions must be given to the subject:

* **Bold instructions are what must be said to the subject during CT.**

** ***(Italic)*** **information represents reminders directed towards the CT technologist.**

SCANNING:

Use the breathing instructions to perform:

- A practice breathing session
- Scouts - as needed - to position the FOV to cover the entire lung and as little soft tissue as possible
- The Inspiration CT scan (TLC)

Inspiratory CT (TLC)

BREATHING INSTRUCTIONS:

For this scan, I am going to ask you to take a couple of deep breaths in and out before we have you breathe all the way in and hold your breath.

Ok, let's get started,

Take a deep breath in *(watch chest to ensure a deep breath in)*

Let it out *(watch chest to ensure air is out)*

Take a deep breath in *(watch chest to ensure a deep breath in)*

Let it out *(watch chest to ensure air is out)*

Now breathe all the way IN...IN...IN *(watch chest to ensure a deep breath in as far as possible)*

Keep holding your breath – DO NOT BREATHE!

At end of scan or practice: - **Breathe and relax**

It is important that the subject fully understands the breath hold and scanning procedure and that all concerns are addressed prior to performing the CT scan. If this is a subsequent visit to the baseline visit, participants must be scanned with the same CT acquisition and reconstruction parameters used during the baseline CT visit.

Subject Positioning

- Place subject 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 subject so the chest is iso-center (in the middle: left-right; up-down) of the CT gantry. *Correcting an off-center subject during image reconstruction is not acceptable. Proper positioning must be ensured prior to scanning.*
- Move the table so the subject is in the correct position for a chest CT scan.
- Once the subject is comfortably and properly positioned, remain in the scanner room and work with the subject to rehearse the breathing instructions used during CT acquisition several times. *It is important that the subject fully understands the breath hold and scanning procedure and that all concerns are addressed prior to performing the CT scan.*

Scan Coverage

CT scan must include the entire 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 as shown in Figure 1.

- The DFOV should tightly fit the TLC lung for the QCT reconstruction as shown in Figure 2.
- The same DFOV should be used for the TLC and RV scans.
- The same DFOV should be used for all time points of a given subject.

Figure 1

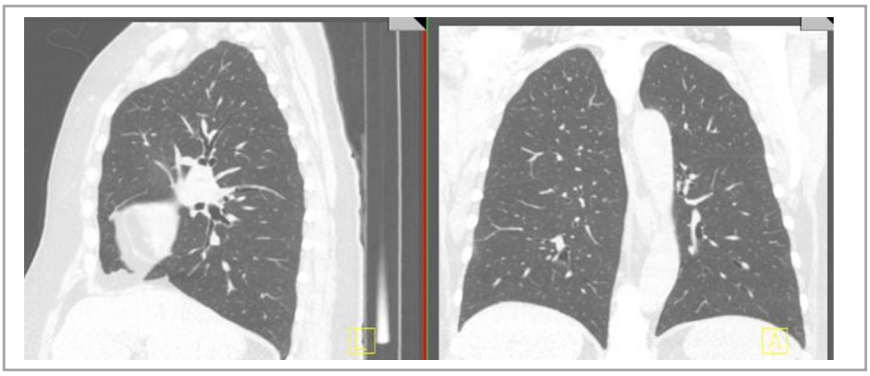
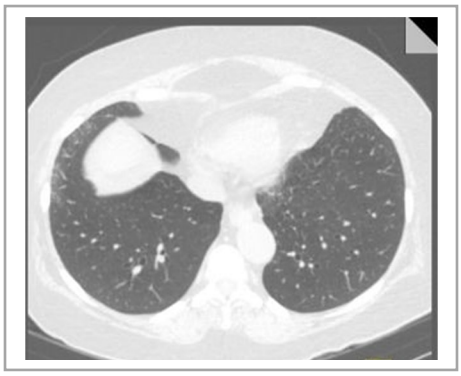


Figure 2



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Use the breathing instructions to perform:

- A practice breathing session
- Scouts - as needed - to position the FOV to cover the entire lung and as little soft tissue as possible
- The Inspiration CT scan (TLC)

Inspiratory CT (TLC)

BREATHING INSTRUCTIONS:

For this scan, I am going to ask you to take a couple of deep breaths in and out before we have you breathe all the way in and hold your breath.

Ok, let's get started,

Take a deep breath in *(watch chest to ensure a deep breath in)*

Let it out *(watch chest to ensure air is out)*

Take a deep breath in *(watch chest to ensure a deep breath in)*

Let it out *(watch chest to ensure air is out)*

Now breathe all the way IN...IN...IN *(watch chest to ensure a deep breath in as far as possible)*

Keep holding your breath – DO NOT BREATHE!

At end of scan or practice: - **Breathe and relax**

CT Parameters

- The following parameters must be implemented for these CT scans.
- Scout scan uses default parameters (Site discretions on type and number of scouts, however must maintain ALARA principle).

Table 1: CT Protocol Siemens Somatom Go.Up 32

	INSPIRATION (TLC)
Scanner	Somatom Go.Up
Scan Type	Spiral (single source)
Rotation Time (s)	0.8
Det. Configuration	32 x 0.7mm
kV	110
Pitch	1.2
Dose Modulation	Off
Recon Algorithm 1 (For QCT analysis)	B35
Recon Algorithm 2 (For Visual analysis)	B45
Iterative Recon (noise reduction)	Do not use IRIS or SAPHIRE
Thickness (mm)	0.75
Interval (mm)	0.5
Est. Scan Time (Sec) 30cm length	<20

Effective mAs Selection

Small, medium or large Effective mAs settings for these scans are based upon the Body Mass Index (BMI). The BMI must be provided to the technologist to set the Effective mAs.

All subject scanning visits post-screening will be assigned to a different dose category only if the BMI changes between clinical visits by more than 3 AND crosses the 20 or 30 BMI thresholds.

Please use the table below to select the correct Effective mAs setting based on the subject's BMI.

Inspiration (TLC)

Effective mAs as a function of BMI: TLC Scan

BMI Range	Size	Eff. mAs setting to be used
< 20	Small (S)	90
20-30	Medium (M)	110
> 30	Large (L)	160

It is important that the subject fully understands the breath hold and scanning procedure and that all concerns are addressed prior to performing the CT scan. If this is a subsequent visit to the baseline visit, participants must be scanned with the same CT acquisition and reconstruction parameters used during the baseline CT visit.

Subject Positioning

- Place subject in a supine position, arms positioned comfortably above the head in a head-arm rest, lower legs supported.
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Figure 1

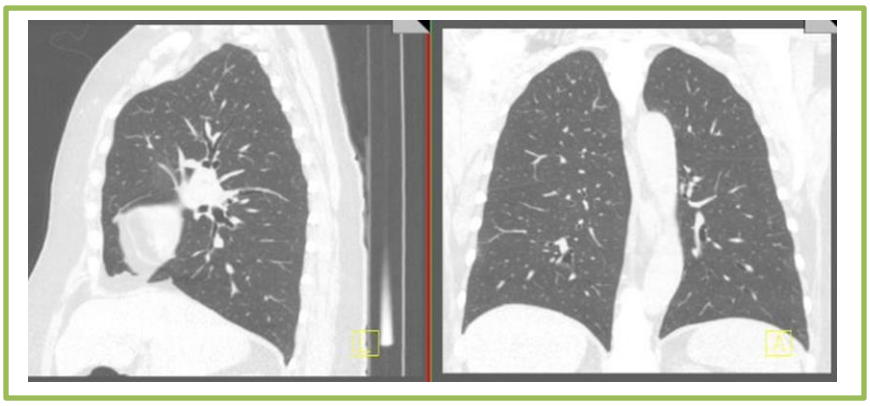


Figure 2

CT Parameters

- The following parameters must be implemented for these CT scans.
- Scout scan uses default parameters (Site discretions on type and number of scouts, however must maintain ALARA principle).

Table 1: CT Protocol Siemens Sensation 64

Scanner	Sensation 64
Scan Type	Spiral
Rotation Time (s)	0.5
Det. Configuration	64 x 0.6mm
kV	120
Pitch	1.0
Dose Modulation	Off
Recon Algorithm 1 (For QCT analysis)	B35
Recon Algorithm 2 (For Visual analysis)	B45
Iterative Recon (noise reduction)	Do not use IRIS or SAPHIRE
Thickness (mm)	0.75
Interval (mm)	0.5
Est. Scan Time (Sec) 30cm length	<10

Effective mAs Selection

Small, medium or large effective mAs settings for these scans are based upon the Body Mass Index (BMI). The BMI must be provided to the technologist to set the effective mAs.

All subject scanning visits post-screening will be assigned to a different dose category only if the BMI changes between clinical visits by more than 3 AND crosses the 20 or 30 BMI thresholds.

Please use the table below to select the correct effective mAs setting based on the subject's BMI.

Effective mAs as a function of BMI: TLC Scan

BMI Range	Size	Eff. mAs setting to be used
< 20	Small (S)	80
20-30	Medium (M)	100
> 30	Large (L)	150

The following breathing instructions must be given to the subject:

* **Bold instructions are what must be said to the subject during CT.**

** ***(Italic)* information represents reminders directed towards the CT technologist.**

SCANNING:

Use the breathing instructions to perform:

- A practice breathing session
- Scouts - as needed - to position the FOV to cover the entire lung and as little soft tissue as possible
- The Inspiration CT scan (TLC)

Inspiratory CT (TLC)

BREATHING INSTRUCTIONS:

For this scan, I am going to ask you to take a couple of deep breaths in and out before we have you breathe all the way in and hold your breath.

Ok, let's get started,

Take a deep breath in *(watch chest to ensure a deep breath in)*

Let it out *(watch chest to ensure air is out)*

Take a deep breath in *(watch chest to ensure a deep breath in)*

Let it out *(watch chest to ensure air is out)*

Now breathe all the way IN...IN...IN *(watch chest to ensure a deep breath in as far as possible)*

Keep holding your breath – DO NOT BREATHE!

At end of scan or practice: - **Breathe and relax**

Table 2. Scanner-Specific Protocol Settings

Scanner Make	Siemens	Siemens	Siemens	GE	GE	Philips
Scanner model	Definition (AS Plus) 128 slice	Definition (DS) 64 slice	Sensation 64 slice	VCT 64 slice/ Discovery STE	Discovery CT 750HD 64 slice	Brilliance 64 slice
Scan type	Spiral	Spiral single source	Spiral	Helical	Helical - standard	Spiral helix
Scan FOV	No selection	No selection	No selection	Large	Large	No selection
Rotation time, s	0.5	0.5	0.5	0.5	0.5	0.5
Detector configuration	128 × 0.6	64 × 0.6	64 × 0.6	64 × 0.625	64 × 0.625	64 × 0.625
Pitch	1.0	1.0	1.0	0.984	0.984	0.923
kVp	120	120	120	120	120	120
Inspiration (TLC)	Effective mAs	Effective mAs	Effective mAs	mA	mA	mAs
Small	90	85	80	145	145	105
Medium	110	105	100	180	180	130
Large	165	150	145	270	270	190
Expiration (RV)	Effective mAs	Effective mAs	Effective mAs	mA	mA	mAs
Extra small	60					
Small		55	50	100	100	70
Medium/large	90	85	80	145	145	105
Dose modulation	Care dose off	Care dose off	Care dose off	Auto mA off	Auto mA off	Dose right (ACS) off
Standard algorithm	B35	B35	B35	Standard	Standard	B
Lung algorithm	B30	B31	None	Detail	Detail	YB
Additional image filters	No selection	No selection	No selection	No selection	IQ enhance off	Adaptive filtering off
Thickness, mm	0.75	0.75	0.75	0.625	0.625	0.67
Interval, mm	0.5	0.5	0.5	0.5	0.5	0.5
Iterative reconstruction (noise reduction algorithm)	Do not use IRIS	Do not use IRIS	No selection	Do not use ASIR	Do not use ASIR	Do not use iDOSE
Scan time, 30-cm length, s	<10	<10	<10	<10	<10	<10
Reconstruction mode	N/A	N/A	N/A	Plus	Plus	N/A
Smart mA	N/A	N/A	N/A	Off	Off	N/A

Definition of abbreviations: ACS = automatic current selection; ASIR = adaptive statistical iterative reconstruction; CT = computed tomography; FOV = field of view; IQ = intelligent quantitation; IRIS = iterative reconstruction in image space; kVp = peak kilovoltage; mAs = milliamperage seconds; N/A = not applicable; RV = residual volume; TLC = total lung capacity.
Standardizing on volumetric computed tomography dose index, protocols were developed for each scanner type within SPIROMICS (Subpopulations and Intermediate Outcome Measures in COPD Study) so as to maximize the similarity of image data across sites. At each of the two lung volumes, the CT protocol specifies the scanner model, scan mode, scan FOV, rotation time, detector configuration, pitch, kVp, mAs, dose modulation setting, reconstruction kernels, post-processing filter settings, slice thickness, slice interval, iterative reconstruction algorithm setting, scan time for 30-cm length, reconstruction mode, smart mA setting, and IQ enhance setting. Effective mAs represents the tube current–time product.

Written directions for the technologist (Appendix 1A and 1B) accompany the patient and include instructions to: (*1*) position the subject at the center of the CT scanner aperture by use of laser beams for left-to-right and ventral-to-dorsal centering, (*2*) scan only the *z*-axis length needed to include the apical to basal extent of the lungs, (*3*) select the display field of view (DFOV) limited to the most lateral extents of the lungs (providing maximal spatial resolution) at TLC and to keep the DFOV the same for TLC (inspiratory volume) and RV (expiratory volume). A consistent DFOV across lung volumes and longitudinally is important for comparison of airway and density metrics.

Breathing/breath-hold instructions (Appendix 2) are supplied within the CT technologist form, and technologists are instructed to coach the subject, as in a pulmonary function testing laboratory, to achieve both TLC and RV with a series of proceeding deep inspirations. Recorded instructions should not be used, as this takes the technologist's attention off of the subject.

At the time of training, it is emphasized that positioning of the patient in the isocenter of the CT scanner aperture is critical, as discussed in the report from the American College of Radiology (ACR) CT accreditation program (24). Isocenter positioning serves to reduce cone-beam and scatter artifacts.

Step 2: CT scanner calibration status. SPIROMICS requires that each scanner pass an initial calibration check. Scanners must have 64 detector rows or higher to provide imaging speeds adequate for a breath-hold. Precertified scanner information must also be preloaded into the QCT-LAS before onset of subject imaging. Each CT manufacturer has their own scanner-specific test object ("phantom") that assesses the calibration of several general scanner parameters, such as the value of water that should be 0 HU. The SPIROMICS CT protocol includes a specialized CT test object (referred to as the "COPDGene 1" test object) developed in the COPDGene study (25). Assurance of measurement stability of a given CT scanner is critical to any quantitative CT effort. If test object Hounsfield unit values shift by more than 3 HU in any material, the site is alerted and action is taken. Guidelines have been developed for the automated assessment of the appropriate positioning of the test object within the scanner to assure that object misalignment is not contributing to measured deviations (26).

Step 3: Scan acquisition and data entry. SPIROMICS developed Procedural Verification Software (PVS) to provide scanner information and track scan data in real time (Figure E2A). PVS provides an automated web portal system requiring a local computer and Internet connection. The main function of PVS is to provide a mechanism for subject registration before scanning and to provide the study coordinator with subject- and scanner-specific scan parameters from the QCT-LAS database using the subject's BMI. In a longitudinal study, such as SPIROMICS, PVS assures that follow-up scans match the baseline scan in terms of scan protocol, including scanning on the same scanner. Details are provided in the online supplement.

Appendix 1

A

CT TECHNOLOGIST INSTRUCTION FORM

SIEMENS DEFINITION AS+ & FLASH SCANNERS

It is important that the patient fully understands the breath hold and scanning procedure and that all concerns are addressed prior to performing the CT scan. If this is a subsequent visit to the baseline visit, participants must be scanned with the same CT acquisition and reconstructions parameters used during the baseline CT visit. Study coordinators will provide the baseline effective mAs and DFOV setting to use for the follow-up visit. All other scan parameters are provided below in Table 1. If you do not have the appropriate baseline information, do not perform the CT scans.

Patient Positioning

- 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 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.

Scan Coverage

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 as shown in figure 1.

- The DFOV should tightly fit the TLC lung as shown in figure 2, then use the TLC DFOV for the RV scan so that all the scan reconstructions have the same DFOV. If this is a subsequent to the baseline visit, participants must have the same diameter field of view (DFOV) used during the baseline CT visit. Again, refer to the study coordinator for this information.

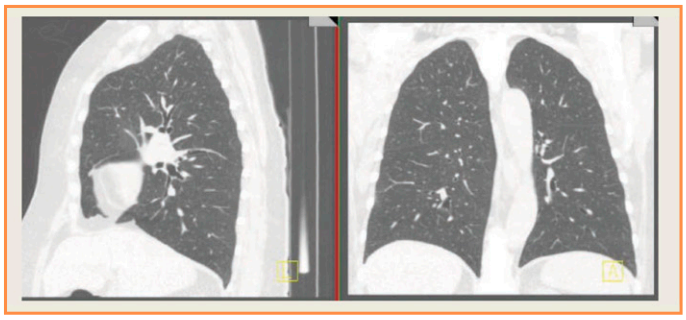


Figure 1

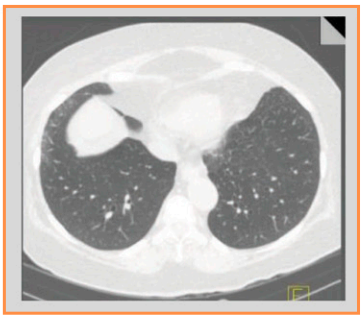


Figure 2

(*A* and *B*) Computed tomography (CT) technologist instruction forms. These forms provide information to ensure the technologists have all the proper information to complete the examinations within the guidelines of the study. The forms are made available through the Procedural Verification Software web system and may be downloaded and printed to take to the scanner room or used for study reference. ALARA = as low as reasonably achievable; DFOV = display field of view; mAs = milliamperage seconds; RV = residual volume; TLC = total lung capacity.

B

CT TECHNOLOGIST INSTRUCTION FORM

SIEMENS DEFINITION AS+ & FLASH SCANNERS

CT Parameters

- The following parameters must be implemented for these CT scans.
- Scout scan uses default parameters (Site discretions on type and number of scouts, however must maintain ALARA principle)

Table 1: CT Protocol Siemens Definition AS+ & FLASH

	INSPIRATION (TLC) EXPIRATION (RV)
Scanner	AS+ & FLASH
Scan Type	Spiral
Rotation Time (s)	0.5
Det. Configuration	128 x 0.6mm
kV	120
Pitch	1.0
Dose Modulation	Off
Recon Algorithm 1	B35
Recon Algorithm 2	B30
Iterative Recon (noise reduction)	Do not use IRIS or SAPHIRE
Thickness (mm)	0.75
Interval (mm)	0.5
Est. Scan Time (Sec) 30cm length	<10

Effective mAs Selection

Small, medium or large effective mAs settings for the SPIROMICS scans are based upon the Body Mass Index (BMI). The BMI must be provided to the technologist to set the effective mAs.

Please use the table below to select the correct mAs setting based on the patient's BMI.

If this is a subsequent visit to the baseline visit, please refer to the study coordinator for the appropriate effective mAs. Do not use these tables for the follow-up scans.

Effective mAs as a function of BMI: TLC Scan

BMI Range	Size	Eff. mAs setting to be used
< 20	Small (S)	85
20-30	Medium (M)	105
> 30	Large (L)	150

Effective mAs as a function of BMI: RV Scan

BMI Range	Size	Eff. mAs setting to be used
< 30	Small (S) Medium (M)	60
> 30	Large (L)	85

Appendix 2

CT TECHNOLOGIST INSTRUCTION FORM

SIEMENS DEFINITION AS+ & FLASH SCANNERS

The following breathing instructions must be given to the patient:

* Bold instructions are what must be said to the subject during CT.

** (italic) information represents reminders directed towards the CT technologist.

SCANNING:

Use the breathing instructions to perform:

- A practice breathing session
- Scouts - as needed - to position the FOV to cover the entire lung and as little soft tissue as possible
- The Inspiration CT scan (TLC)

Inspiratory CT (TLC)

BREATHING INSTRUCTIONS:

For this scan, I am going to ask you to take a couple of deep breaths in and out before we have you breathe all the way in and hold your breath.

Ok, lets get started,

Take a deep breath in *(watch chest to ensure a deep breath in)*

Let it out *(watch chest to ensure air is out)*

Take a deep breath in *(watch chest to ensure a deep breath in)*

Let it out *(watch chest to ensure air is out)*

Now breathe all the way IN...IN...IN *(watch chest to ensure a deep breath in as far as possible)*

Keep holding your breath – DO NOT BREATHE!

At end of scan or practice: - **Breathe and relax**

SCANNING

Use the breathing instructions to perform:

- A practice breathing session
- Scouts - as needed - to position the FOV to cover the entire lung and as little soft tissue as possible
- The Expiration CT scan (RV)

Expiratory CT (RV)

BREATHING INSTRUCTIONS:

For the second part of this scan, I am going to ask you to take a couple of deep breaths in and out before we have you hold your breath all the way out.

Now we're ready again so please,

Take a deep breath in *(watch chest to ensure a deep breath in)*

Let it out *(watch chest to ensure air is out)*

Take a deep breath in *(watch chest to ensure a deep breath in)*

Let it out *(watch chest to ensure air is out)*

Take another deep breath in *(watch chest to ensure a deep breath in)*

Now let it all the way OUT... OUT... OUT... as far as possible and hold it out *(watch chest to ensure all air is out before starting the scan)*

Keep holding your breath – DO NOT BREATHE! *Watch chest to ensure a deep breath as far in as possible, spine remains on the table, patient is not shaking and then start scan and watch for these signs throughout study!)*

Breathe and relax

Each computed tomography (CT) technologist form contains proper breathing instructions for a given site's scanner at the time of scanning the subjects. The form is made available through the Procedural Verification Software web system and may be downloaded and printed to take to the scanner room or used for study reference. FOV = field of view; RV = residual volume; TLC = total lung capacity.

CT Trachea

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

Indications - tracheal stenosis, tracheomalacia, inspiratory/expiratory stridor.
Only use this protocol when ordered/protocoled as such.
Use regular CT chest charges. Do not include a CT neck charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. 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 - hyoid bone through diaphragm (obtained during end inspiration).
Craniocaudal scan coverage:

Supine end inspiration phase - **5 cm above clavicular heads** through **adrenal glands**.

Supine end expiration phase - **5 cm above clavicular heads** through **carina**.

Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
Scan parameters for the supine end inspiratory phase are the same as routine chest protocol.
Scan parameters for the supine end expiratory phase are the same as low-dose chest protocol.
IV Contrast: 100 mL Omnipaque-300, inject at 2 mL/sec, 30 secs scan delay.
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.

CT Trachea

SIEMENS PARAMETERS & RECONS

For the **Supine End Inspiration** phase:

	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 INSP LUNG	3.0	3.0	Br57 / B70f	lung	3	head/feet
AX INSP SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR INSP SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG INSP SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	left/right
AX INSP THINS	1.0	0.8	Br40 / B41f	mediastinum	3	head/feet
AX INSP MIPS	8.0	3.0	Br40 / B41f	lung	3	head/feet

For the **Supine End Expiration** phase:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	**60**	on	NA	1.15	16	0.75	0.5	10.9
Go Up 32	spiral	130	**31**	on	on 80	1.50	32	0.7	0.8	7.1
Sensation 64	spiral	120	**60**	on	NA	1.40	64	0.6	0.5	5.6
Definition 64	spiral	120	**66**	on	on	1.20	64	0.6	0.5	6.5
Go Top 64	spiral	120	**37**	on	on 80	1.20	64	0.6	0.33	2.1
Drive 128	spiral	120	**40**	on	on	1.20	128	0.6	0.5	3.3
Force 192	spiral	110	**31**	on	on	1.20	192	0.5	0.5	2.6

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX EXP LUNG	3.0	3.0	Br57 / B70f	lung	3	head/feet
AX EXP SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

CT Trachea

GE PARAMETERS & RECONS

For the **Supine End Inspiration** phase:

	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	8.2
Opt 540	helical	large	120	100-440	16.36	on	2.5	20	1.375	27.50	0.5	NA	NA	8.2
LS VCT 64	helical	large body	120	100-650	18.38	on	2.5	40	1.375	55.00	0.4	50	50	3.3
Disc VCT 64	helical	large body	120	100-650	18.38	on	2.5	40	1.375	55.00	0.4	NA	NA	3.3

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX LUNG	**2.5**	**2.5**	**lung**	**1600/-600**	**head/feet**
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
AX THINS	1.25	1.0	std full	400/40	head/feet
AX MIPS	8.0	3.0	std full	1600/-600	head/feet

Must be first recon.

For the **Supine End Expiration** phase:

	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	100-300	**25.46**	on	2.5	20	1.375	27.50	0.5	NA	NA	8.2
Opt 540	helical	large	120	100-300	**25.46**	on	2.5	20	1.375	27.50	0.5	NA	NA	8.2
LS VCT 64	helical	large body	120	50-300	**25.46**	on	2.5	40	0.984	39.375	0.5	30	70	5.7
Disc VCT 64	helical	large body	120	50-300	**25.46**	on	2.5	40	0.984	39.375	0.5	NA	NA	5.7

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX LUNG	**2.5**	**2.5**	**lung**	**1600/-600**	**head/feet**
AX SOFT	2.5	2.5	std full	400/40	head/feet

Must be first recon.

CT Trachea

PHILIPS PARAMETERS & RECONS

For the **Supine End Inspiration** phase:

	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	8.4

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
AX THINS	1.0	0.75	B	mediastinum	3	head/feet
AX MIPS	8.0	2.0	B	lung	3	head/feet

For the **Supine End Expiration** phase:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	# Detect	Colli-mation	Rot Time	Scan Time
Incisive 128	helical	120	**55**	19	on	1.00	64	0.625	0.75	8.4

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

CT Esophagram

Updated 03/24/25
Reviewed 05/14/25

Indications - concern for esophageal perforation or fistula.
Use CT Chest w/o Contrast if IV contrast is not given and CT Chest w/ Contrast if IV contrast is given.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. 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 end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
Scan parameters and recons are the same as routine chest protocol.
IV Contrast: 100 mL Omnipaque-300, inject at 2 mL/sec, 30 secs scan delay.
Oral Contrast:

Have the patient drink 8-16 ounces of **Omnipaque** oral contrast immediately before getting on the scanner.
Stop the patient from drinking more contrast if he/she begins to cough or choke.
Do not use **Gastrografin**, **Gastroview** or **barium** contrast even if the order comments say to use one of them.

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
AX THINS	1.0	0.8	Br40 / B41f	mediastinum	3	head/feet
AX MIPS	8.0	3.0	Br40 / B41f	lung	3	head/feet

CT Esophagram

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**
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
AX THINS	1.25	1.0	std full	400/40	head/feet
AX MIPS	8.0	3.0	std full	1600/-600	head/feet

Must be first recon.

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
AX THINS	1.0	0.75	B	mediastinum	3	head/feet
AX MIPS	8.0	2.0	B	lung	3	head/feet

CT Abdomen/Pelvis

Updated 03/09/25
Reviewed 05/14/25

Indications - abdominal pain, nausea, vomiting, constipation, diarrhea, weight loss, fever, metastatic workup, etc.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung bases through pubic symphysis (obtained during end inspiration).
Craniocaudal scan coverage - lung bases through pubic symphysis (obtained during end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec.

70 secs scan delay for most indications.

90 secs scan delay for renal indications like pyelonephritis, renal abscess, renal infarct or renal vein thrombosis. Do not do delayed/excretory phase unless asked to do so.

Oral Contrast: per 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	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	5.0	5.0	Br40 / B41f	mediastinum	3	head/feet
COR SOFT	5.0	5.0	Br40 / B41f	mediastinum	3	front/back
SAG SOFT	5.0	5.0	Br40 / B41f	mediastinum	3	left/right
AX 3s	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX PRE SOFT	5.0	5.0	Br40 / B41f	mediastinum	3	head/feet

CT Abdomen/Pelvis

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	50-440	11.57	on	5	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	11.57	on	5	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	11.57	on	5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	50-650	11.57	on	5	40	1.375	55.00	0.5	NA	NA	4.5

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**5.0**	**5.0**	**std full**	**400/40**	**head/feet**
COR SOFT	5.0	5.0	std full	400/40	front/back
SAG SOFT	5.0	5.0	std full	400/40	left/right
AX 2.5s	2.5	2.5	std full	400/40	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX PRE SOFT	5.0	5.0	std full	400/40	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	115	20	on	1.00	64	0.625	0.75	9.4

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	5.0	5.0	B	mediastinum	3	head/feet
COR SOFT	5.0	5.0	B	mediastinum	3	front/back
SAG SOFT	5.0	5.0	B	mediastinum	3	left/right
AX 3s	3.0	3.0	B	mediastinum	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	5.0	5.0	B	mediastinum	3	head/feet

CT Abdomen

Updated 03/09/25
Reviewed 05/14/25

Indications - abdominal pain, nausea, vomiting, constipation, diarrhea, weight loss, fever, metastatic workup, etc.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung bases to iliac crests (obtained during end inspiration).
Craniocaudal scan coverage - lung bases to iliac crests (obtained during end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
Scan parameters are the same as routine AP protocol.
IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec.

70 secs scan delay for most indications.

90 secs scan delay for renal indications like pyelonephritis, renal abscess, renal infarct or renal vein thrombosis. Do not do delayed/excretory phase unless asked to do so.

Oral Contrast: per 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	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	5.0	5.0	Br40 / B41f	mediastinum	3	head/feet
COR SOFT	5.0	5.0	Br40 / B41f	mediastinum	3	front/back
SAG SOFT	5.0	5.0	Br40 / B41f	mediastinum	3	left/right
AX 3s	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX PRE SOFT	5.0	5.0	Br40 / B41f	mediastinum	3	head/feet

CT Abdomen

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	50-440	11.57	on	5	20	1.375	27.50	0.6	NA	NA	6.5
Opt 540	helical	large	120	50-440	11.57	on	5	20	1.375	27.50	0.6	NA	NA	6.5
LS VCT 64	helical	large body	120	50-650	11.57	on	5	40	1.375	55.00	0.5	50	50	2.7
Disc VCT 64	helical	large body	120	50-650	11.57	on	5	40	1.375	55.00	0.5	NA	NA	2.7

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**5.0**	**5.0**	**std full**	**400/40**	**head/feet**
COR SOFT	5.0	5.0	std full	400/40	front/back
SAG SOFT	5.0	5.0	std full	400/40	left/right
AX 2.5s	2.5	2.5	std full	400/40	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX PRE SOFT	5.0	5.0	std full	400/40	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	115	20	on	1.00	64	0.625	0.75	5.6

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	5.0	5.0	B	mediastinum	3	head/feet
COR SOFT	5.0	5.0	B	mediastinum	3	front/back
SAG SOFT	5.0	5.0	B	mediastinum	3	left/right
AX 3s	3.0	3.0	B	mediastinum	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	5.0	5.0	B	mediastinum	3	head/feet

CT Pelvis (Body)

Updated 03/09/25
Reviewed 05/14/25

Indications - abdominal pain, nausea, vomiting, constipation, diarrhea, weight loss, fever, metastatic workup, etc.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - iliac crests through pubic symphysis (obtained during end inspiration).
Craniocaudal scan coverage - iliac crests through pubic symphysis (obtained during end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
Scan parameters are the same as routine AP protocol.
IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec.

70 secs scan delay for most indications.

Do not do delayed/excretory phase unless asked to do so.

Oral Contrast: generally not needed 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	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
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

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX PRE SOFT	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

CT Pelvis (Body)

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	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	4.4
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	4.4
LS VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	1.8
Disc VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	1.8

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
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

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX PRE SOFT	2.5	2.5	std full	400/40	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	115	20	on	1.00	64	0.625	0.75	3.8

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
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

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	B	mediastinum	3	head/feet

CT Chest/Abdomen/Pelvis

Updated 03/09/25
Reviewed 05/14/25

Indications - pain, weight loss, fever, abscess, cancer staging or follow-up, trauma, etc.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

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

Craniocaudal scan coverage - lung apices through pubic symphysis (obtained during end inspiration).

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

For **16 slice scanners** or if the patient has **difficulty holding his/her breath**, scan the chest by itself then scan the abdomen/pelvis as a separate acquisition.

IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec.

70 secs scan delay for most indications.

90 secs scan delay for renal indications like pyelonephritis, renal abscess, renal infarct or renal vein thrombosis. Do not do delayed/excretory phase unless asked to do so.

Oral Contrast: per 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.

CT Chest/Abdomen/Pelvis

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	20.8
Go Up 32	spiral	130	100	on	on 145	0.80	32	0.7	0.8	35.7
Sensation 64	spiral	120	200	on	NA	1.20	64	0.6	0.5	17.4
Definition 64	spiral	120	210	on	**off**	0.80	64	0.6	0.5	26.0
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.33	8.6
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	17.4
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	11.6

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Anatomy	Recon Direction
AX SOFT CAP	5.0	5.0	Br40 / B41f	mediastinum	3	CAP	head/feet
AX SOFT CAP 3s	3.0	3.0	Br40 / B41f	mediastinum	3	CAP	head/feet
COR SOFT CHEST	5.0	5.0	Br40 / B41f	mediastinum	3	chest	front/back
SAG SOFT CHEST	5.0	5.0	Br40 / B41f	mediastinum	3	chest	left/right
COR SOFT ABD/PEL	5.0	5.0	Br40 / B41f	mediastinum	3	abd/pel	front/back
SAG SOFT ABD/PEL	5.0	5.0	Br40 / B41f	mediastinum	3	abd/pel	left/right
AX LUNG	3.0	3.0	Br57 / B70f	lung	3	chest	head/feet
AX THINS CHEST	1.0 2.0 (16 slice)	1.0 2.0 (16 slice)	Br40 / B41f	mediastinum	3	chest	head/feet
AX MIPS CHEST	8.0	3.0	Br40 / B41f	lung	3	chest	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE CAP	5.0	5.0	Br40 / B41f	mediastinum	3	CAP	head/feet

CT Chest/Abdomen/Pelvis

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	11.57	on	5	20	1.375	27.50	0.5	NA	NA	14.5
Opt 540	helical	large	120	100-440	11.57	on	5	20	1.375	27.50	0.5	NA	NA	14.5
LS VCT 64	helical	lrg body	120	100-650	11.57	on	5	40	1.375	55.00	0.5	50	50	7.3
Disc VCT 64	helical	lrg body	120	100-650	11.57	on	5	40	1.375	55.00	0.5	NA	NA	7.3

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Anatomy	Recon Direction
AX SOFT CAP	**5.0**	**5.0**	**std full**	**400/40**	**CAP**	**head/feet**

This must be the first recon for the prescribed Noise Index to be valid.

AX SOFT CAP 2.5s	2.5	2.5	std full	400/40	CAP	head/feet
COR SOFT CHEST	5.0	5.0	std full	400/40	chest	front/back
SAG SOFT CHEST	5.0	5.0	std full	400/40	chest	left/right
COR SOFT ABD/PEL	5.0	5.0	std full	400/40	abd/pel	front/back
SAG SOFT ABD/PEL	5.0	5.0	std full	400/40	abd/pel	left/right
AX LUNG	2.5	2.5	lung	1600/-600	chest	head/feet
AX THINS CHEST	1.25	1.0	std full	400/40	chest	head/feet
AX MIPS CHEST	8.0	3.0	std full	1600/-600	chest	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE CAP	5.0	5.0	std full	400/40	CAP	head/feet

CT Chest/Abdomen/Pelvis

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	15.0

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Anatomy	Recon Direction
AX SOFT CAP	5.0	5.0	B	mediastinum	3	CAP	head/feet
AX SOFT CAP 3s	3.0	3.0	B	mediastinum	3	CAP	head/feet
COR SOFT CHEST	5.0	5.0	B	mediastinum	3	chest	front/back
SAG SOFT CHEST	5.0	5.0	B	mediastinum	3	chest	left/right
COR SOFT ABD/PEL	5.0	5.0	B	mediastinum	3	abd/pel	front/back
SAG SOFT ABD/PEL	5.0	5.0	B	mediastinum	3	abd/pel	left/right
AX LUNG	3.0	3.0	YA	lung	3	chest	head/feet
AX THINS	1.0	0.8	B	mediastinum	3	chest	head/feet
AX MIPS CHEST	8.0	3.0	B	lung	3	chest	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	5.0	5.0	B	mediastinum	3	CAP	head/feet

CT Chest/Abdomen

Updated 03/09/25
Reviewed 05/14/25

Indications - pain, weight loss, fever, abscess, cancer staging or follow-up, trauma, etc.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

Topogram - lung apices to iliac crests (obtained during end inspiration).

Craniocaudal scan coverage - lung apices to iliac crests (obtained during end inspiration).

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

Scan parameters are the same as routine CAP protocol.

For **16 slice scanners** or if the patient has **difficulty holding his/her breath**, scan the chest by itself then scan the abdomen/pelvis as a separate acquisition.

IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec.

70 secs scan delay for most indications.

90 secs scan delay for renal indications like pyelonephritis, renal abscess, renal infarct or renal vein thrombosis. Do not do delayed/excretory phase unless asked to do so.

Oral Contrast: per 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.

CT Chest/Abdomen

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	20.8
Go Up 32	spiral	130	100	on	on 145	0.80	32	0.7	0.8	35.7
Sensation 64	spiral	120	200	on	NA	1.20	64	0.6	0.5	17.4
Definition 64	spiral	120	210	on	**off**	0.80	64	0.6	0.5	26.0
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.33	8.6
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	17.4
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	11.6

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Anatomy	Recon Direction
AX SOFT CHEST/ABD	5.0	5.0	Br40 / B41f	mediastinum	3	chest/abd	head/feet
AX SOFT CHEST/ABD 3s	3.0	3.0	Br40 / B41f	mediastinum	3	chest/abd	head/feet
COR SOFT CHEST/ABD	5.0	5.0	Br40 / B41f	mediastinum	3	chest/abd	front/back
SAG SOFT CHEST/ABD	5.0	5.0	Br40 / B41f	mediastinum	3	chest/abd	left/right
AX LUNG	3.0	3.0	Br57 / B70f	lung	3	chest	head/feet
AX THINS CHEST	1.0 2.0 (16 slice)	1.0 2.0 (16 slice)	Br40 / B41f	mediastinum	3	chest	head/feet
AX MIPS CHEST	8.0	3.0	Br40 / B41f	lung	3	chest	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE CHEST/ABD	5.0	5.0	Br40 / B41f	mediastinum	3	chest/abd	head/feet

CT Chest/Abdomen

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	11.57	on	5	20	1.375	27.50	0.5	NA	NA	10.9
Opt 540	helical	large	120	100-440	11.57	on	5	20	1.375	27.50	0.5	NA	NA	10.9
LS VCT 64	helical	large body	120	100-650	11.57	on	5	40	1.375	55.00	0.5	50	50	5.5
Disc VCT 64	helical	large body	120	100-650	11.57	on	5	40	1.375	55.00	0.5	NA	NA	5.5

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Anatomy	Recon Direction
AX SOFT CHEST/ABD	**5.0**	**5.0**	**std full**	**400/40**	**chest/abd**	**head/feet**

This must be the first recon for the prescribed Noise Index to be valid.

AX SOFT CHEST/ABD 2.5s	2.5	2.5	std full	400/40	chest/abd	head/feet
COR SOFT CHEST/ABD	5.0	5.0	std full	400/40	chest/abd	front/back
SAG SOFT CHEST/ABD	5.0	5.0	std full	400/40	chest/abd	left/right
AX LUNG	2.5	2.5	lung	1600/-600	chest	head/feet
AX THINS CHEST	1.25	1.0	std full	400/40	chest	head/feet
AX MIPS CHEST	8.0	3.0	std full	400/40	chest	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE CHEST/ABD	5.0	5.0	std full	400/40	chest/abd	head/feet

CT Chest/Abdomen

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	11.3

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Anatomy	Recon Direction
AX SOFT CHEST/ABD	5.0	5.0	B	mediastinum	3	chest/abd	head/feet
AX SOFT CHEST/ABD 3s	3.0	3.0	B	mediastinum	3	chest/abd	head/feet
COR SOFT CHEST/ABD	5.0	5.0	B	mediastinum	3	chest/abd	front/back
SAG SOFT CHEST/ABD	5.0	5.0	B	mediastinum	3	chest/abd	left/right
AX LUNG	3.0	3.0	YA	lung	3	chest	head/feet
AX MIPS CHEST	8.0	3.0	B	lung	3	chest	head/feet
AX THINS	1.0	0.8	B	mediastinum	3	chest	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE CHEST/ABD	5.0	5.0	B	mediastinum	3	chest/abd	head/feet

CT Enterography Single-Phase

Updated 03/09/25
Reviewed 05/14/25

Indications - inflammatory bowel disease, Crohn's disease, ulcerative colitis, chronic abdominal pain or order for Enterography that doesn't specify multi-phase protocol.

Use CT Enterography charge (do not use CT Abdomen/Pelvis w/o + w/ Contrast charge).

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

Topogram - lung bases through pubic symphysis (obtained during end inspiration).

Craniocaudal scan coverage - lung bases through pubic symphysis (obtained during end inspiration).

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

Scan parameters are the same as routine AP protocol.

IV Contrast:

Administer weight-based **Omnipaque-300** - **1 mL/kg** up to **150 mL** (100 mL minimum).

Inject at **3 mL/sec** followed by 40 mL saline flush.

Oral Contrast:

Oral CitraSelect or Volumen 450 mL bottle - 1 bottle 45 mins, 1 bottle 30 mins and 1 bottle 15 mins prior to scan.

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	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

VENOUS PHASE (70 secs)

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	left/right

CT Enterography Single-Phase

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	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	4.5

VENOUS PHASE (70 secs)

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX VENOUS	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR VENOUS	2.5	2.5	std full	400/40	front/back
SAG VENOUS	2.5	2.5	std full	400/40	left/right

Must be first recon.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	9.4

VENOUS PHASE (70 secs)

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX VENOUS	3.0	3.0	B	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	B	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	B	mediastinum	3	left/right

CT Enterography Multi-Phase

Updated 03/09/25
Reviewed 05/14/25

Indications - small bowel or colonic tumor or occult (non acute) GI bleeding.
Use CT Enterography charge (do not use CT Abdomen/Pelvis w/o + w/ Contrast charge).

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung bases through pubic symphysis (obtained during end inspiration).
Craniocaudal scan coverage - lung bases through pubic symphysis on all phases (obtained during end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
Scan parameters are the same as routine AP protocol for all phases.
IV Contrast:

Administer weight-based **Omnipaque-300** - **1 mL/kg** up to **150 mL** (100 mL minimum).
Inject at **3 mL/sec** followed by 40 mL saline flush.

Oral Contrast:

Oral CitraSelect or Volumen 450 mL bottle - 1 bottle 45 mins, 1 bottle 30 mins and 1 bottle 15 mins prior to scan.

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.

CT Enterography Multi-Phase

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast**, **Enteric (45 secs)** and **Venous (70 secs)** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR PRE	3.0	3.0	Br40 / B41f	mediastinum	3	front/back

ENTERIC PHASE (45 secs)

AX ENTERIC	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR ENTERIC	3.0	3.0	Br40 / B41f	mediastinum	3	front/back

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	left/right

CT Enterography Multi-Phase

GE PARAMETERS & RECONS

For the **Pre Contrast**, **Enteric (45 secs)** and **Venous (70 secs)** phases:

	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	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	4.5

PRE CONTRAST PHASE

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR PRE	2.5	2.5	std full	400/40	front/back

Must be first recon.

ENTERIC PHASE (45 secs)

AX ENTERIC	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR ENTERIC	2.5	2.5	std full	400/40	front/back

Must be first recon.

VENOUS PHASE (70 secs)

AX VENOUS	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR VENOUS	2.5	2.5	std full	400/40	front/back
SAG VENOUS	2.5	2.5	std full	400/40	left/right

Must be first recon.

CT Enterography Multi-Phase

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast**, **Enteric (45 secs)** and **Venous (70 secs)** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	9.4

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	head/feet
COR PRE	3.0	3.0	B	mediastinum	3	front/back

ENTERIC PHASE (45 secs)

AX ENTERIC	3.0	3.0	B	mediastinum	3	head/feet
COR ENTERIC	3.0	3.0	B	mediastinum	3	front/back

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	B	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	B	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	B	mediastinum	3	left/right

CTA Mesenteric Ischemia

Updated 03/09/25
Reviewed 05/14/25

Indications - mesenteric ischemia, celiac or superior mesenteric artery stenosis, chronic abdominal pain, abdominal pain after eating, intestinal/mesenteric angina.

Use CT Angio Combo AP w/ + w/o Contrast charge. Do not use CT AP w/ + w/o Contrast charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

Topogram - lung bases through pubic symphysis (obtained during end inspiration).

Craniocaudal scan coverage - lung bases through pubic symphysis on all phases (obtained during end inspiration).

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

IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **150 mL** (100 mL minimum).

Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

Bolus track off proximal abdominal aorta triggered at **120 HU**.

Oral Contrast:

If the patient can tolerate, give him/her 24 oz water 30 mins prior to imaging.

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.

CTA Mesenteric Ischemia

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast** and **Venous (70 secs)** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

For the **Arterial** phase:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	0.75	0.5	26.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	64	0.6	0.5	5.4
Definition 64	spiral	120	180	on	on	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

ARTERIAL PHASE

AX ARTERIAL	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
SAG ARTERIAL	3.0	3.0	Br40 / B41f	mediastinum	3	left/right
AX ART MIPS	5.0	3.0	Br40 / B41f	mediastinum	3	head/feet
3D VRT (& spin)	0.75	0.5	Bf37f / B31f	CT angio		

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	left/right

CTA Mesenteric Ischemia

GE PARAMETERS & RECONS

For the **Pre Contrast**, **Arterial** and **Venous (70 secs)** phases:

	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	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	4.5

PRE CONTRAST PHASE

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**

Must be first recon.

ARTERIAL PHASE

AX ARTERIAL	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
SAG ARTERIAL	2.5	2.5	std full	400/40	left/right
AX ART MIPS	5.0	3.0	std full	400/40	head/feet
3D VRT (spin)	0.625	0.625	std full	400/40	

Must be first recon.

VENOUS PHASE (70 secs)

AX VENOUS	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR VENOUS	2.5	2.5	std full	400/40	front/back
SAG VENOUS	2.5	2.5	std full	400/40	left/right

Must be first recon.

CTA Mesenteric Ischemia

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast**, **Arterial** and **Venous (70 secs)** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	9.4

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	head/feet

ARTERIAL PHASE

AX ARTERIAL	3.0	3.0	B	mediastinum	3	head/feet
SAG ARTERIAL	3.0	3.0	B	mediastinum	3	left/right
AX ART MIPS	5.0	3.0	B	mediastinum	3	head/feet
3D VRT (spin)	0.75	0.5	B			

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	B	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	B	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	B	mediastinum	3	left/right

CTA Acute Bleed

Updated 03/09/25
Reviewed 05/14/25

Indications - acute GI bleeding, bright red blood per rectum, hematochezia, hematemesis.

This protocol can be used for acute bleeding in the chest, abdomen, pelvis or extremities.

Use CT Angio charges. Do not use CT without and with charges.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

Topogram - lung bases through pubic symphysis (obtained during end inspiration).

Craniocaudal scan coverage - lung bases through pubic symphysis on all phases (obtained during end inspiration).

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

IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **150 mL** (100 mL minimum).

Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

Bolus track off proximal abdominal aorta triggered at **150 HU** + **10 secs**.

The delay phase has been removed from this protocol.

Oral 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.

CTA Acute Bleed

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast** and **Venous (70 secs)** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

For the **Arterial** phase:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	0.75	0.5	26.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	64	0.6	0.5	5.4
Definition 64	spiral	120	180	on	on	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

ARTERIAL PHASE

AX ARTERIAL	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
SAG ARTERIAL	3.0	3.0	Br40 / B41f	mediastinum	3	left/right
COR ART MIPS	5.0	3.0	Br40 / B41f	mediastinum	3	front/back
3D VRT (& spin)	0.75	0.5	Bv36 / B31f	CT angio		

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	left right

CTA Acute Bleed

GE PARAMETERS & RECONS

For the **Pre Contrast**, **Arterial** and **Venous (70 secs)** phases:

	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	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	4.5

PRE CONTRAST PHASE

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**

Must be first recon.

ARTERIAL PHASE

AX ARTERIAL	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
SAG ARTERIAL	2.5	2.5	std full	400/40	left/right
COR ART MIPS	5.0	3.0	std full	400/40	front/back
3D VRT (spin)	0.625	0.625	std full	400/40	

Must be first recon.

VENOUS PHASE (70 secs)

AX VENOUS	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR VENOUS	2.5	2.5	std full	400/40	front/back
SAG VENOUS	2.5	2.5	std full	400/40	left/right

Must be first recon.

CTA Acute Bleed

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast**, **Arterial** and **Venous (70 secs)** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	9.4

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	head/feet

ARTERIAL PHASE

AX ARTERIAL	3.0	3.0	B	mediastinum	3	head/feet
SAG ARTERIAL	3.0	3.0	B	mediastinum	3	left/right
COR ART MIPS	5.0	3.0	B	mediastinum	3	front/back
3D VRT (spin)	0.75	0.5	B			

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	B	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	B	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	B	mediastinum	3	left/right

CT Liver

Updated 03/09/25
Reviewed 05/14/25

Indications - abnormal LFTs, jaundice, biliary dilatation, cirrhosis, chronic liver disease, liver mass, hepatocellular carcinoma, cholangiocarcinoma, hepatitis B or C.

Use regular CT without and with charges. Do not use CT Angio charges.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

Topogram - lung bases through pubic symphysis (obtained during end inspiration).

Craniocaudal scan coverage:

Pre contrast - **abdomen only** (lung bases to iliac crests) (obtained during end inspiration).

Arterial phase - **abdomen only** (lung bases to iliac crests) (obtained during end inspiration).

Venous phase - **abdomen/pelvis** (lung bases through pubic symphysis) (obtained during end inspiration).

Delay phase - **abdomen only** (lung bases to iliac crests) (obtained during end inspiration).

If only the abdomen is ordered, only image the abdomen regardless of what CC coverage above indicates.

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

IV Contrast:

Administer weight-based **Omnipaque-300** - **1 mL/kg** up to **150 mL** (100 mL minimum).

Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

Bolus track off proximal abdominal aorta triggered at **150 HU** + **15 secs**.

Oral Contrast: generally 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.

CT Liver

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast**, **Arterial**, **Venous (70 secs)** and **Delay (5 mins)** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

PRE CONTRAST

Name of Series	Thick	Interval	Kernel	IR Lvl	Window	Recon Direction
AX PRE	3.0	3.0	Br40 / B41f	3	mediastinum	head/feet
COR PRE	3.0	3.0	Br40 / B41f	3	mediastinum	front/back

LATE ARTERIAL PHASE

AX LATE ART	3.0	3.0	Br40 / B41f	3	mediastinum	head/feet
COR LATE ART	3.0	3.0	Br40 / B41f	3	mediastinum	front/back

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	Br40 / B41f	3	mediastinum	head/feet
COR VENOUS	3.0	3.0	Br40 / B41f	3	mediastinum	front/back
SAG VENOUS	3.0	3.0	Br40 / B41f	3	mediastinum	left/right

DELAY PHASE (5 mins)

AX DELAY	3.0	3.0	Br40 / B41f	3	mediastinum	head/feet
COR DELAY	3.0	3.0	Br40 / B41f	3	mediastinum	front/back

CT Liver

GE PARAMETERS & RECONS

For the **Pre Contrast**, **Arterial**, **Venous (70 secs)** and **Delay (5 mins)** phases:

	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	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	4.5

PRE CONTRAST

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	
COR PRE	2.5	2.5	std full	400/40	front/back	**Must be first recon.**

LATE ARTERIAL PHASE

AX LATE ART	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**
COR LATE ART	2.5	2.5	std full	400/40	front/back	

VENOUS PHASE (70 secs)

AX VENOUS	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**
COR VENOUS	2.5	2.5	std full	400/40	front/back	
SAG VENOUS	2.5	2.5	std full	400/40	left/right	

DELAY PHASE (5 mins)

AX DELAY	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**
COR DELAY	2.5	2.5	std full	400/40	front/back	

CT Liver

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast**, **Arterial**, **Venous (70 secs)** and **Delay (5 mins)** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	9.4

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	head/feet
COR PRE	3.0	3.0	B	mediastinum	3	front/back

ARTERIAL PHASE

AX LATE ART	3.0	3.0	B	mediastinum	3	head/feet
COR LATE ART	3.0	3.0	B	mediastinum	3	front/back

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	B	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	B	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	B	mediastinum	3	left/right

DELAY PHASE (5 mins)

AX DELAY	3.0	3.0	B	mediastinum	3	head/feet
COR DELAY	3.0	3.0	B	mediastinum	3	front/back

CTA Liver Pre-SIRT

Updated 03/09/25
Reviewed 05/14/25

Indications - pre procedure planning for radioembolization of liver mass.
Use CT Angio Combo AP w/ + w/o Contrast charge. Do not use CT AP w/ + w/o Contrast charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung bases through pubic symphysis (obtained during end inspiration).
Craniocaudal scan coverage - Lung bases through pubic symphysis on both phases (obtained during end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **150 mL** (100 mL minimum).
Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.
Bolus track off proximal abdominal aorta triggered at **100 HU**.

Oral Contrast: generally 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.

CTA Liver Pre-SIRT

SIEMENS PARAMETERS & RECONS

For the **Arterial** phase:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	0.75	0.5	26.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	64	0.6	0.5	5.4
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

For the **Venous (70 secs)** phase:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	on	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

ARTERIAL PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX ARTERIAL	1.0	1.0	Br40 / B41f	mediastinum	3	head/feet
3D VRT (& spin)	0.75	0.5	Bv36 / B31f	CT angio		

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	left/right
AX VENOUS THINS	1.0	1.0	Br40 / B41f	mediastinum	3	head/feet

Volume series on whole liver and on right lobe only.

CTA Liver Pre-SIRT

GE PARAMETERS & RECONS

For the **Arterial** phase:

	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	50-440	23.14	on	1.25	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	23.14	on	1.25	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	23.14	on	1.25	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	50-650	23.14	on	1.25	40	1.375	55.00	0.5	NA	NA	4.5

For the **Venous (70 secs)** phase:

	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	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	lrg body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	lrg body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	4.5

ARTERIAL PHASE

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX ARTERIAL	**1.25**	**1.25**	**std full**	**400/40**	**head/feet**
3D VRT (& spin)	0.625	0.625	std full	400/40	

Must be first recon.

VENOUS PHASE (70 secs)

AX VENOUS	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR VENOUS	2.5	2.5	std full	400/40	front/back
SAG VENOUS	2.5	2.5	std full	400/40	left/right
AX VENOUS THINS	1.25	1.25	std full	400/40	head/feet

Must be first recon.

Volume series on whole liver and on right lobe only.

CTA Liver Pre-SIRT

PHILIPS PARAMETERS & RECONS

For the **Arterial** and **Venous (70 secs)** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	9.4

ARTERIAL PHASE

AX ARTERIAL	1.0	1.0	B	mediastinum	3	head/feet
3D VRT (spin)	0.75	0.5	B			

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	B	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	B	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	B	mediastinum	3	left/right
AX VENOUS THINS	1.0	1.0	B	mediastinum	3	head/feet

Volume series on whole liver and on right lobe only.

CT Pancreas

Updated 03/09/25
Reviewed 05/14/25

Indications - pancreatic mass, pancreatic duct dilatation, biliary dilatation, chronic pancreatitis, status post Whipple or distal pancreatectomy.

Use CT AP w/ + w/o Contrast charge. Do not use CT Angio Combo AP w/ + w/o Contrast charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

Topogram - Lung bases through pubic symphysis (obtained during end inspiration).

Craniocaudal scan coverage:

Pre contrast - **abdomen only** (lung bases to iliac crests) (obtained during end inspiration).

Arterial phase - **abdomen only** (lung bases to iliac crests) (obtained during end inspiration).

Venous phase - **abdomen/pelvis** (lung bases through pubic symphysis) (obtained during end inspiration).

Delay phase - **abdomen only** (lung bases to iliac crests) (obtained during end inspiration).

If only the abdomen is ordered, only image the abdomen regardless of what coverage areas below indicate.

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

IV Contrast:

Administer weight-based **Omnipaque-300** - **1 mL/kg** up to **150 mL** (100 mL minimum).

Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

Bolus track off proximal abdominal aorta triggered at **150 HU** + **15 secs**.

Oral Contrast:

Patient receives 16 oz water 20 mins prior to exam and 8-16 oz more just before getting on the scanner.
If patient has undergone prior pancreas surgery, use regular water-soluble contrast instead with same timing.

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.

CT Pancreas

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast**, **Arterial**, **Venous (70 secs)** and **Delay (5 mins)** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

LATE ARTERIAL PHASE

AX LATE ART	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR LATE ART	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG LATE ART	3.0	3.0	Br40 / B41f	mediastinum	3	left/right

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	left/right

DELAY PHASE (5 mins)

AX DELAY	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

CT Pancreas

GE PARAMETERS & RECONS

For the **Pre Contrast**, **Arterial**, **Venous (70 secs)** and **Delay (5 mins)** phases:

	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	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	4.5

PRE CONTRAST PHASE

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**

LATE ARTERIAL PHASE

AX LATE ART	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**
COR LATE ART	2.5	2.5	std full	400/40	front/back	
SAG LATE ART	2.5	2.5	std full	400/40	left/right	

VENOUS PHASE (70 secs)

AX VENOUS	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**
COR VENOUS	2.5	2.5	std full	400/40	front/back	
SAG VENOUS	2.5	2.5	std full	400/40	left/right	

DELAY PHASE (5 mins)

AX DELAY	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**

CT Pancreas

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast**, **Arterial**, **Venous (70 secs)** and **Delay (5 mins)** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	9.4

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	head/feet

ARTERIAL PHASE

AX LATE ART	3.0	3.0	B	mediastinum	3	head/feet
COR LATE ART	3.0	3.0	B	mediastinum	3	front/back
SAG LATE ART	3.0	3.0	B	mediastinum	3	left/right

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	B	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	B	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	B	mediastinum	3	left/right

DELAY PHASE (5 mins)

AX DELAY	3.0	3.0	B	mediastinum	3	head/feet

CT Pancreatitis

Updated 03/09/25
Reviewed 05/14/25

Indications - acute pancreatitis, pancreatic hemorrhage or necrosis, peripancreatic fluid collection.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung bases through pubic symphysis (obtained during end inspiration).
Craniocaudal scan coverage:

Pre contrast - **abdomen only** (lung bases to iliac crests) (obtained during end inspiration).

Venous phase - **abdomen/pelvis** (lung bases through pubic symphysis) (obtained during end inspiration).

If only the abdomen is ordered, only image the abdomen regardless of what coverage areas below indicate.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast:

Administer weight-based **Omnipaque-300** - **1 mL/kg** up to **150 mL** (100 mL minimum).

Inject at **3 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

Oral Contrast:

Give routine oral contrast 45 mins before and another 8 oz cup 5 mins before patient gets on scanner.

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.

CT Pancreatitis

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast** and **Venous (70 secs)** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	left/right

CT Pancreatitis

GE PARAMETERS & RECONS

For the **Pre Contrast** and **Venous (70 secs)** phases:

	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	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	4.5

PRE CONTRAST PHASE

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**

Must be first recon.

VENOUS PHASE (70 secs)

AX VENOUS	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR VENOUS	2.5	2.5	std full	400/40	front/back
SAG VENOUS	2.5	2.5	std full	400/40	left/right

Must be first recon.

CT Pancreatitis

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast** and **Venous (70 secs)** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	9.4

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	head/feet

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	B	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	B	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	B	mediastinum	3	left/right

CT Adrenal

Updated 03/09/25
Reviewed 05/14/25

Indications - adrenal mass/adenoma/pheochromocytoma/hemorrhage, abnormal endocrine function, hyperaldosteronism, hypercortisolism, Cushing's disease.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung bases through pubic symphysis (obtained during end inspiration).
Craniocaudal scan coverage:

Pre contrast - **abdomen only** (lung bases to iliac crests) (obtained during end inspiration).
Venous phase - **abdomen/pelvis** (lung bases through pubic symphysis) (obtained during end inspiration).
Delay phase - **abdomen only** (lung bases to iliac crests) (obtained during end inspiration).

If only the abdomen is ordered, only image the abdomen regardless of what coverage areas below indicate.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast:

Administer weight-based **Omnipaque-300** - **1 mL/kg** up to **150 mL** (100 mL minimum).
Inject at **3 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

Oral Contrast: generally not given for this protocol.

After the pre contrast scan:

Send the pre contrast recons to PACS then have an Rad check the images. If there is no mass or the mass has a HU <10, then it is very likely a benign adenoma and the SCAN CAN BE STOPPED HERE.
Also if mass has been evaluated with CT or MRI before, check with a Rad to see if a full protocol needs to be performed. Usually don't need repeated full protocols on adrenal masses.

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.

CT Adrenal

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast** phase:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	0.75	0.5	15.6
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	13.4
Sensation 64	spiral	120	200	on	NA	1.20	64	0.6	0.5	3.3
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	13.0
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	4.9
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	6.5
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	4.3

For the **Venous (60 secs)** & **Delay (15 mins)** phase:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	on	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR PRE	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
AX PRE THINS	1.0	1.0	Br40 / B41f	mediastinum	3	head/feet

VENOUS PHASE (60 secs)

AX 60 SECS	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR 60 SECS	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG 60 SECS	3.0	3.0	Br40 / B41f	mediastinum	3	left/right

DELAY PHASE (15 mins)

AX 15 MINS	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

CT Adrenal

GE PARAMETERS & RECONS

For the **Pre Contrast**, **Venous (60 secs)** & **Delay (15 mins)** phases:

	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	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	4.5

PRE CONTRAST PHASE

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**
COR PRE	2.5	2.5	std full	400/40	front/back	
AX THINS	1.25	1.25	std full	400/40	head/feet	

VENOUS PHASE (60 secs)

AX 60 SECS	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**
COR 60 SECS	2.5	2.5	std full	400/40	front/back	
SAG 60 SECS	2.5	2.5	std full	400/40	left/right	

DELAY PHASE (15 mins)

AX 15 MINS	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**

CT Adrenal

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast**, **Venous (60 secs)** & **Delay (15 mins)** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	9.4

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	head/feet
COR PRE	3.0	3.0	B	mediastinum	3	front/back
AX PRE THINS	1.0	1.0	B	mediastinum	3	head/feet

VENOUS PHASE (70 secs)

AX 60 SECS	3.0	3.0	B	mediastinum	3	head/feet
COR 60 SECS	3.0	3.0	B	mediastinum	3	front/back
SAG 60 SECS	3.0	3.0	B	mediastinum	3	left/right

DELAY PHASE (15 mins)

AX 15 MINS	3.0	3.0	B	mediastinum	3	head/feet

CT Renal

Updated 03/09/25
Reviewed 05/14/25

Indications - renal mass.
Use CT AP w/ + w/o Contrast charge. Do not use CT Angio Combo AP w/ + w/o Contrast charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung bases through pubic symphysis (obtained during end inspiration).
Craniocaudal scan coverage:

Pre contrast - **abdomen only** (lung bases to iliac crests) (obtained during end inspiration).
Arterial phase - **abdomen only** (lung bases to iliac crests) (obtained during end inspiration).
Nephrographic phase - **abdomen/pelvis** (lung bases through pubic symphysis) (obtained during end inspiration).
Excretory phase - **abdomen only** (lung bases to iliac crests) (obtained during end inspiration).

If only the abdomen is ordered, only image the abdomen regardless of what coverage areas below indicate.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast:

Administer weight-based **Omnipaque-300** - **1 mL/kg** up to **150 mL** (100 mL minimum).
Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.
Bolus track off proximal abdominal aorta triggered at **150 HU + 15 secs**.

Oral Contrast: generally 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.

CT Renal

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast**, **Arterial**, **Nephrographic (90 secs)** and **Excretory (5 mins)** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

LATE ARTERIAL PHASE

AX LATE ART	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR LATE ART	3.0	3.0	Br40 / B41f	mediastinum	3	front/back

NEPHROGRAPHIC PHASE (90 secs)

AX NEPRHO	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR NEPRHO	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG NEPRHO	3.0	3.0	Br40 / B41f	mediastinum	3	left/right

EXCRETORY PHASE (5 mins)

AX EXCRETE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR EXCRETE	3.0	3.0	Br40 / B41f	mediastinum	3	front/back

CT Renal

GE PARAMETERS & RECONS

For the **Pre Contrast**, **Arterial**, **Nephrographic (90 secs)** and **Excretory (5 mins)** phases:

	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	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	4.5

PRE CONTRAST PHASE

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**

Must be first recon.

LATE ARTERIAL PHASE

AX LATE ART	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR LATE ART	2.5	2.5	std full	400/40	front/back

Must be first recon.

NEPHROGRAPHIC PHASE (90 secs)

AX NEPRHO	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR NEPRHO	2.5	2.5	std full	400/40	front/back
SAG NEPRHO	2.5	2.5	std full	400/40	left/right

Must be first recon.

EXCRETORY PHASE (5 mins)

AX EXCRETE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR EXCRETE	2.5	2.5	std full	400/40	front/back

Must be first recon.

CT Renal

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast**, **Arterial**, **Nephrographic (90 secs)** and **Excretory (5 mins)** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	5.6

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	head/feet

ARTERIAL PHASE

AX LATE ART	3.0	3.0	B	mediastinum	3	head/feet
COR LATE ART	3.0	3.0	B	mediastinum	3	front/back

VENOUS PHASE (70 secs)

AX NEPHRO	3.0	3.0	B	mediastinum	3	head/feet
COR NEPHRO	3.0	3.0	B	mediastinum	3	front/back
SAG NEPHRO	3.0	3.0	B	mediastinum	3	left/right

DELAY PHASE (5 mins)

AX EXCRETE	3.0	3.0	B	mediastinum	3	head/feet
COR EXCRETE	3.0	3.0	B	mediastinum	3	front/back

CT Renal Stone

Updated 03/09/25
Reviewed 05/14/25

Only use this protocol if protocoled by a Rad or specifically ordered as low-dose renal stone.
This is not the renal stone protocol CT ordered out of the ER. Order must specify **low-dose**.
Use CT Abdomen/Pelvis without IV Contrast charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung bases through pubic symphysis (obtained during end inspiration).
Craniocaudal scan coverage - lung bases through pubic symphysis (obtained during end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast: not given for this protocol.
Oral 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	**120**	on	NA	0.80	16	1.5	0.5	7.8
Go Up 32	spiral	130	**55**	on	on 145	0.80	32	0.7	0.8	13.4
Sensation 64	spiral	120	**120**	on	NA	1.20	24	1.2	0.5	4.3
Definition 64	spiral	120	**108**	on	**off**	0.60	64	0.6	0.5	13.0
Go Top 64	spiral	120	**67**	on	on 145	0.80	64	0.6	0.5	4.9
Drive 128	spiral	120	**88**	on	on	0.60	128	0.6	0.5	6.5
Force 192	spiral	120	**88**	on	on	0.60	192	0.6	0.5	4.3

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
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

CT Renal Stone

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	50-440	**25.87**	on	**2.5**	50	1.375	27.5	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	**25.87**	on	**2.5**	50	1.375	27.5	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	**18.95**	on	**2.5**	40	1.375	55.0	0.5	30	70	4.5
Disc VCT 64	helical	large body	120	50-650	**18.95**	on	**2.5**	40	1.375	55.0	0.5	NA	NA	4.5

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
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

Must be first recon.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	**69**	20	on	1.00	64	0.625	0.75	9.4

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
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

CT Urogram Routine

Updated 03/09/25
Reviewed 05/14/25

Indications - hematuria, renal/ureteral stones/calculi, nephrolithiasis, hydronephrosis, hydroureter, chronic urinary tract infection, urothelial malignancy.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

Topogram - lung bases through pubic symphysis (obtained during end inspiration).

Craniocaudal scan coverage - lung bases through pubic symphysis on all phases (obtained during end inspiration).

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

IV Contrast:

Administer weight-based **Omnipaque-300** - **1 mL/kg** up to **150 mL** (100 mL minimum).

Inject at **2.5 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

Oral contrast:

Give patient 32 oz water 30 mins prior to imaging.

Tell patient not to use the restroom prior to scan. The bladder needs to be distended for the best study.

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.

CT Urogram Routine

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast**, **Nephrographic (90 secs)** and **Excretory (5 mins)** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR PRE	3.0	3.0	Br40 / B41f	mediastinum	3	front/back

NEPHROGRAPHIC PHASE (90 secs)

AX NEPRHO	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR NEPRHO	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG NEPRHO	3.0	3.0	Br40 / B41f	mediastinum	3	left/right

Just before 5 mins, roll the patient three times to mix contrast within bladder.

PRONE EXCRETORY PHASE (5 mins)

Flip prone recons supine and proper right/left (i.e. mirror and both) before sending to PACS.

AX EXCRETE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR EXCRETE MIPS	5.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG EXCRETE MIPS	5.0	3.0	Br40 / B41f	mediastinum	3	left/right

CT Urogram Routine

GE PARAMETERS & RECONS

For the **Pre Contrast**, **Nephrographic (90 secs)** and **Excretory (5 mins)** phases:

	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	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	4.5

PRE CONTRAST PHASE

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR PRE	2.5	2.5	std full	400/40	front/back

Must be first recon.

NEPHROGRAPHIC PHASE (90 secs)

AX NEPRHO	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR NEPRHO	2.5	2.5	std full	400/40	front/back
SAG NEPRHO	2.5	2.5	std full	400/40	left/right

Must be first recon.

Just before 5 mins, roll the patient three times to mix contrast within bladder.

PRONE EXCRETORY PHASE (5 mins)

Flip prone recons supine and proper right/left (i.e. mirror and both) before sending to PACS.

AX EXCRETE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR EXCRETE MIPS	5.0	3.0	std full	400/40	front/back
SAG EXCRETE MIPS	5.0	3.0	std full	400/40	left/right

Must be first recon.

CT Urogram Routine

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast**, **Nephrographic (90 secs)** and **Excretory (5 mins)** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	5.6

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	head/feet
COR PRE	3.0	3.0	B	mediastinum	3	front/back

NEPHROGRAPHIC PHASE (90 secs)

AX NEPHRO	3.0	3.0	B	mediastinum	3	head/feet
COR NEPHRO	3.0	3.0	B	mediastinum	3	front/back
SAG NEPHRO	3.0	3.0	B	mediastinum	3	left/right

Just before 5 mins, roll the patient three times to mix contrast within bladder.

PRONE EXCRETORY PHASE (5 mins)

Flip prone recons supine and proper right/left (i.e. mirror and both) before sending to PACS.

AX EXCRETE	3.0	3.0	B	mediastinum	3	head/feet
COR EXCRETE MIPS	5.0	3.0	B	mediastinum	3	front/back
SAG EXCRETE MIPS	5.0	3.0	B	mediastinum	3	left/right

CT Urogram Split-Bolus

Updated 03/09/25
Reviewed 05/14/25

Indications - hematuria, renal/ureteral stones/calculi, nephrolithiasis, hydronephrosis, hydroureter, chronic urinary tract infection, urothelial malignancy.

Use this protocol on anyone under 50 years of age and on those who get frequent CTs.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

Topogram - lung bases through pubic symphysis (obtained during end inspiration).

Craniocaudal scan coverage - lung bases through pubic symphysis on both phases (obtained during end inspiration).

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

IV Contrast:

Administer weight-based **Omnipaque-300** - **1 mL/kg** up to **150 mL** (100 mL minimum).

Inject at **2.5 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

Oral contrast:

Give patient 32 oz water 30 mins prior to imaging.

Tell patient not to use the restroom prior to scan. The bladder needs to be distended for the best study.

Split-Bolus Technique:

Inject patient with 1/3 IV contrast dose. **DO NOT SCAN PATIENT.**

About 3 mins after IV contrast, roll the patient three times to mix contrast within bladder.

After rolling the patient, inject the remaining 2/3 IV contrast dose.

90 seconds after start of second injection **SCAN PATIENT**.

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.

CT Urogram Split-Bolus

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast** and **Split-Bolus** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR PRE	3.0	3.0	Br40 / B41f	mediastinum	3	front/back

POST SPLIT-BOLUS PHASE

AX SPLIT	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR SPLIT	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG SPLIT	3.0	3.0	Br40 / B41f	mediastinum	3	left/right
COR SPLIT MIPS	5.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG SPLIT MIPS	5.0	3.0	Br40 / B41f	mediastinum	3	left/right

CT Urogram Split-Bolus

GE PARAMETERS & RECONS

For the **Pre Contrast** and **Split-Bolus** phases:

	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	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	4.5

PRE CONTRAST PHASE

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**
COR PRE	2.5	2.5	std full	400/40	front/back	

POST SPLIT-BOLUS PHASE

AX SPLIT	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**
COR SPLIT	2.5	2.5	std full	400/40	front/back	
SAG SPLIT	2.5	2.5	std full	400/40	left/right	
COR SPLIT MIPS	5.0	3.0	std full	400/40	front/back	
SAG SPLIT MIPS	5.0	3.0	std full	400/40	left/right	

CT Urogram Split-Bolus

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast** and **Split-Bolus** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	5.6

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	head/feet
COR PRE	3.0	3.0	B	mediastinum	3	front/back

POST SPLIT-BOLUS PHASE

AX SPLIT	3.0	3.0	B	mediastinum	3	head/feet
COR SPLIT	3.0	3.0	B	mediastinum	3	front/back
SAG SPLIT	3.0	3.0	B	mediastinum	3	left/right
COR SPLIT MIPS	5.0	3.0	B	mediastinum	3	front/back
SAG SPLIT MIPS	5.0	3.0	B	mediastinum	3	left/right

CT Cystogram

Updated 03/09/25
Reviewed 05/14/25

Indications - bladder mass, trauma, leak, rupture, post surgical injury.
Use CT Pelvis w/o Contrast charge (if IV not used) or CT Pelvis w/o + w/ Contrast (if IV given).

GENERAL SCAN NOTES

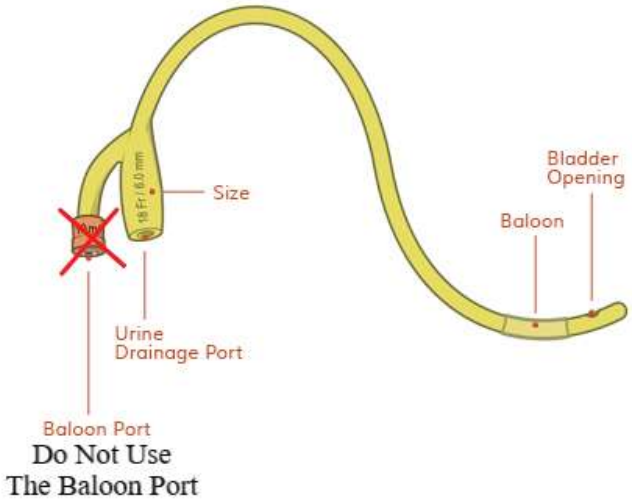
Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - iliac crests through pubic symphysis (obtained during end inspiration).
Craniocaudal scan coverage - iliac crests through pubic symphysis (obtained during end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast:

Administer weight-based **Omnipaque-300** - **1 mL/kg** up to **150 mL** (100 mL minimum).
Inject at **2.5 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.
Only perform venous scan if exam ordered w/ + w/o contrast.

Oral Contrast: generally 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.

Urinary Catheter Instructions:

Clamp the urinary catheter prior to the patient coming to CT. You need the bladder at least partially distended for the exam.
Identify the type of urinary catheter (i.e. Foley versus suprapubic).
Differentiate the urine drainage port from the balloon port. **NEVER USE BALLOON PORT**.
Ensure that the urinary catheter is clamped prior to connecting the contrast mixture.
Connect the contrast mixture tubing to the **drainage port**. **DO NOT USE BALLOON PORT.**
Remember to unclamp the urinary catheter prior to the patient leaving the CT department.



CT Cystogram

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast**, **Venous**, **Cystogram** and **Post Void** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	**off**	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
SAG PRE	3.0	3.0	Br40 / B41f	mediastinum	3	left/right

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	Br40 / B41f	mediastinum	3	left/right

CYSTOGRAM PHASE

Fill the bladder via the drainage catheter under gravity with up to 300 mL of contrast mixture. Stop infusing contrast if the patient experiences significant pain.

AX CYSTO	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR CYSTO	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG CYSTO	3.0	3.0	Br40 / B41f	mediastinum	3	left/right

POST VOID PHASE

Perform a post void scan if the patient has had recent bladder surgery, bladder procedure or trauma. Unclamp the drainage catheter and allow to drain for 5 mins before scanning the patient.

AX POST VOID	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

CT Cystogram

GE PARAMETERS & RECONS

For the **Pre Contrast**, **Venous**, **Cystogram** and **Post Void** phases:

	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	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	4.4
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	4.4
LS VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	1.8
Disc VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	1.8

PRE CONTRAST PHASE

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
SAG PRE	2.5	2.5	std full	400/40	left/right

Must be first recon.

VENOUS PHASE (70 secs)

AX VENOUS	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR VENOUS	2.5	2.5	std full	400/40	front/back
SAG VENOUS	2.5	2.5	std full	400/40	left/right

Must be first recon.

CYSTOGRAM PHASE

Fill the bladder via the drainage catheter under gravity with up to 300 mL of contrast mixture. Stop infusing contrast if the patient experiences significant pain.

AX CYSTO	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR CYSTO	2.5	2.5	std full	400/40	front/back
SAG CYSTO	2.5	2.5	std full	400/40	left/right

Must be first recon.

POST VOID PHASE

Perform a post void scan if the patient has had recent bladder surgery, bladder procedure or trauma. Unclamp the drainage catheter and allow to drain for 5 mins before scanning the patient.

AX POST VOID	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**

Must be first recon.

CT Cystogram

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast**, **Venous**, **Cystogram** and **Post Void** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	3.8

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	head/feet
COR PRE	3.0	3.0	B	mediastinum	3	front/back

VENOUS PHASE (70 secs)

AX VENOUS	3.0	3.0	B	mediastinum	3	head/feet
COR VENOUS	3.0	3.0	B	mediastinum	3	front/back
SAG VENOUS	3.0	3.0	B	mediastinum	3	left/right

CYSTOGRAM PHASE

Fill the bladder via the drainage catheter under gravity with up to 300 mL of contrast mixture. Stop infusing contrast if the patient experiences significant pain.

AX CYSTO	3.0	3.0	B	mediastinum	3	head/feet
COR CYSTO	3.0	3.0	B	mediastinum	3	front/back
SAG CYSTO	3.0	3.0	B	mediastinum	3	left/right

POST VOID PHASE

Perform a post void scan if the patient has had recent bladder surgery, bladder procedure or trauma. Unclamp the drainage catheter and allow to drain for 5 mins before scanning the patient.

AX POST VOID	3.0	3.0	B	mediastinum	3	head/feet

CT Head Routine

Updated 06/15/24
Reviewed 05/14/25

Indications - stroke, hemorrhage, altered mental status, headache, trauma, dizziness, syncope, mass.

Do not perform a with IV only exam unless a noncontrast head has been performed within last 6 hours. Change order to CT Head w/o + w/.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.

Position patient's head so that the line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop.

For all adult head studies, it is important for image quality purposes to position the patient in the center of the scan field. Use the lateral laser beam to make sure that the patient is positioned in the center.

Topogram - C1 vertebrae through top of head.

Craniocaudal scan coverage - C1 vertebrae through top of head. **Avoid scanning the lens of the eyes.**

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

IV Contrast: 100 mL Omnipaque-300, inject at 1 mL/sec, 3 mins scan delay.

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.

CT Head Routine

SIEMENS SPIRAL SCAN PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	320	on	NA	0.55	16	1.5	1.0	9.1
Go Up 32	spiral	130	230	**off**	**off**	0.55	32	0.7	1.0	9.7
Sensation 64	spiral	120	380	on	NA	0.85	64	0.6	1.0	7.4
Definition 64	spiral	120	350	on	on	0.55	64	0.6	1.0	11.4
Go Top 64	spiral	120	265	**off**	**off**	0.55	64	0.5	1.0	6.8
Drive 128	spiral	120	332	on	on	0.55	128	0.6	1.0	5.7
Force 192	spiral	120	332	on	on	0.55	192	0.6	1.0	3.8

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	4.0	4.0	Hr40 / H31s	cerebrum	3	feet/head
TRUE AX SOFT	4.0	4.0	Hr40 / H31s	cerebrum	3	feet/head
COR SOFT	3.0	3.0	Hr40 / H31s	cerebrum	3	front/back
SAG SOFT	3.0	3.0	Hr40 / H31s	cerebrum	3	left/right
AX BONE	4.0	4.0	Hr64 / H70s	bone	3	feet/head

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	4.0	4.0	Hr40 / H31s	cerebrum	3	feet/head

CT Head Routine

SIEMENS SEQUENTIAL SCAN PARAMETERS & RECONS

	Scan Mode	kV	Ref mAs	Care Dose	Care kV & Lvl	# Detect	Colli-mation	Feed / Scan	Scan Time	Cycle Time
Sensation 16	sequential	120	310	on	NA	12	1.5	18.0	1.0	2.0
Go Up 32	sequential	130	191	on	on	32	0.70	20.0	1.0	2.0
Sensation 64	sequential	120	430	on	NA	24	1.2	28.5	1.0	2.0
Definition 64	sequential	120	390	on	on	64	0.6	17.0	1.0	2.0
Go Top 64	sequential	120	265	**off**	**off**	64	0.6	34.5	1.0	2.0
Drive 128	sequential	120	273	on	on	32	1.2	34.5	2.0	4.0
Force 192	sequential	120	273	on	on	192	0.6	48.0	1.0	3.5

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	4.8 4.5 (16 slice)	4.8 4.5 (16 slice)	Hr40 / H31s	cerebrum	3	feet/head
TRUE AX SOFT	4.8 4.5 (16 slice)	4.8 4.5 (16 slice)	Hr40 / H31s	cerebrum	3	feet/head
COR SOFT	3.0	3.0	Hr40 / H31s	cerebrum	3	front/back
SAG SOFT	3.0	3.0	Hr40 / H31s	cerebrum	3	left/right
AX BONE	4.8 4.5 (16 slice)	4.8 4.5 (16 slice)	Hr64 / H70s	bone	3	feet/head

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	4.8 4.5 (16 slice)	4.8 4.5 (16 slice)	Hr40 / H31s	cerebrum	3	feet/head

CT Head Routine

GE PARAMETERS & RECONS

HELICAL SCAN

	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	head	120	50-250	3.54	on	5.0	10	0.562	5.62	0.8	NA	NA	17.1
Opt 540	helical	head	120	50-250	3.54	on	5.0	10	0.562	5.62	0.8	NA	NA	17.1
LS VCT 64	helical	head	120	50-210	2.47	on	5.0	20	0.531	10.62	0.7	30	30	7.9
Disc VCT 64	helical	head	120	50-210	2.47	on	5.0	20	0.531	10.62	0.7	NA	NA	7.9

AXIAL SCAN

	Scan Type	SFOV	kV	Manual mA	Smart mA	Slice Thick	Beam Coll	Pitch / Speed	Rot Time	Dose Red	ASIR
LS 16	axial	head	120	480	off	5	10	2i	0.5	NA	NA
Opt 540	axial	head	120	480	off	5	10	2i	0.5	NA	NA
LS VCT 64	axial	head	120	480	off	5	10	2i	0.5	20	20
Disc VCT 64	axial	head	120	600	off	5	10	2i	0.5	NA	NA

RECONS

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**5.0**	**5.0**	**std full**	**80/40**	**feet/head**
TRUE AX SOFT	5.0	5.0	std full	80/40	feet/head
COR SOFT	2.5	2.5	std full	80/40	front/back
SAG SOFT	2.5	2.5	std full	80/40	left/right
AX BONE	5.0	5.0	bone full	2500/480	feet/head

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	5.0	5.0	std full	80/40	feet/head

CT Head Routine

PHILIPS PARAMETERS & RECONS

HELICAL SCAN

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	310	37	on	0.70	64	0.625	1.0	4.3

AXIAL SCAN

	Scan Mode	kV	mAs	Dose Index	3D Dose	# Detect	Colli-mation	Feed / Scan	Scan Time	Cycle Time
Incisive 128	axial	120	280	NA	NA	16	0.625	10.0	1.0	1.7

RECONS

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	4.0	4.0	UB	brain	1	feet/head
TRUE AX SOFT	4.0	4.0	UB	brain	1	feet/head
COR SOFT	3.0	3.0	UB	brain	1	front/back
SAG SOFT	3.0	3.0	UB	brain	1	left/right
AX BONE	4.0	4.0	YB	bone	1	feet/head

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	4.0	4.0	UB	brain	1	feet/head

CT Head Pre-Surgical

Updated 03/22/25
Reviewed 05/14/25

Also known as - stealth protocol, brain lab protocol.
Indications - pre surgical imaging.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Position patient's head so that the line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop.
For all adult head studies, it is important for image quality purposes to position the patient in the center of the scan field. Use the lateral laser beam to make sure that the patient is positioned in the center.
Topogram - C1 vertebrae through top of head.
Craniocaudal scan coverage - C1 vertebrae through top of head. **Avoid scanning the lens of the eyes.**
Adjust FOV (field of view) on topogram to smallest without cropping anatomy (usually 28 to 32 cm). Include from **anterior nose tip** through **posterior skin** (anterior to posterior coverage).
Use a **square matrix** (either 256 x 256 or 512 x 512).
IV Contrast: 100 mL Omnipaque-300, inject at 1 mL/sec, 3 mins scan delay.
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.

CT Head Pre-Surgical

SIEMENS SPIRAL SCAN PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	320	on	NA	0.55	16	1.5	1.0	9.1
Go Up 32	spiral	130	230	**off**	**off**	0.55	32	0.7	1.0	9.7
Sensation 64	spiral	120	380	on	NA	0.85	64	0.6	1.0	7.4
Definition 64	spiral	120	350	on	on	0.55	64	0.6	1.0	11.4
Go Top 64	spiral	120	265	**off**	**off**	0.55	64	0.5	1.0	6.8
Drive 128	spiral	120	332	on	on	0.55	128	0.6	1.0	5.7
Force 192	spiral	120	332	on	on	0.55	192	0.6	1.0	3.8

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction	
AX SOFT	4.0	4.0	Hr40 / H31s	cerebrum	3	feet/head	
TRUE AX SOFT	4.0	4.0	Hr40 / H31s	cerebrum	3	feet/head	
TRUE AX THINS	***1.0**	***1.0**	**Hr40 / H31s**	**cerebrum**	**3**	**feet/head**	**Protocol specific recon.**
COR SOFT	3.0	3.0	Hr40 / H31s	cerebrum	3	front/back	
SAG SOFT	3.0	3.0	Hr40 / H31s	cerebrum	3	left/right	
AX BONE	4.0	4.0	Hr64 / H70s	bone	3	feet/head	

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

***Send as close to 1.0 mm thick 1.0 mm spacing recons if your scanner cannot do exactly 1.0 x 1.0 mm.**

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	4.0	4.0	Hr40 / H31s	cerebrum	3	feet/head

CT Head Pre-Surgical

GE HELICAL SCAN 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	head	120	50-250	3.54	on	5.0	10	0.562	5.62	0.8	NA	NA	17.1
Opt 540	helical	head	120	50-250	3.54	on	5.0	10	0.562	5.62	0.8	NA	NA	17.1
LS VCT 64	helical	head	120	50-210	2.47	on	5.0	20	0.531	10.62	0.7	30	30	7.9
Disc VCT 64	helical	head	120	50-210	2.47	on	5.0	20	0.531	10.62	0.7	NA	NA	7.9

RECONS

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
AX SOFT	**5.0**	**5.0**	**std full**	**80/40**	**feet/head**	**Must be first recon.**
TRUE AX SOFT	5.0	5.0	std full	80/40	feet/head	
TRUE AX THINS	***1.0**	***1.0**	**std full**	**80/40**	**feet/head**	**Protocol specific recon.**
COR SOFT	2.5	2.5	std full	80/40	front/back	
SAG SOFT	2.5	2.5	std full	80/40	left/right	
AX BONE	5.0	5.0	bone full	2500/480	feet/head	

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

***Send as close to 1.0 mm thick 1.0 mm spacing recons if your scanner cannot do exactly 1.0 x 1.0 mm.**

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	5.0	5.0	std full	80/40	feet/head

CT Head Pre-Surgical

PHILIPS HELICAL SCAN PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	310	37	on	0.70	64	0.625	1.0	4.3

RECONS

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	4.0	4.0	UB	brain	1	feet/head
TRUE AX SOFT	4.0	4.0	UB	brain	1	feet/head
TRUE AX THINS	***1.0**	***1.0**	**UB**	**brain**	**1**	**feet/head**
COR SOFT	3.0	3.0	UB	brain	1	front/back
SAG SOFT	3.0	3.0	UB	brain	1	left/right
AX BONE	4.0	4.0	YB	bone	1	feet/head

Protocol specific recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

***Send as close to 1.0 mm thick 1.0 mm spacing recons if your scanner cannot do exactly 1.0 x 1.0 mm.**

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	4.0	4.0	UB	brain	1	feet/head

CTA Head (COW)

Updated 05/02/24
Reviewed 05/14/25

Indications - stroke, intracranial artery stenosis/occlusion/aneurysm, intracranial hemorrhage, trauma.

Perform a routine noncontrast head first before CTA if one has not been performed within last 6 hours.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.

Position patient's head so that the line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop.

Topogram - C2 vertebrae through top of head.

Craniocaudal overage - C2 vertebrae through top of head.

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

IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **100 mL**.

Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

Bolus track off aortic arch triggered at **100 HU**.

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	140	on	NA	1.15	16	0.75	0.5	4.3
Go Up 32	spiral	80	84	on	on 105	1.50	32	0.7	0.8	2.9
Sensation 64	spiral	120	160	on	NA	1.20	64	0.6	0.5	2.6
Definition 64	spiral	100	175	on	on	1.40	64	0.6	0.5	2.2
Go Top 64	spiral	90	83	on	on 105	1.50	64	0.6	0.33	0.7
Drive 128	spiral	80 Sn140	178 89	on	on	0.70	64	0.6	0.33	2.9
Force 192	spiral	80 140	345 69	on	on	0.90	64	0.6	0.25	1.7

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX COW	2.0	2.0	Bv36 / H20f	CT angio	3	feet/head
AX COW THINS	1.0	1.0	Bv36 / H20f	CT angio	3	feet/head
COR COW MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	front/back
SAG COW MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	left/right
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio		
3D VRT (tumble)	0.75	0.5	Bv36 / B31f	CT angio		

CTA Head (COW)

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	head	120	100-400	3.50	on	2.5	10	0.938	9.37	0.5	NA	NA	6.4
Opt 540	helical	head	120	100-400	3.50	on	2.5	10	0.938	9.37	0.5	NA	NA	6.4
LS VCT 64	helical	head	120	100-450	5.00	on	2.5	20	0.969	19.37	0.5	20	20	3.1
Disc VCT 64	helical	head	120	100-450	5.00	on	2.5	20	0.969	19.37	0.5	NA	NA	3.1

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX COW	**2.5**	**2.5**	**std full**	**400/40**	**feet/head**
AX COW THINS	1.25	1.25	std full	400/40	feet/head
COR COW MIPS	2.5	2.5	std full	400/40	front/back
SAG COW MIPS	2.5	2.5	std full	400/40	left/right
3D VRT (spin)	0.625	0.625	std full	400/40	
3D VRT (tumble)	0.625	0.625	std full	400/40	

Must be first recon.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	203	22	on	1.00	64	0.625	1.00	3.0

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX COW	2.0	2.0	B	CTA	2	feet/head
AX COW THINS	1.0	1.0	B	CTA	2	feet/head
COR COW MIPS	2.0	2.0	B	CTA	2	front/back
SAG COW MIPS	2.0	2.0	B	CTA	2	left/right
3D VRT (spin)	0.75	0.5	B			
3D VRT (tumble)	0.75	0.5	B			

CTA Neck (Carotids)

Updated 05/02/24
Reviewed 05/14/25

Indications - stroke, carotid artery stenosis/dissection/occlusion/aneurysm, trauma.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Topogram - aortic arch to orbital floor.
Craniocaudal scan coverage - aortic arch to orbital floor.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **100 mL**.
Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.
Bolus track off aortic arch triggered at **100 HU**.

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	140	on	NA	1.15	16	0.75	0.5	7.2
Go Up 32	spiral	110	111	on	on 145	1.20	32	0.7	0.8	6.0
Sensation 64	spiral	120	160	on	NA	1.20	64	0.6	0.5	4.3
Definition 64	spiral	120	120	on	on	1.40	64	0.6	0.3	2.2
Go Top 64	spiral	100	115	on	on 145	1.20	64	0.6	0.33	1.4
Drive 128	spiral	100 Sn140	91 91	on	on	0.90	64	0.6	0.28	3.2
Force 192	spiral	80 140	345 69	on	on	0.90	64	0.6	0.25	2.9

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX CAROTIDS	2.0	2.0	Bv36 / H20f	CT angio	3	feet/head
AX CAROTIDS THINS	1.0	1.0	Bv36 / H20f	CT angio	3	feet/head
COR CAROTIDS MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	front/back
SAG CAROTIDS MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	left/right
CURVED RIGHT ICA MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	left/right
CURVED LEFT ICA MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	left/right
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio		
3D VRT (tumble)	0.75	0.5	Bv36 / B31f	CT angio		

CTA Neck (Carotids)

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	100-400	3.50	on	2.5	10	0.938	9.37	0.5	NA	NA	10.7
Opt 540	helical	large	120	100-400	3.50	on	2.5	10	0.938	9.37	0.5	NA	NA	10.7
LS VCT 64	helical	small body	120	100-450	6.50	on	2.5	20	0.969	19.37	0.5	20	20	5.2
Disc VCT 64	helical	small body	120	100-450	6.50	on	2.5	20	0.969	19.37	0.5	NA	NA	5.2

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX CAROTIDS	**2.5**	**2.5**	**std full**	**400/40**	**feet/head**
AX CAROTIDS THINS	1.25	1.25	std full	400/40	feet/head
COR CAROTIDS MIPS	2.5	2.5	std full	400/40	front/back
SAG CAROTIDS MIPS	2.5	2.5	std full	400/40	left/right
CURVED RIGHT ICA MIPS	2.5	2.5	std full	400/40	left/right
CURVED LEFT ICA MIPS	2.5	2.5	std full	400/40	left/right
3D VRT (spin)	0.625	0.625	std full	400/40	
3D VRT (tumble)	0.625	0.625	std full	400/40	

Must be first recon.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	203	22	on	1.00	64	0.625	1.00	3.0

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX CAROTIDS	2.0	2.0	B	CTA	2	feet/head
AX CAROTIDS THINS	1.0	1.0	B	CTA	2	feet/head
COR CAROTIDS MIPS	2.0	2.0	B	CTA	2	front/back
SAG CAROTIDS MIPS	2.0	2.0	B	CTA	2	left/right
CURVED RIGHT ICS MIPS	2.0	2.0	B	CTA	2	left/right
CURVED LEFT ICS MIPS	2.0	2.0	B	CTA	2	left/right
3D VRT (spin)	0.75	0.5	B			
3D VRT (tumble)	0.75	0.5	B			

CTA Head/Neck (COW/Carotids)

Updated 05/02/24
Reviewed 05/14/25

Indications - stroke, intracranial/carotid artery stenosis/occlusion/aneurysm, intracranial hemorrhage, trauma.
Perform a routine noncontrast head first before CTA if one has not been performed within last 6 hours.
This exam requires CTA Neck w/ + w/o and CTA Head w/ + w/o charges.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Topogram - aortic arch through top of head.
Craniocaudal coverage - aortic arch through top of head.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
Scan parameters are the same as CTA neck protocol.
IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **100 mL**.
Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.
Bolus track off aortic arch triggered at **100 HU**.

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.

CTA Head/Neck (COW/Carotids)

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	140	on	NA	1.15	16	0.75	0.5	11.6
Go Up 32	spiral	110	111	on	on 145	1.20	32	0.7	0.8	9.5
Sensation 64	spiral	120	160	on	NA	1.20	64	0.6	0.5	6.9
Definition 64	spiral	120	120	on	on	1.40	64	0.6	0.3	3.6
Go Top 64	spiral	100	115	on	on 145	1.20	64	0.6	0.33	2.3
Drive 128	spiral	80 sn 140	300 150	on	on	0.90	64	0.6	0.28	5.2
Force 192	spiral	80 140	345 69	on	on	0.90	64	0.6	0.25	4.6

RECONSTRUCTIONS

CTA HEAD RECONS - Put in the CTA Head w/ + w/o folder.

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX COW	2.0	2.0	Bv36 / H20f	CT angio	3	feet/head
AX COW THINS	1.0	1.0	Bv36 / H20f	CT angio	3	feet/head
COR COW MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	front/back
SAG COW MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	left/right
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio		
3D VRT (tumble)	0.75	0.5	Bv36 / B31f	CT angio		

CTA NECK RECONS - Put in the CTA Neck w/ + w/o folder.

AX CAROTIDS	2.0	2.0	Bv36 / H20f	CT angio	3	feet/head
AX CAROTIDS THINS	1.0	1.0	Bv36 / H20f	CT angio	3	feet/head
COR CAROTIDS MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	front/back
SAG CAROTIDS MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	left/right
CURVED RIGHT ICA MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	left/right
CURVED LEFT ICA MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	left/right
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio		

CTA Head/Neck (COW/Carotids)

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	100-400	3.50	on	2.5	10	0.938	9.37	0.5	NA	NA	17.1
Opt 540	helical	large	120	100-400	3.50	on	2.5	10	0.938	9.37	0.5	NA	NA	17.1
LS VCT 64	helical	small body	120	100-450	6.50	on	2.5	20	0.969	19.37	0.5	20	20	8.3
Disc VCT 64	helical	small body	120	100-450	6.50	on	2.5	20	0.969	19.37	0.5	NA	NA	8.3

CTA HEAD RECONS - Put in the CTA Head w/ + w/o folder.

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX COW	**2.5**	**2.5**	**std full**	**400/40**	**feet/head**
AX COW THINS	1.25	1.25	std full	400/40	feet/head
COR COW MIPS	2.5	2.5	std full	400/40	front/back
SAG COW MIPS	2.5	2.5	std full	400/40	left/right
3D VRT (spin)	0.625	0.625	std full	400/40	
3D VRT (tumble)	0.625	0.625	std full	400/40	

Must be first recon.

CTA NECK RECONS - Put in the CTA Neck w/ + w/o folder.

AX CAROTIDS	2.5	2.5	std full	400/40	feet/head
AX CAROTIDS THINS	1.25	1.25	std full	400/40	feet/head
COR CAROTIDS MIPS	2.5	2.5	std full	400/40	front/back
SAG CAROTIDS MIPS	2.5	2.5	std full	400/40	left/right
CURVED RIGHT ICA MIPS	2.5	2.5	std full	400/40	left/right
CURVED LEFT ICA MIPS	2.5	2.5	std full	400/40	left/right
3D VRT (spin)	0.625	0.625	std full	400/40	

CTA Head/Neck (COW/Carotids)

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	203	22	on	1.00	64	0.625	1.00	3.0

CTA HEAD RECONS - Put in the CTA Head w/ + w/o folder.

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX COW	2.0	2.0	B	CTA	2	feet/head
AX COW THINS	1.0	1.0	B	CTA	2	feet/head
COR COW MIPS	2.0	2.0	B	CTA	2	front/back
SAG COW MIPS	2.0	2.0	B	CTA	2	left/right
3D VRT (spin)	0.75	0.5	B			
3D VRT (tumble)	0.75	0.5	B			

CTA NECK RECONS - Put in the CTA Neck w/ + w/o folder.

AX CAROTIDS	2.0	2.0	B	CTA	2	feet/head
AX CAROTIDS THINS	1.0	1.0	B	CTA	2	feet/head
COR CAROTIDS MIPS	2.0	2.0	B	CTA	2	front/back
SAG CAROTIDS MIPS	2.0	2.0	B	CTA	2	left/right
CURVED RIGHT ICS MIPS	2.0	2.0	B	CTA	2	left/right
CURVED LEFT ICS MIPS	2.0	2.0	B	CTA	2	left/right
3D VRT (spin)	0.75	0.5	B			
3D VRT (tumble)	0.75	0.5	B			

CTA Perfusion

Updated 05/02/24
Reviewed 05/14/25

Indications - stroke, focal neurological deficits, arterial thrombus/occlusion.

The following requirements must be met for this protocol to be performed:

The patient has stroke-like symptoms.
The patient has had symptoms for less than 24 hours.
The patient's NIH stroke scale is greater than or equal to 6.
A perfusion scan has been approved by a Neurologist (for all patients including ER patients).

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Position patient's head so that the orbitomeatal line is perpendicular to table top. Neutral position from side to side.
Scan Order:

Noncontrast head:

Perform routine spiral/helical scan if one has not been performed within last 6 hours.

CTA Head +/- Neck:

IV Contrast:

Administer **75 mL** **Omnipaque-350**.
Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.
Bolus track off aortic arch triggered at **100 HU**.

Wait 3 minutes between CTA and perfusion scans.

Perfusion:

IV Contrast:

Administer 1 or 2 injections of **50 mL** **Omnipaque-350** each.
Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

For scanners requiring 2 scans, do NOT overlap scans. Second scan must start where the last image of the first scan ended.

iSchemaView RAPID Support - 650-388-9767 extension 2 or support@irapid.com.

CTA Perfusion

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	4D Range mm	4D Range sec	Pitch	Acq	Coll	Rot Time
Drive 128	sequential	80	150	off	off	150	1.5	1.02	32	1.2	0.285
Force 192	sequential	70	200	off	off	114	1.5	0.50	48	1.2	0.25

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time
Go Up 32	sequential	80	96	off	off	0.00	32	0.7	0.8
Go Top 64	sequential	70	132	on	on 78	0.50	64	0.6	0.33

	Scan Mode	kV	mAs	Care Dose	# Detect	Colli-mation	Feed / Scan	Scan Time	Cycle Time
Sensation 64	sequential	80	125	off	24	1.2	0.0	0.5	1.5

Name of Series	Thick	Interval	Kernel	Window	Recon Direction
PERFUSION	5.0	3.0	Hr36 / H22f	cerebrum	feet/head

Send perfusion images to RAPID for color maps to be generated.

GE PARAMETERS & RECONS

	Scan Type	SFOV	kV	Manual mA	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR
LS VCT 64	axial	head	80	125	off	5.0	40	8i		0.8	20	20

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
PERFUSION SLAB 1	5.0	0.0	full	150/35	feet/head
PERFUSION SLAB 2	5.0	0.0	full	150/35	feet/head

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Dose Index	3D Dose	# Detect	Colli-mation	Feed / Scan	Scan Time	Cycle Time
Incisive 128	axial	80	100	NA	NA	64	0.625	0.0	0.5	2.0

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
PERFUSION SLAB 1	10.0	10.0	UA	brain	1	feet/head
PERFUSION SLAB 2	10.0	10.0	UA	brain	1	feet/head

CT Venogram Head

Updated 03/03/25
Reviewed 05/14/25

Indications - venous sinus thrombosis, headache, nausea, vomiting, vision changes, focal neurologic deficits and seizures.

Use CT Angiography Head w/ + w/o Contrast charge.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.

Position patient's head so that the line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop.

Topogram - C2 vertebrae through top of head.

Craniocaudal overage - C2 vertebrae through top of head.

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

IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **100 mL**.

Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

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.

Non contrast technical parameters and reconstructions are the same as routine head.

Venogram technical parameters and reconstructions are the same as CTA head.

CT Venogram Head

SIEMENS PARAMETERS & RECONS

For the **Non Contrast** phase:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	320	on	NA	0.55	16	1.5	1.0	9.1
Go Up 32	spiral	130	230	**off**	**off**	0.55	32	0.7	1.0	9.7
Sensation 64	spiral	120	380	on	NA	0.85	64	0.6	1.0	7.4
Definition 64	spiral	120	350	on	on	0.55	64	0.6	1.0	11.4
Go Top 64	spiral	120	265	**off**	**off**	0.55	64	0.5	1.0	6.8
Drive 128	spiral	120	332	on	on	0.55	128	0.6	1.0	5.7
Force 192	spiral	120	332	on	on	0.55	192	0.6	1.0	3.8

For the **Venogram** phase:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	140	on	NA	1.15	16	0.75	0.5	4.3
Go Up 32	spiral	80	84	on	on 105	1.50	32	0.7	0.8	2.9
Sensation 64	spiral	120	160	on	NA	1.20	64	0.6	0.5	2.6
Definition 64	spiral	100	175	on	on	1.40	64	0.6	0.5	2.2
Go Top 64	spiral	90	83	on	on 105	1.50	64	0.6	0.33	0.7
Drive 128	spiral	80 Sn140	178 89	on	on	0.70	64	0.6	0.33	2.9
Force 192	spiral	80 140	345 69	on	on	0.90	64	0.6	0.25	1.7

NON CONTRAST PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	4.0	4.0	Hr40 / H31s	cerebrum	3	feet/head
TRUE AX SOFT	4.0	4.0	Hr40 / H31s	cerebrum	3	feet/head
COR SOFT	3.0	3.0	Hr40 / H31s	cerebrum	3	front/back
SAG SOFT	3.0	3.0	Hr40 / H31s	cerebrum	3	left/right
AX BONE	4.0	4.0	Hr64 / H70s	bone	3	feet/head

VENOGRAM PHASE (30 secs)

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX VEIN	2.0	2.0	Bv36 / H20f	CT angio	3	feet/head
AX VEIN THINS	1.0	1.0	Bv36 / H20f	CT angio	3	feet/head
COR VEIN MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	front/back
SAG VEIN MIPS	2.0	2.0	Bv36 / H20f	CT angio	3	left/right
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio		
3D VRT (tumble)	0.75	0.5	Bv36 / B31f	CT angio		

CT Venogram Head

GE PARAMETERS & RECONS

For the **Non Contrast** phase:

	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	head	120	50-250	3.54	on	5.0	10	0.562	5.62	0.8	NA	NA	17.1
Opt 540	helical	head	120	50-250	3.54	on	5.0	10	0.562	5.62	0.8	NA	NA	17.1
LS VCT 64	helical	head	120	50-210	2.47	on	5.0	20	0.531	10.62	0.7	30	30	7.9
Disc VCT 64	helical	head	120	50-210	2.47	on	5.0	20	0.531	10.62	0.7	NA	NA	7.9

For the **Venogram** phase:

	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	head	120	100-400	3.50	on	2.5	10	0.938	9.37	0.5	NA	NA	6.4
Opt 540	helical	head	120	100-400	3.50	on	2.5	10	0.938	9.37	0.5	NA	NA	6.4
LS VCT 64	helical	head	120	100-450	5.00	on	2.5	20	0.969	19.37	0.5	20	20	3.1
Disc VCT 64	helical	head	120	100-450	5.00	on	2.5	20	0.969	19.37	0.5	NA	NA	3.1

NON CONTRAST PHASE

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
AX SOFT	**5.0**	**5.0**	**std full**	**80/40**	**feet/head**	**Must be first recon.**
TRUE AX SOFT	5.0	5.0	std full	80/40	feet/head	
COR SOFT	2.5	2.5	std full	80/40	front/back	
SAG SOFT	2.5	2.5	std full	80/40	left/right	
AX BONE	5.0	5.0	bone full	2500/480	feet/head	

VENOGRAM PHASE (30 secs)

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
AX VEIN	**2.5**	**2.5**	**std full**	**400/40**	**feet/head**	**Must be first recon.**
AX VEIN THINS	1.25	1.25	std full	400/40	feet/head	
COR VEIN MIPS	2.5	2.5	std full	400/40	front/back	
SAG VEIN MIPS	2.5	2.5	std full	400/40	left/right	
3D VRT (spin)	0.625	0.625	std full	400/40		
3D VRT (tumble)	0.625	0.625	std full	400/40		

CT Venogram Head

PHILIPS PARAMETERS & RECONS

For the **Non Contrast** phase:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	310	37	on	0.70	64	0.625	1.0	4.3

For the **Venogram** phase:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	203	22	on	1.00	64	0.625	1.00	3.0

NON CONTRAST PHASE

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	4.0	4.0	UB	brain	1	feet/head
TRUE AX SOFT	4.0	4.0	UB	brain	1	feet/head
COR SOFT	3.0	3.0	UB	brain	1	front/back
SAG SOFT	3.0	3.0	UB	brain	1	left/right
AX BONE	4.0	4.0	YB	bone	1	feet/head

VENOGRAM PHASE (30 secs)

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX VEIN	2.0	2.0	B	CTA	2	feet/head
AX VEIN THINS	1.0	1.0	B	CTA	2	feet/head
COR VEIN MIPS	2.0	2.0	B	CTA	2	front/back
SAG VEIN MIPS	2.0	2.0	B	CTA	2	left/right
3D VRT (spin)	0.75	0.5	B			
3D VRT (tumble)	0.75	0.5	B			

CT Maxillofacial/Orbits

Updated 05/03/24
Reviewed 05/14/25

Indications - trauma, foreign body, cellulitis, infection, abscess, proptosis, diplopia, mass.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view (particularly earrings and dentures).
Topogram:
Maxillofacial - top of frontal sinuses through the bottom of mandible.
Orbits - Top of frontal sinuses through the bottom of maxilla.
Craniocaudal scan coverage:
Maxillofacial - top of frontal sinuses through the bottom of mandible.
Orbits - Top of frontal sinuses through the bottom of maxilla.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 45 secs scan delay.
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	0.55	16	0.75	0.75	9.1
Go Up 32	spiral	Sn 110	475	on	on 110	0.55	32	0.7	1.0	6.5
Sensation 64	spiral	120	115	on	NA	0.90	64	0.6	1.0	4.6
Definition 64	spiral	120	125	on	**semi**	0.80	64	0.6	1.0	5.2
Go Top 64	spiral	Sn 100	1227	on	on 110	0.55	64	0.6	1.0	3.8
Drive 128	spiral	120	88	on	**semi**	0.80	128	0.6	1.0	2.6
Force 192	spiral	120	88	on	on	0.80	192	0.6	1.0	1.7

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	3.0	3.0	Hr40 / H31s	abdomen	3	feet/head
AX BONE	3.0	3.0	Hr59 / H70s	bone/sinus	3	feet/head
COR BONE	3.0	3.0	Hr59 / H70s	bone/sinus	3	front/back
SAG BONE	3.0	3.0	Hr59 / H70s	bone/sinus	3	left/right

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	Hr40 / H31s	abdomen	3	feet/head

Add the following recons if the indication is **soft tissue** related.

COR SOFT	3.0	3.0	Hr40 / H31s	abdomen	3	front/back
SAG SOFT	3.0	3.0	Hr59 / H70s	abdomen	3	left/right

CT Maxillofacial/Orbits

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	head	120	50-200	5.00	on	2.5	10	1.375	13.75	0.5	NA	NA	2.9
Opt 540	helical	head	120	50-200	5.00	on	2.5	10	1.375	13.75	0.5	NA	NA	2.9
LS VCT 64	helical	head	120	50-330	10.00	on	2.5	40	1.375	55.00	0.5	20	20	0.7
Disc VCT 64	helical	head	120	50-330	10.00	on	2.5	40	1.375	55.00	0.5	NA	NA	0.7

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**2.5**	**2.5**	**std full**	**400/40**	**feet/head**
AX BONE	2.5	2.5	bone full	2500/480	feet/head
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.5	2.5	std full	400/40	feet/head

Add the following recons if the indication is **soft tissue** related.

COR SOFT	2.5	2.5	std full	400/40	front/back
SAG SOFT	2.5	2.5	std full	400/40	left/right

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	71	24	**off**	0.70	64	0.625	0.50	1.4

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	3.0	3.0	UB	abdomen	2	feet/head
AX BONE	3.0	3.0	YC	bone	2	feet/head
COR BONE	3.0	3.0	YC	bone	2	front/back
SAG BONE	3.0	3.0	YC	bone	2	left right

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	UB	abdomen	2	feet/head

Add the following recons if the indication is **soft tissue** related.

COR SOFT	3.0	3.0	UB	abdomen	2	front/back
SAG SOFT	3.0	3.0	UB	abdomen	2	left/right

CT Sinuses

Updated 09/26/24
Reviewed 05/14/25

Indications - acute/chronic sinusitis, rhinitis, runny nose, sinus/nasal mass, trauma, pre surgical evaluation.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view (particularly earrings).
Scan above any dental work to avoid artifact.
Topogram - bottom of mandibles through top of skull.
IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 50 secs scan delay.
Recon FOVs (send for all exams not just IGS):

Routine Recons - above frontal sinuses to hard palate (top/bottom coverage), tip of nose to clivus (front/back coverage) and zygomatic arch to zygomatic arch (left/right coverage)

Axial Thins - top of skull to horizontal portion of mandibles (top/bottom coverage), tip of nose to back of skull (front/back coverage) and external ear to external ear (left/right coverage)

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	60	on	NA	0.55	16	0.75	1.0	17.4
Go Up 32	spiral	Sn 110	236	on	on 50	0.55	32	0.7	1.0	9.3
Sensation 64	spiral	120	70	on	NA	0.90	64	0.6	1.0	6.7
Definition 64	spiral	120	50	on	on	0.80	64	0.6	1.0	7.5
Go Top 64	spiral	Sn 100	581	on	on 50	0.55	64	0.6	1.0	5.4
Drive 128	spiral	120	35	on	on	0.80	128	0.6	1.0	3.7
Force 192	spiral	120	35	on	on	0.80	192	0.6	1.0	2.5

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	3.0	3.0	Hr40 / H31s	abdomen	3	feet/head
AX BONE	3.0	3.0	Hr59 / H70s	bone/sinus	3	feet/head
COR BONE	3.0	3.0	Hr59 / H70s	bone/sinus	3	front/back
SAG BONE	3.0	3.0	Hr59 / H70s	bone/sinus	3	left/right
AX SOFT THINS	1.0	1.0	Hr40 / H31s	abdomen	3	feet/head
AX BONE THINS	1.0	1.0	Hr59 / H70s	bone/sinus	3	feet/head

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT	3.0	3.0	Hr40 / H31s	abdomen	3	feet/head

CT Sinuses

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	head	120	50-200	5.00	on	2.5	10	1.375	13.75	0.5	NA	NA	4.2
Opt 540	helical	head	120	50-200	5.00	on	2.5	10	1.375	13.75	0.5	NA	NA	4.2
LS VCT 64	helical	head	120	50-330	10.00	on	2.5	40	1.375	55.00	0.5	20	20	1.0
Disc VCT 64	helical	head	120	50-330	10.00	on	2.5	40	1.375	55.00	0.5	NA	NA	1.0

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**2.5**	**2.5**	**std full**	**400/40**	**feet/head**
AX BONE	2.5	2.5	bone full	2500/480	feet/head
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right
AX SOFT THINS	0.625	0.625	std full	400/40	feet/head
AX BONE THINS	0.625	0.625	bone plus full	2500/480	feet/head

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.5	2.5	std full	400/40	feet/head

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	45	20	**off**	0.70	64	0.625	0.50	2.1

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	3.0	3.0	UB	abdomen	2	feet/head
AX BONE	3.0	3.0	YC	bone	2	feet/head
COR BONE	3.0	3.0	YC	bone	2	front/back
SAG BONE	3.0	3.0	YC	bone	2	left right
AX SOFT THINS	1.0	1.0	UB	abdomen	2	feet/head
AX BONE THINS	1.0	1.0	YC	bone	2	feet/head

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	UB	abdomen	2	feet/head

CT IACs (Temporal Bones / Mastoids)

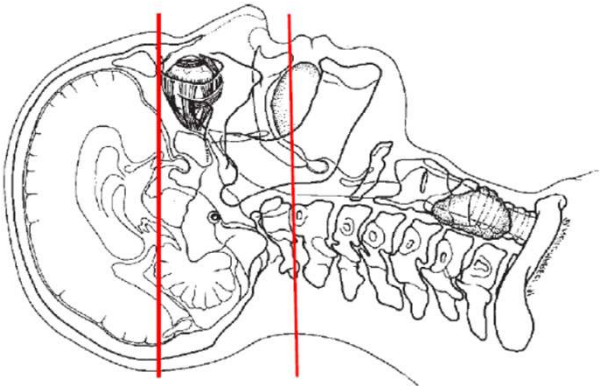
Updated 09/10/24
Reviewed 05/14/25

Indications - trauma, mass, hearing loss, cholesteatoma, tinnitus, vertigo, infection, otitis, mastoiditis.

GENERAL SCAN NOTES

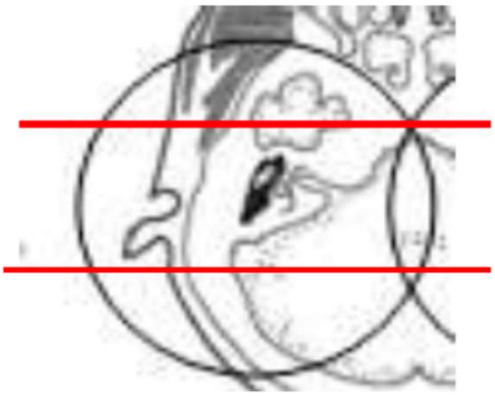
Remove any metal from the imaging field of view (particularly from the ears).
Topogram - from just above sella turcica to just below hard palate.
Craniocaudal coverage - from just above sella turcica to just below hard palate (see diagram below).
For all temporal bone studies, it is very important for image quality purposes to position the patient in the center of the scan field. Use the lateral laser beam to make sure that the patient is positioned in the center.
IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 40 secs scan delay.
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.

Axial Coverage

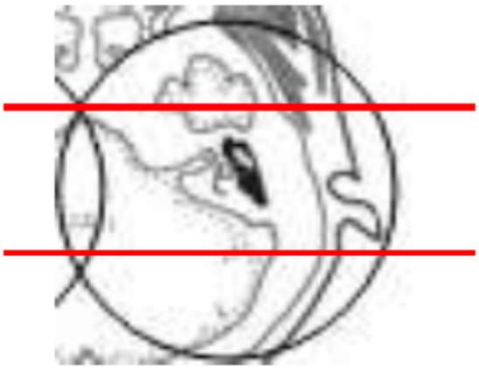


Axial Full FOV

Coronal Right Coverage



Coronal Left Coverage



FOV for axial and coronal right and left recons must be 80-120 mm and centered on their respective IACS.

CT IACs (Temporal Bones / Mastoids)

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	120	on	NA	0.55	16	0.75	1.0	6.1
Go Up 32	spiral	Sn 130	316	on	on 110	0.55	32	0.7	1.0	3.2
Sensation 64	spiral	120	140	on	NA	0.85	12	0.6	1.0	13.1
Definition 64	spiral	120	180	on	**semi**	0.85	16	0.6	1.0	9.8
Go Top 64	spiral	Sn 130	501	on	on 110	0.55	64	0.6	1.0	1.9
Drive 128	spiral	120	126	on	**semi**	0.85	16	0.6	1.0	9.8
Force 192	spiral	130	114	on	on	0.85	64	0.6	1.0	2.5

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX RIGHT	0.75 / 0.6	0.75 / 0.6	Hr69	inner ear	3	feet/head
COR RIGHT	0.75 / 0.6	0.75 / 0.6	Hr69	inner ear	3	front/back
AX LEFT	0.75 / 0.6	0.75 / 0.6	Hr69	inner ear	3	feet/head
COR LEFT	0.75 / 0.6	0.75 / 0.6	Hr69	inner ear	3	front/back
AX FULL	0.75 / 0.6	0.75 / 0.6	Bf32	abdomen	3	feet/head

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX FULL PRE	0.75 / 0.6	0.75 / 0.6	Bf32	abdomen	3	feet/head

Add the following recons if indication is **dehiscence of the superior semicircular canal** or asked for by Rad.

STENVER RIGHT	0.75 / 0.6	0.75 / 0.6	Hr69	inner ear	3	front/back
POSCHL RIGHT	0.75 / 0.6	0.75 / 0.6	Hr69	inner ear	3	left/right
STENVER LEFT	0.75 / 0.6	0.75 / 0.6	Hr69	inner ear	3	front/back
POSCHL LEFT	0.75 / 0.6	0.75 / 0.6	Hr69	inner ear	3	left/right

CT IACs (Temporal Bones / Mastoids)

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	head	120	80-350	8.00	on	0.625	10	0.531	10.62	0.8	NA	NA	3.0
Opt 540	helical	head	120	80-350	8.00	on	0.625	10	0.531	10.62	0.8	NA	NA	3.0
LS VCT 64	helical	head	120	80-350	8.00	on	0.625	20	0.531	10.62	0.5	20	20	1.9
Disc VCT 64	helical	head	120	80-350	8.00	on	0.625	20	0.531	10.62	0.5	NA	NA	1.9

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
AX RIGHT	**0.625**	**0.625**	**bone plus full**	**2500/480**	**feet/head**	**Must be first recon.**
COR RIGHT	0.625	0.625	bone plus full	2500/480	front/back	
AX LEFT	0.625	0.625	bone plus full	2500/480	feet/head	
COR LEFT	0.625	0.625	bone plus full	2500/480	front/back	
AX FULL	0.625	0.625	std full	400/40	feet/head	

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX FULL PRE	0.625	0.625	std full	400/40	feet/head

Add the following recons if indication is **dehiscence of the superior semicircular canal** or asked for by Rad.

STENVER RIGHT	0.625	0.625	bone plus full	2500/480	front/back
POSCHL RIGHT	0.625	0.625	bone plus full	2500/480	left/right
STENVER LEFT	0.625	0.625	bone plus full	2500/480	front/back
POSCHL LEFT	0.625	0.625	bone plus full	2500/480	left/right

CT IACs (Temporal Bones / Mastoids)

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	350	NA	**off**	0.40	32	0.625	0.50	2.5

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX RIGHT	0.8	0.8	YC	IAC	1	feet/head
COR RIGHT	0.8	0.8	YC	IAC	1	front/back
AX LEFT	0.8	0.8	YC	IAC	1	feet/head
COR LEFT	0.8	0.8	YC	IAC	1	front/back
AX FULL	0.8	0.8	UB	abdomen	1	feet/head

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX FULL PRE	0.8	0.8	UB	abdomen	1	feet/head

Add the following recons if indication is **dehiscence of the superior semicircular canal** or asked for by Rad.

STENVER RIGHT	0.8	0.8	YC	IAC	1	front/back
POSCHL RIGHT	0.8	0.8	YC	IAC	1	left/right
STENVER LEFT	0.8	0.8	YC	IAC	1	front/back
POSCHL LEFT	0.8	0.8	YC	IAC	1	left/right

CT Neck Soft Tissue

Updated 05/03/24
Reviewed 05/14/25

Indications - mass, lymphadenopathy, swelling, sore throat, difficulty swallowing, foreign body.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view (particularly dentures).
Use non metallic markers for palpable areas. Do not use metallic skin markers areas due to streak artifact.
Patient positioning is very important to decrease beam hardening artifact from shoulders:
- Place rolled towel/sheet between patient's shoulder blades to drop shoulders posteriorly.
- Have patient pull a folded sheet/towel wrapped around foot with both hands to pull shoulders towards feet.

Instruct patient to not swallowing during imaging.
Topogram - orbital floor through inferior aspect of main pulmonary artery.
Craniocaudal coverage - orbital floor through inferior aspect of main pulmonary artery.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 90 secs scan delay.
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.

CT Neck Soft Tissue

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	150	on	NA	0.80	16	0.8	0.75	15.6
Go Up 32	spiral	130	102	on	on 155	0.80	32	0.7	1.0	11.2
Sensation 64	spiral	120	150	on	NA	0.90	64	0.6	1.0	11.6
Definition 64	spiral	120	165	on	on	0.80	64	0.6	1.0	13.0
Go Top 64	spiral	120	119	on	on 155	0.80	64	0.6	1.0	6.5
Drive 128	spiral	120	116	on	on	0.80	128	0.6	1.0	6.5
Force 192	spiral	120	116	on	on	0.80	192	0.6	1.0	4.3

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	3.0	3.0	Br40 / B31s	abdomen	3	head/feet
COR SOFT	3.0	3.0	Br40 / B31s	abdomen	3	front/back
SAG SOFT	3.0	3.0	Br40 / B31s	abdomen	3	left/right
AX THINS	1.0	1.0	Br40 / B31s	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX PRE SOFT	3.0	3.0	Br40 / B31s	abdomen	3	head/feet

If **streak artifact** from **dental hardware**, perform a sequential scan around hardware:

Send of the post contrast if IV contrast given.

AX SOFT OBLIQUE	3.0	3.0	Bf37 / B31s	abdomen	3	head/feet

CT Neck Soft Tissue

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	8.60	on	2.5	10	1.375	13.75	0.6	NA	NA	8.7
Opt 540	helical	large	120	100-440	8.60	on	2.5	10	1.375	13.75	0.6	NA	NA	8.7
LS VCT 64	helical	small body	120	100-335	9.10	on	2.5	40	0.984	39.375	0.5	30	30	2.5
Disc VCT 64	helical	small body	120	100-335	9.10	on	2.5	40	0.984	39.375	0.5	NA	NA	2.5

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
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
AX THINS	1.25	1.25	std full	400/40	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.5	2.5	std full	400/40	head/feet

If **streak artifact** from **dental hardware**, perform a sequential scan around hardware:

Send of the post contrast if IV contrast given.

AX SOFT OBLIQUE	2.5	2.5	std full	400/40	head/feet

CT Neck Soft Tissue

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	203	22	on	0.80	64	0.625	0.75	4.7

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	3.0	3.0	B	soft tissue neck	3	head/feet
COR SOFT	3.0	3.0	B	soft tissue neck	3	front/back
SAG SOFT	3.0	3.0	B	soft tissue neck	3	left/right
AX THINS	1.0	1.0	B	soft tissue neck	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	B	soft tissue neck	3	head/feet

If **streak artifact** from **dental hardware**, perform a sequential scan around hardware:

Send of the post contrast if IV contrast given.

AX SOFT OBLIQUE	3.0	3.0	B	soft tissue neck	3	head/feet

CT Neck Parathyroid 4D

Updated 05/02/24
Reviewed 05/14/25

Indications - hyperparathyroidism, parathyroid hyperplasia, parathyroid adenoma, elevated PTH level, hypercalcemia.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view (particularly dentures).
Use non metallic markers for palpable areas. Do not use metallic skin markers areas due to streak artifact.
Patient positioning is very important to decrease beam hardening artifact from shoulders:
- Place rolled towel/sheet between patient's shoulder blades to drop shoulders posteriorly.
- Have patient pull a folded sheet/towel wrapped around foot with both hands to pull shoulders towards feet.

Instruct patient to not swallowing during imaging.
Topogram - orbital floor through inferior aspect of main pulmonary artery.
Craniocaudal coverage - orbital floor through inferior aspect of main pulmonary artery on all phases.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast:
- Administer **100 mL** **Omnipaque-300**.
- Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

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.

CT Neck Parathyroid 4D

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast**, **25 secs** and **85 secs** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	150	on	NA	0.80	16	0.8	0.75	15.6
Go Up 32	spiral	130	102	on	on 155	0.80	32	0.7	1.0	11.2
Sensation 64	spiral	120	150	on	NA	0.90	64	0.6	1.0	11.6
Definition 64	spiral	120	165	on	on	0.80	64	0.6	1.0	13.0
Go Top 64	spiral	120	119	on	on 155	0.80	64	0.6	1.0	6.5
Drive 128	spiral	120	116	on	on	0.80	128	0.6	1.0	6.5
Force 192	spiral	120	116	on	on	0.80	192	0.6	1.0	4.3

PRE CONTRAST

Name of Series	Thick	Interval	Kernel	Window	Recon Direction
AX SOFT	3.0	3.0	Br40 / B31s	abdomen	head/feet
COR SOFT	3.0	3.0	Br40 / B31s	abdomen	front/back

25 SEC DELAY PHASE

AX 25 SECS	3.0	3.0	Br40 / B31s	abdomen	head/feet
COR 25 SECS	3.0	3.0	Br40 / B31s	abdomen	front/back
SAG 25 SECS	3.0	3.0	Br40 / B31s	abdomen	left/right
AX 25 SECS THINS	1.0	1.0	Br40 / B31s	abdomen	head/feet

85 SEC DELAY PHASE

AX 85 SECS	3.0	3.0	Br40 / B31s	abdomen	head/feet
COR 85 SECS	3.0	3.0	Br40 / B31s	abdomen	front/back
SAG 85 SECS	3.0	3.0	Br40 / B31s	abdomen	left/right
AX 85 SECS THINS	1.0	1.0	Br40 / B31s	abdomen	head/feet

CT Neck Parathyroid 4D

GE PARAMETERS & RECONS

For the **Pre Contrast**, **25 secs** and **85 secs** phases:

	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	8.60	on	2.5	10	1.375	13.75	0.6	NA	NA	8.7
Opt 540	helical	large	120	100-440	8.60	on	2.5	10	1.375	13.75	0.6	NA	NA	8.7
LS VCT 64	helical	small body	120	100-335	9.10	on	2.5	40	0.984	39.375	0.5	30	30	2.5
Disc VCT 64	helical	small body	120	100-335	9.10	on	2.5	40	0.984	39.375	0.5	NA	NA	2.5

PRE CONTRAST

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR PRE	2.5	2.5	std full	400/40	front/back

Must be first recon.

25 SEC DELAY PHASE

AX 25 SECS	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR 25 SECS	2.5	2.5	std full	400/40	front/back
SAG 25 SECS	2.5	2.5	std full	400/40	left/right
AX 25 SECS AX THINS	1.25	1.25	std full	400/40	head/feet

Must be first recon.

85 SEC DELAY PHASE

AX 85 SECS	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR 85 SECS	2.5	2.5	std full	400/40	front/back
SAG 85 SECS	2.5	2.5	std full	400/40	left/right
AX 85 SECS AX THINS	1.25	1.25	std full	400/40	head/feet

Must be first recon.

CT Neck Parathyroid 4D

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast**, **25 secs** and **85 secs** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	129	22	on	0.80	64	0.625	0.75	4.7

PRE CONTRAST

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	3.0	3.0	B	soft tissue neck	3	head/feet
COR SOFT	3.0	3.0	B	soft tissue neck	3	front/back

25 SEC DELAY PHASE

AX 25 SECS	3.0	3.0	B	soft tissue neck	3	head/feet
COR 25 SECS	3.0	3.0	B	soft tissue neck	3	front/back
SAG 25 SECS	3.0	3.0	B	soft tissue neck	3	left/right
AX 25 SECS THINS	1.0	1.0	B	soft tissue neck	3	head/feet

85 SEC DELAY PHASE

AX 85 SECS	3.0	3.0	B	soft tissue neck	3	head/feet
COR 85 SECS	3.0	3.0	B	soft tissue neck	3	front/back
SAG 85 SECS	3.0	3.0	B	soft tissue neck	3	left/right
AX 85 SECS THINS	1.0	1.0	B	soft tissue neck	3	head/feet

CT Cervical Spine

Updated 05/02/24
Reviewed 05/14/25

Indications - pain, trauma, fracture, stenosis, spondylosis, spondylolisthesis, radiculopathy, extremity weakness, extremity paresthesia, disc rupture, disc herniation, mass, infection, pre/post surgical evaluation.

GENERAL SCAN NOTES

Keep patient's arms by his/her side if possible. Remove any metal from the imaging field of view.
Topogram - skull base through T1.
Craniocaudal scan coverage - skull base through T1.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 60 secs scan delay.
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	250	on	NA	0.80	16	0.75	0.75	13.7
Go Up 32	spiral	130	129	on	on 195	0.80	32	0.7	1.0	9.8
Sensation 64	spiral	120	250	on	NA	0.90	64	0.6	1.0	10.1
Definition 64	spiral	120	275	on	on	0.80	64	0.6	1.0	11.4
Go Top 64	spiral	120	150	on	on 195	0.80	64	0.6	1.0	5.7
Drive 128	spiral	120	193	on	on	0.80	128	0.6	1.0	5.7
Force 192	spiral	120	193	on	on	0.80	192	0.6	1.0	3.8

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	3.0	3.0	Br40 / H31s	abdomen	3	head/feet
AX BONE	3.0	3.0	Br59 / H70s	bone/osteo	3	head/feet
COR BONE	3.0	3.0	Br59 / H70s	bone/osteo	3	front/back
SAG BONE	3.0	3.0	Br59 / H70s	bone/osteo	3	left/right
AX THINS	0.75	0.75	Br59 / H70s	bone/osteo	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).
Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	Br40 / H31s	abdomen	3	head/feet

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

CT Cervical Spine

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	12.00	on	2.5	20	1.375	27.50	0.5	NA	NA	3.2
Opt 540	helical	large	120	100-440	12.00	on	2.5	20	1.375	27.50	0.5	NA	NA	3.2
LS VCT 64	helical	small body	120	100-450	12.00	on	2.5	40	1.375	55.00	0.5	20	20	1.6
Disc VCT 64	helical	small body	120	100-450	12.00	on	2.5	40	1.375	55.00	0.5	NA	NA	1.6

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
AX BONE	2.5	2.5	bone full	2500/480	head/feet
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right
AX THINS	0.625	0.625	bone plus full	2500/480	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.5	2.5	std full	400/40	head/feet

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	162	24	on	0.80	64	0.625	1.00	5.5

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	3.0	3.0	B	abdomen	2	head/feet
AX BONE	3.0	3.0	YC	bone	2	head/feet
COR BONE	3.0	3.0	YC	bone	2	front/back
SAG BONE	3.0	3.0	YC	bone	2	left/right
AX THINS	0.8	0.8	YC	bone	2	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	B	abdomen	2	head/feet

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

CT Thoracic Spine

Updated 05/02/24
Reviewed 05/14/25

Indications - pain, trauma, fracture, stenosis, spondylosis, spondylolisthesis, radiculopathy, extremity weakness, extremity paresthesia, disc rupture, disc herniation, mass, infection, pre/post surgical evaluation.

GENERAL SCAN NOTES

Move patient's arms over head if possible. Remove any metal from the imaging field of view.
Topogram - C7 through L1.
Craniocaudal coverage - C7 through L1.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 60 secs scan delay.
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	300	on	NA	0.80	16	1.5	0.75	11.7
Go Up 32	spiral	130	182	on	on 285	0.80	32	0.7	0.8	13.4
Sensation 64	spiral	120	300	on	NA	0.90	64	0.6	1.0	17.4
Definition 64	spiral	120	330	on	on	0.80	64	0.6	1.0	19.5
Go Top 64	spiral	120	219	on	on 285	0.80	64	0.6	1.0	9.8
Drive 128	spiral	120	232	on	on	0.80	128	0.6	1.0	9.8
Force 192	spiral	130	193	on	on	0.80	192	0.6	1.0	6.5

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	3.0	3.0	Br40 / H31s	abdomen	3	head/feet
AX BONE	3.0	3.0	Br59 / H70s	bone/osteo	3	head/feet
COR BONE	3.0	3.0	Br59 / H70s	bone/osteo	3	front/back
SAG BONE	3.0	3.0	Br59 / H70s	bone/osteo	3	left/right

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).
Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	Br40 / H31s	abdomen	3	head/feet

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

CT Thoracic Spine

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	13.50	on	2.5	20	1.375	27.50	0.5	NA	NA	5.5
Opt 540	helical	large	120	100-440	13.50	on	2.5	20	1.375	27.50	0.5	NA	NA	5.5
LS VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	1.375	55.00	0.5	20	20	2.7
Disc VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	1.375	55.00	0.5	NA	NA	2.7

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
AX BONE	2.5	2.5	bone full	2500/480	head/feet
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.5	2.5	std full	400/40	head/feet

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	162	24	on	1.00	64	0.625	0.75	5.6

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	3.0	3.0	B	abdomen	2	head/feet
AX BONE	3.0	3.0	YB	bone	2	head/feet
COR BONE	3.0	3.0	YB	bone	2	front/back
SAG BONE	3.0	3.0	YB	bone	2	left/right

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	B	abdomen	2	head/feet

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

CT Lumbar Spine

Updated 05/03/25
Reviewed 05/14/25

Indications - pain, trauma, fracture, stenosis, spondylosis, spondylolisthesis, radiculopathy, extremity weakness, extremity paresthesia, disc rupture, disc herniation, mass, infection, pre/post surgical evaluation.

GENERAL SCAN NOTES

Move patient's arms over head if possible. Remove any metal from the imaging field of view.
Topogram - T12 through bottom of SI joints.
Craniocaudal scan coverage - T12 through bottom of SI joints.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 60 secs scan delay.
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	300	on	NA	0.80	16	1.5	0.75	11.7
Go Up 32	spiral	130	182	on	on 285	0.80	32	0.7	1.0	16.7
Sensation 64	spiral	120	300	on	NA	0.90	64	0.6	1.0	17.4
Definition 64	spiral	120	330	on	on	0.80	64	0.6	1.0	19.5
Go Top 64	spiral	120	219	on	on 285	0.80	64	0.6	1.0	9.8
Drive 128	spiral	120	232	on	on	0.80	128	0.6	1.0	9.8
Force 192	spiral	130	193	on	on	0.80	192	0.6	1.0	6.5

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	3.0	3.0	Br40 / H31s	abdomen	3	head/feet
AX BONE	3.0	3.0	Br59 / H70s	bone/osteo	3	head/feet
COR BONE	3.0	3.0	Br59 / H70s	bone/osteo	3	front/back
SAG BONE	3.0	3.0	Br59 / H70s	bone/osteo	3	left/right

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).
Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	Br40 / H31s	abdomen	3	head/feet

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

CT Lumbar Spine

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	13.50	on	2.5	20	1.375	27.50	0.5	NA	NA	5.5
Opt 540	helical	large	120	100-440	13.50	on	2.5	20	1.375	27.50	0.5	NA	NA	5.5
LS VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	1.375	55.00	0.5	20	20	2.7
Disc VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	1.375	55.00	0.5	NA	NA	2.7

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
AX BONE	2.5	2.5	bone full	2500/480	head/feet
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.5	2.5	std full	400/40	head/feet

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	162	24	on	1.00	64	0.625	0.75	5.6

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	3.0	3.0	B	abdomen	3	head/feet
AX BONE	3.0	3.0	YB	bone	3	head/feet
COR BONE	3.0	3.0	YB	bone	3	front/back
SAG BONE	3.0	3.0	YB	bone	3	left/right

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	B	abdomen	3	head/feet

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

CT Myelogram

Updated 05/03/25
Reviewed 05/14/25

Indications - pain, stenosis, spondylosis, spondylolisthesis, radiculopathy, extremity weakness, extremity paresthesia, disc rupture, disc herniation, mass, pre/post surgical evaluation.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Inform the procedure radiologist if there is not adequate opacification of the thecal sac.
For Cervical Spine:
- Keep patient's arms by his/her side if possible.
- Topogram / Craniocaudal Scan Coverage - skull base through T1.

For Thoracic Spine:
- Move patient's arms over head if possible.
- Topogram / Craniocaudal Scan Coverage - C7 through L1.
- Have patient roll 3 times immediately before getting on the table to mix contrast.

For Lumbar Spine:
- Move patient's arms over head if possible.
- Topogram / Craniocaudal Scan Coverage - T12 through bottom of SI joints.
- Have patient roll 3 times immediately before getting on the table to mix contrast.

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

CT Myelogram

SIEMENS PARAMETERS & RECONS

For **Cervical Spine only** exams:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time
Sensation 16	spiral	120	250	on	NA	0.80	16	0.75	0.75
Go Up 32	spiral	130	129	on	on 195	0.80	32	0.7	1.0
Sensation 64	spiral	120	250	on	NA	0.90	64	0.6	1.0
Definition 64	spiral	120	275	on	on	0.80	64	0.6	1.0
Go Top 64	spiral	120	150	on	on 195	0.80	64	0.6	1.0
Drive 128	spiral	120	193	on	on	0.80	128	0.6	1.0
Force 192	spiral	120	193	on	on	0.80	192	0.6	1.0

For any exam that includes the **Thoracic** and/or **Lumbar** spine:

Thoracic only, Lumbar only, Cervical/Thoracic/Lumbar, Cervical/Thoracic and Thoracic/Lumbar

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll
Sensation 16	spiral	120	300	on	NA	0.80	16	1.5
Go Up 32	spiral	130	182	on	on 285	0.80	32	0.7
Sensation 64	spiral	120	300	on	NA	0.90	64	0.6
Definition 64	spiral	120	330	on	on	0.80	64	0.6
Go Top 64	spiral	120	219	on	on 285	0.80	64	0.6
Drive 128	spiral	120	232	on	on	0.80	128	0.6
Force 192	spiral	130	193	on	on	0.80	192	0.6

RECONS

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	3.0	3.0	Br40 / H31s	abdomen	3	head/feet
AX BONE	3.0	3.0	Br59 / H70s	bone/osteo	3	head/feet
COR BONE	3.0	3.0	Br59 / H70s	bone/osteo	3	front/back
SAG BONE	3.0	3.0	Br59 / H70s	bone/osteo	3	left/right

Also send the following recon for **cervical spine** exams.

AX THINS	0.75	0.75	Br40 / H31s	bone/osteo	3	head/feet

CT Myelogram

GE PARAMETERS & RECONS

For **Cervical Spine only** exams:

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR
LS 16	helical	large	120	100-440	12.00	on	2.5	20	1.375	27.50	0.5	NA	NA
Opt 540	helical	large	120	100-440	12.00	on	2.5	20	1.375	27.50	0.5	NA	NA
LS VCT 64	helical	small bdy	120	100-450	12.00	on	2.5	40	1.375	55.00	0.5	20	20
Disc VCT 64	helical	small bdy	120	100-450	12.00	on	2.5	40	1.375	55.00	0.5	NA	NA

For any exam that includes the **Thoracic** and/or **Lumbar** spine:

Thoracic only, Lumbar only, Cervical/Thoracic/Lumbar, Cervical/Thoracic and Thoracic/Lumbar

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR
LS 16	helical	large	120	100-440	13.50	on	2.5	20	1.375	27.50	0.5	NA	NA
Opt 540	helical	large	120	100-440	13.50	on	2.5	20	1.375	27.50	0.5	NA	NA
LS VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	1.375	55.00	0.5	20	20
Disc VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	1.375	55.00	0.5	NA	NA

RECONS

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
AX SOFT	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**
AX BONE	2.5	2.5	bone full	2500/480	head/feet	
COR BONE	2.5	2.5	bone full	2500/480	front/back	
SAG BONE	2.5	2.5	bone full	2500/480	left/right	

Also send the following recon for **cervical spine** exams.

AX THINS	0.625	0.625	bone plus full	2500/480	head/feet

CT Myelogram

PHILIPS PARAMETERS & RECONS

For **Cervical Spine only** exams:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time
Incisive 128	helical	120	162	24	on	0.80	64	0.625	1.00

For any exam that includes the **Thoracic** and/or **Lumbar** spine:

Thoracic only, Lumbar only, Cervical/Thoracic/Lumbar, Cervical/Thoracic and Thoracic/Lumbar

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time
Incisive 128	helical	120	162	24	on	1.00	64	0.625	0.75

RECONS

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	3.0	3.0	B	abdomen	3	head/feet
AX BONE	3.0	3.0	YB	bone	3	head/feet
COR BONE	3.0	3.0	YB	bone	3	front/back
SAG BONE	3.0	3.0	YB	bone	3	left/right

Also send the following recon for **cervical spine** exams.

AX THINS	0.8	0.8	YC	bone	2	head/feet

CT Cisternogram

Updated 05/03/25
Reviewed 05/14/25

Indications - CSF leak, rhinorrhea, otorrhea.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Patient Positioning:
Suspected leak from the nose - Place the patient prone with his/her face down.
Suspected leak from one of the ears - Place the patient decubitus leak side down.
Flip the images supine and correct right/left before sending to PACS.
Topogram - C1 vertebrae through top of head.
Craniocaudal scan coverage - C1 vertebrae through top of head. **Avoid scanning the lens of the eyes.**
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
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	280	on	NA	0.55	16	0.75	1.0	18.2
Go Up 32	spiral	130	230	**off**	**off**	0.55	32	0.7	1.0	9.7
Sensation 64	spiral	120	380	on	NA	0.85	64	0.6	1.0	7.4
Definition 64	spiral	120	350	on	on	0.55	64	0.6	1.0	11.4
Go Top 64	spiral	120	265	**off**	**off**	0.55	64	0.5	1.0	6.8
Drive 128	spiral	120	332	on	on	0.55	128	0.6	1.0	5.7
Force 192	spiral	120	332	on	on	0.55	192	0.6	1.0	3.8

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	4.0	4.0	Hr40 / H31s	cerebrum	3	feet/head
TRUE AX SOFT	4.0	4.0	Hr40 / H31s	cerebrum	3	feet/head
AX BONE	4.0	4.0	Hr64 / H70s	bone	3	feet/head
COR SOFT	3.0	3.0	Hr40 / H31s	cerebrum	3	front/back
SOFT THINS	0.75	0.75	Hr40 / H31s	cerebrum	3	feet/head
BONE THINS	0.75	0.75	Hr64 / H70s	bone	3	feet/head

CT Cisternogram

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	head	120	50-250	3.54	on	5.0	10	0.562	5.62	0.8	NA	NA	17.1
Opt 540	helical	head	120	50-250	3.54	on	5.0	10	0.562	5.62	0.8	NA	NA	17.1
LS VCT 64	helical	head	120	50-210	2.47	on	5.0	20	0.531	10.62	0.7	30	30	7.9
Disc VCT 64	helical	head	120	50-210	2.47	on	5.0	20	0.531	10.62	0.7	NA	NA	7.9

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**5.0**	**5.0**	**std full**	**80/40**	**feet/head**
TRUE AX SOFT	5.0	5.0	std full	80/40	feet/head
AX BONE	5.0	5.0	std full	2500/480	feet/head
COR SOFT	2.5	2.5	std full	80/40	front/back
SOFT THINS	0.625	0.625	std full	80/40	feet/head
BONE THINS	0.625	0.625	bone plus full	2500/480	feet/head

Must be first recon.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	310	37	on	0.70	64	0.625	1.0	4.3

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	4.0	4.0	UB	brain	1	feet/head
TRUE AX SOFT	4.0	4.0	UB	brain	1	feet/head
AX BONE	4.0	4.0	YB	bone	1	feet/head
COR SOFT	3.0	3.0	UB	brain	1	front/back
SOFT THINS	0.8	0.8	UB	brain	1	feet/head
BONE THINS	0.8	0.8	YC	bone	1	feet/head

CT Shoulder

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

Indications - trauma, fracture, dislocation, pain, bone tumor, soft tissue mass, infection, abscess, soft tissue gas, osteomyelitis, pre/post surgical evaluation.

Bill under CT Shoulder charges.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.

Topogram - from above top of shoulder to proximal humerus.

Craniocaudal scan coverage - from above top of shoulder to proximal humerus (through prosthesis if present). Include entire ipsilateral scapula in FOV.

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

IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 60 secs scan delay.

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	150	on	NA	0.80	16	0.75	1.0	10.4
Go Up 32	spiral	130	84	on	on 130	0.80	32	0.7	1.0	5.6
Sensation 64	spiral	120	150	on	NA	0.90	64	0.6	1.0	5.8
Definition 64	spiral	120	165	on	on	0.80	64	0.6	1.0	6.5
Go Top 64	spiral	130	100	on	on 130	0.80	64	0.6	1.0	3.3
Drive 128	spiral	120	116	on	on	0.80	128	0.6	1.0	3.3
Force 192	spiral	120	116	on	on	0.80	192	0.6	1.0	2.2

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	head/feet
COR BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	front/back
SAG BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	left/right
AX SOFT	3.0	3.0	Br40 / B31f	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	Br40 / B31f	abdomen	3	head/feet

Add the following recons for **arthrograms**:

COR SOFT	3.0	3.0	Br40 / B31f	abdomen	3	front/back
SAG SOFT	3.0	3.0	Br40 / B31f	abdomen	3	left/right

CT Shoulder

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	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA	5.3
Opt 540	helical	large	120	100-440	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA	5.3
LS VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	0.984	39.37	0.5	20	20	1.3
Disc VCT 64	helical	large body	140	100-610	14.14	on	2.5	40	0.516	20.625	0.6	NA	NA	2.9

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right
AX SOFT	2.5	2.5	std full	400/40	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.5	2.5	std full	400/40	head/feet

Add the following recons for **arthrograms**:

COR SOFT	2.5	2.5	std full	400/40	front/back
SAG SOFT	2.5	2.5	std full	400/40	left/right

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	129	22	on	0.80	64	0.625	1.00	3.1

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX BONE	3.0	3.0	YC	bone	3	head/feet
COR BONE	3.0	3.0	YC	bone	3	front/back
SAG BONE	3.0	3.0	YC	bone	3	left/right
AX SOFT	3.0	3.0	B	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

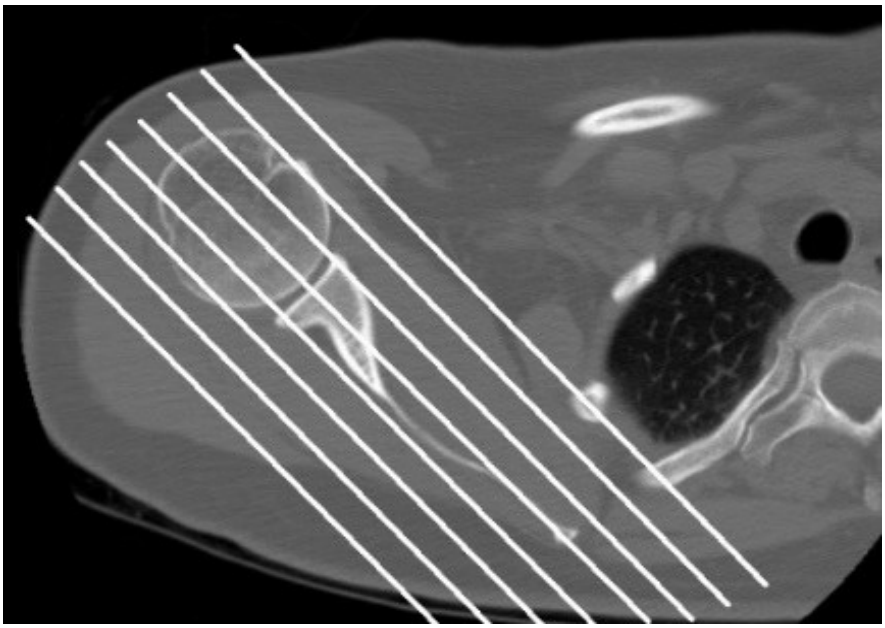
Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	B	abdomen	3	head/feet

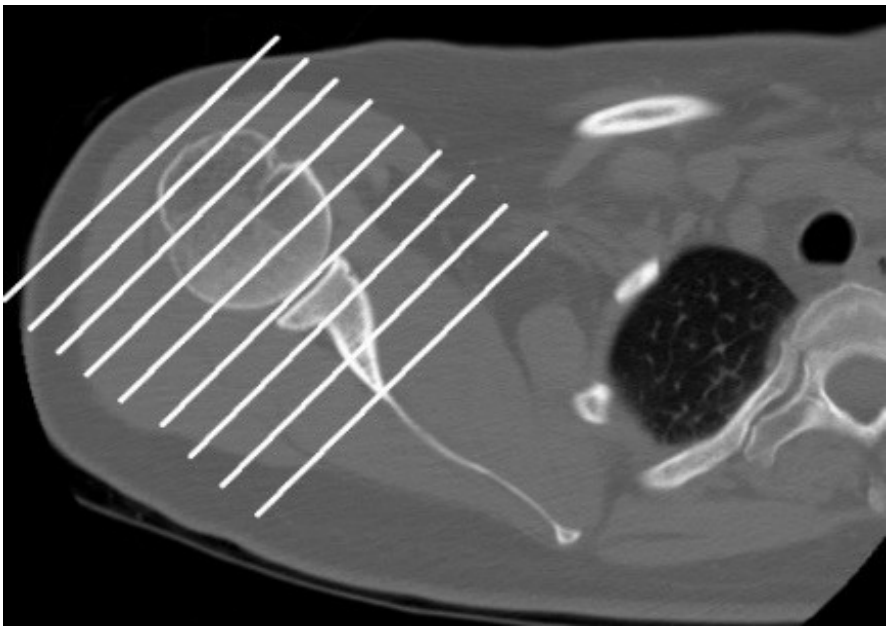
Add the following recons for **arthrograms**:

COR SOFT	3.0	3.0	B	abdomen	3	front/back
SAG SOFT	3.0	3.0	B	abdomen	3	left/right

CT Shoulder



Coronal Plane



Sagittal Plane

CT Elbow

Updated 05/05/24
Reviewed 05/15/25

Indications - trauma, fracture, dislocation, pain, bone tumor, soft tissue mass, infection, abscess, soft tissue gas, osteomyelitis, pre/post surgical evaluation.
Bill under CT Elbow charges.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Patient positioning:
Preferred - Patient lateral decubitus position with affected arm extended over head with palm up.
Option 2 - Patient supine head first position with arm over head.
Option 3 - Patient supine with elbow off to side of chest. Instruct patient there will be a breath hold.
Topogram - distal humerus through proximal radius and ulna.
Craniocaudal scan coverage - distal humerus through proximal radius and ulna (through prosthesis if present).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 60 secs scan delay.
IV should be in the opposite arm.
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	150	on	NA	0.80	16	0.75	1.0	15.6
Go Up 32	spiral	Sn 110	366	on	on 75	0.40	32	0.7	1.0	16.7
Sensation 64	spiral	120	150	on	NA	0.90	64	0.6	1.0	8.7
Definition 64	spiral	120	100	on	**off**	0.80	64	0.6	1.0	9.8
Go Top 64	spiral	Sn 100	898	on	on 75	0.40	64	0.6	1.0	9.8
Drive 128	spiral	120	70	on	**off**	0.80	128	0.6	1.0	4.9
Force 192	spiral	120	70	on	**off**	0.80	192	0.6	1.0	3.3

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX BONE	2.0	2.0	Br59 / B60f	bone/osteo	3	head/feet
COR BONE	2.0	2.0	Br59 / B60f	bone/osteo	3	front/back
SAG BONE	2.0	2.0	Br59 / B60f	bone/osteo	3	left/right
AX SOFT	2.0	2.0	Br40 / B31f	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).
Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.0	2.0	Br40 / B31f	abdomen	3	head/feet

CT Elbow

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	17.68	on	1.25	10	0.938	9.37	0.5	NA	NA	8.0
Opt 540	helical	large	120	100-440	17.68	on	1.25	10	0.938	9.37	0.5	NA	NA	8.0
LS VCT 64	helical	large body	120	100-450	22.63	on	1.25	40	0.984	39.37	0.5	20	20	1.9
Disc VCT 64	helical	large body	120	100-450	22.63	on	1.25	40	0.984	39.37	0.5	NA	NA	1.9

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX BONE	**1.25**	**1.25**	**bone full**	**2500/480**	**head/feet**
COR BONE	1.25	1.25	bone full	2500/480	front/back
SAG BONE	1.25	1.25	bone full	2500/480	left/right
AX SOFT	1.25	1.25	std full	400/40	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	1.25	1.25	std full	400/40	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	129	22	on	0.80	64	0.625	1.00	4.7

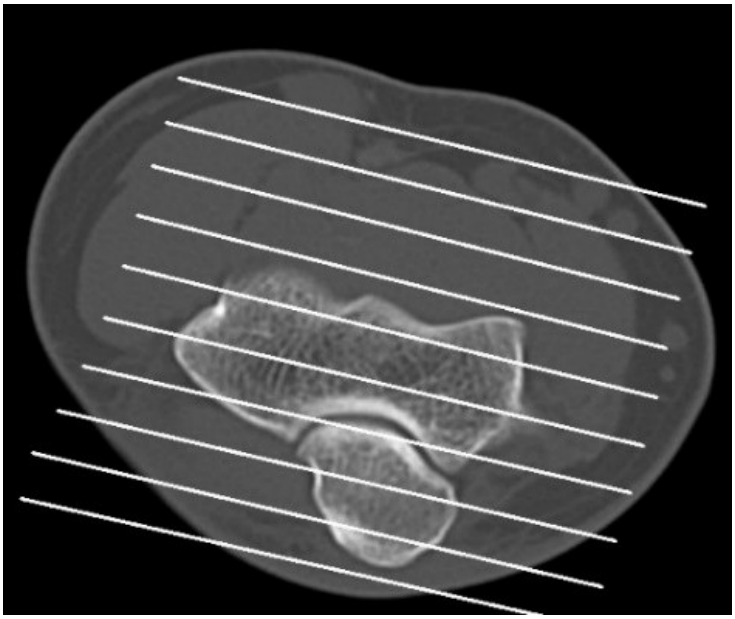
Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX BONE	2.0	2.0	YC	bone	3	head/feet
COR BONE	2.0	2.0	YC	bone	3	front/back
SAG BONE	2.0	2.0	YC	bone	3	left/right
AX SOFT	2.0	2.0	B	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

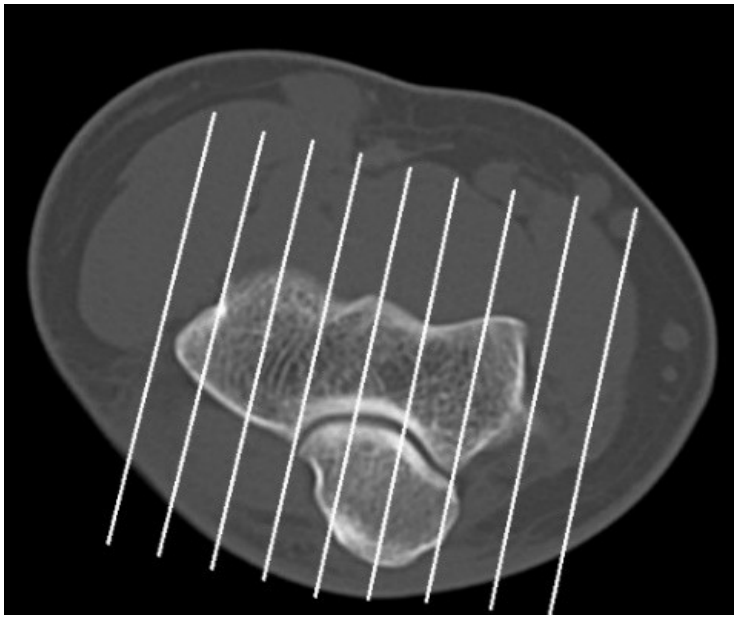
Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.0	2.0	B	abdomen	3	head/feet

CT Elbow



Coronal Plane



Sagittal Plane

CT Wrist

Updated 05/05/24
Reviewed 05/15/25

Indications - trauma, fracture, dislocation, pain, bone tumor, soft tissue mass, infection, abscess, soft tissue gas, osteomyelitis, pre/post surgical evaluation.
Bill under CT Wrist charges.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Patient positioning:
Preferred - Patient prone with arm over head in center of scanner, palm down with fingers straight and close together.
Option 1 - Patient lateral decubitus position with affected arm extended over head with palm up.
Topogram - base of the metacarpals through distal radioulnar joint.
Craniocaudal scan coverage - base of the metacarpals through distal radioulnar joint.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 60 secs scan delay.
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	120	on	NA	0.55	16	0.75	1.0	9.1
Go Up 32	spiral	Sn 110	366	on	on 75	0.40	32	0.7	1.0	6.7
Sensation 64	spiral	120	120	on	NA	0.90	64	0.6	1.0	3.5
Definition 64	spiral	120	100	on	**off**	0.80	64	0.6	1.0	3.9
Go Top 64	spiral	Sn 100	898	on	on 75	0.40	64	0.6	1.0	3.9
Drive 128	spiral	120	70	on	**off**	0.80	128	0.6	1.0	2.0
Force 192	spiral	120	70	on	**off**	0.80	192	0.6	1.0	1.3

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX BONE	2.0	2.0	Br59 / B60f	bone/osteo	3	head/feet
COR BONE	2.0	2.0	Br59 / B60f	bone/osteo	3	front/back
SAG BONE	2.0	2.0	Br59 / B60f	bone/osteo	3	left/right
AX SOFT	2.0	2.0	Br40 / B31f	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).
Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.0	2.0	Br40 / B31f	abdomen	3	head/feet

CT Wrist

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	17.68	on	1.25	10	0.938	9.37	0.5	NA	NA	3.2
Opt 540	helical	large	120	100-440	17.68	on	1.25	10	0.938	9.37	0.5	NA	NA	3.2
LS VCT 64	helical	large body	120	100-450	16.00	on	1.25	40	0.984	39.37	0.5	20	20	0.8
Disc VCT 64	helical	large body	120	100-450	16.00	on	1.25	40	0.984	39.37	0.5	NA	NA	0.8

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX BONE	**1.25**	**1.25**	**bone full**	**2500/480**	**head/feet**
COR BONE	1.25	1.25	bone full	2500/480	front/back
SAG BONE	1.25	1.25	bone full	2500/480	left/right
AX SOFT	1.25	1.25	std full	400/40	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	1.25	1.25	std full	400/40	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	32	20	**off**	0.80	64	0.625	1.00	1.9

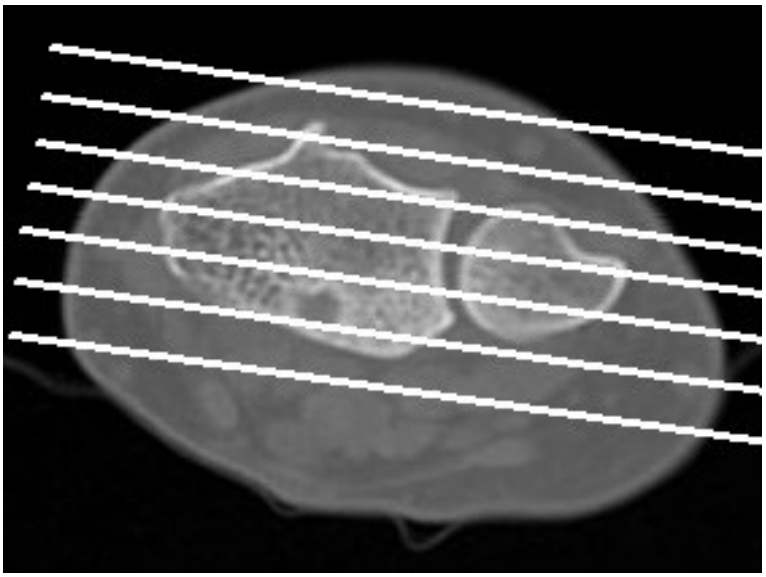
Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX BONE	2.0	2.0	YC	bone	3	head/feet
COR BONE	2.0	2.0	YC	bone	3	front/back
SAG BONE	2.0	2.0	YC	bone	3	left/right
AX SOFT	2.0	2.0	B	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

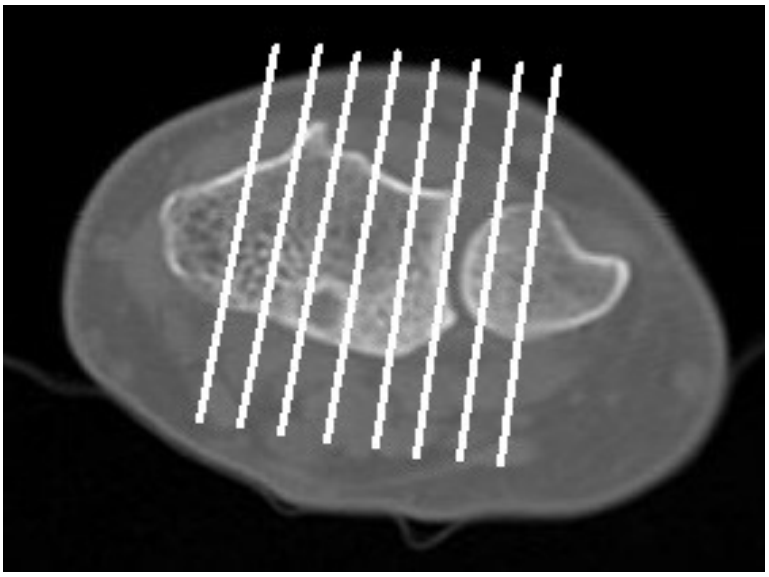
Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.0	2.0	B	abdomen	3	head/feet

CT Wrist



Coronal Plane
(line through radial and ulnar styloids)



Sagittal Plane
(perpendicular to coronal plane)

CT Hand

Updated 05/05/24
Reviewed 05/15/25

Indications - trauma, fracture, dislocation, pain, bone tumor, soft tissue mass, infection, abscess, soft tissue gas, osteomyelitis, pre/post surgical evaluation.

Bill under CT Upper Extremity charges.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.

Patient positioning:

Preferred - Patient prone with arm over head in center of scanner, palm down in line with forearm and wrist and with fingers straight and close together.

Option 1 - Patient lateral decubitus position with affected arm extended over head with palm up.

Topogram - from distal radioulnar joint through fingertips.

Craniocaudal scan coverage - from distal radioulnar joint through fingertips if no specific anatomy requested.

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

IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 60 secs scan delay.

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	120	on	NA	0.55	16	0.75	1.0	9.1
Go Up 32	spiral	Sn 110	366	on	on 75	0.40	32	0.7	1.0	6.7
Sensation 64	spiral	120	120	on	NA	0.90	64	0.6	1.0	3.5
Definition 64	spiral	120	100	on	**off**	0.80	64	0.6	1.0	3.9
Go Top 64	spiral	Sn 100	898	on	on 75	0.40	64	0.6	1.0	3.9
Drive 128	spiral	120	70	on	**off**	0.80	128	0.6	1.0	2.0
Force 192	spiral	120	70	on	**off**	0.80	192	0.6	1.0	1.3

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX BONE	2.0	2.0	Br59 / B60f	bone/osteo	3	head/feet
COR BONE	2.0	2.0	Br59 / B60f	bone/osteo	3	front/back
SAG BONE	2.0	2.0	Br59 / B60f	bone/osteo	3	left/right
AX SOFT	2.0	2.0	Br40 / B31f	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.0	2.0	Br40 / B31f	abdomen	3	head/feet

CT Hand

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	17.68	on	1.25	10	0.938	9.37	0.5	NA	NA	3.2
Opt 540	helical	large	120	100-440	17.68	on	1.25	10	0.938	9.37	0.5	NA	NA	3.2
LS VCT 64	helical	large body	120	100-450	16.00	on	1.25	40	0.984	39.37	0.5	20	20	0.8
Disc VCT 64	helical	large body	120	100-450	16.00	on	1.25	40	0.984	39.37	0.5	NA	NA	0.8

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX BONE	**1.25**	**1.25**	**bone full**	**2500/480**	**head/feet**
COR BONE	1.25	1.25	bone full	2500/480	front/back
SAG BONE	1.25	1.25	bone full	2500/480	left/right
AX SOFT	1.25	1.25	std full	400/40	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	1.25	1.25	std full	400/40	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	32	20	**off**	0.80	64	0.625	1.00	1.9

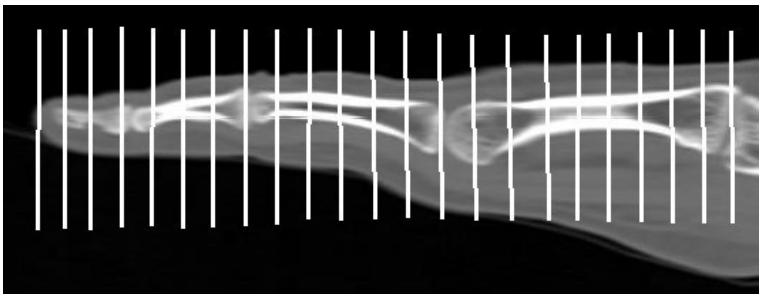
Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX BONE	2.0	2.0	YC	bone	3	head/feet
COR BONE	2.0	2.0	YC	bone	3	front/back
SAG BONE	2.0	2.0	YC	bone	3	left/right
AX SOFT	2.0	2.0	B	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

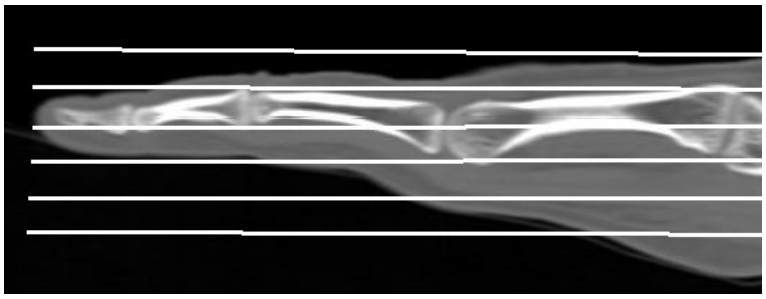
Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.0	2.0	B	abdomen	3	head/feet

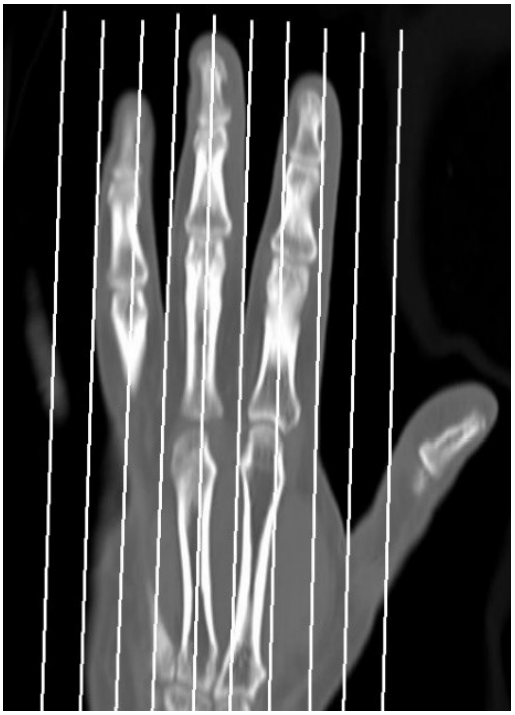
CT Hand



Axial Plane



Coronal Plane



Sagittal Plane

CT Bony Pelvis

Updated 05/05/24
Reviewed 05/15/25

Indications - trauma, fracture, dislocation, pain, bone tumor, soft tissue mass, infection, abscess, soft tissue gas, osteomyelitis, pre/post surgical evaluation.
Bill under CT Pelvis charges.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - iliac crests through lesser trochanters (through prosthesis if present).
Craniocaudal scan coverage - iliac crests through lesser trochanters (through prosthesis if present).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 60 secs scan delay.

If protocoled as **sacrum/coccyx** focus:

Coverage - L5 vertebra through bottom of coccyx (top/bottom coverage).
Include both SI joints (side/side coverage).
Technique/Recons - same as bony pelvis.
Bill under CT Pelvis charges.

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	200	on	NA	0.80	16	1.5	0.5	5.2
Go Up 32	spiral	130	107	on	on 170	0.80	32	0.7	1.0	11.2
Sensation 64	spiral	120	200	on	NA	0.90	24	1.2	0.5	3.9
Definition 64	spiral	120	210	on	on	0.80	16	1.2	0.5	6.5
Go Top 64	spiral	120	131	on	on 170	0.80	64	0.6	1.0	6.5
Drive 128	spiral	120	147	on	on	0.80	32	1.2	0.5	3.3
Force 192	spiral	120	147	on	on	0.80	48	1.2	0.5	2.2

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	head/feet
COR BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	front/back
SAG BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	left/right
AX SOFT	3.0	3.0	Br40 / B31f	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	Br40 / B31f	abdomen	3	head/feet

CT Bony Pelvis

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	19.09	on	2.5	20	1.375	27.50	0.5	NA	NA	3.6
Opt 540	helical	large	120	100-440	19.09	on	2.5	20	1.375	27.50	0.5	NA	NA	3.6
LS VCT 64	helical	large body	120	120-450	11.50	on	2.5	40	0.984	39.37	0.5	30	70	2.5
Disc VCT 64	helical	large body	120	100-700	14.14	on	2.5	40	0.984	39.37	0.8	NA	NA	4.1

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right
AX SOFT	2.5	2.5	std full	400/40	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.5	2.5	std full	400/40	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	103	20	on	0.80	64	0.625	0.75	4.7

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX BONE	3.0	3.0	YC	bone	3	head/feet
COR BONE	3.0	3.0	YC	bone	3	front/back
SAG BONE	3.0	3.0	YC	bone	3	left/right
AX SOFT	3.0	3.0	B	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	B	abdomen	3	head/feet

CT Hip

Updated 05/05/24
Reviewed 05/15/25

Indications - trauma, fracture, dislocation, pain, bone tumor, soft tissue mass, infection, abscess, soft tissue gas, osteomyelitis, pre/post surgical evaluation.

Bill under CT Hip charges.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

Topogram - iliac crests through lesser trochanters (through prosthesis if present).

Craniocaudal scan coverage - iliac crests through lesser trochanters (through prosthesis if present). Include contralateral SI joint (side/side coverage).

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

IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 60 secs scan delay.

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	200	on	NA	0.80	16	1.5	0.5	2.6
Go Up 32	spiral	130	109	on	on 170	0.80	32	0.7	1.0	5.6
Sensation 64	spiral	120	200	on	NA	0.90	24	1.2	0.5	1.9
Definition 64	spiral	120	190	on	on	0.80	64	0.6	1.0	6.5
Go Top 64	spiral	120	131	on	on 170	0.80	64	0.6	1.0	3.3
Drive 128	spiral	120	133	on	on	0.80	128	0.6	1.0	3.3
Force 192	spiral	120	133	on	on	0.80	192	0.6	1.0	2.2

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	head/feet
COR BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	front/back
SAG BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	left/right
AX SOFT	3.0	3.0	Br40 / B31f	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	Br40 / B31f	abdomen	3	head/feet

Add the following recons for **arthrograms**:

COR SOFT	3.0	3.0	Br40 / B31f	abdomen	3	front/back
SAG SOFT	3.0	3.0	Br40 / B31f	abdomen	3	left/right

CT Hip

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	19.09	on	2.5	20	1.375	27.50	0.5	NA	NA	1.8
Opt 540	helical	large	120	100-440	19.09	on	2.5	20	1.375	27.50	0.5	NA	NA	1.8
LS VCT 64	helical	large body	120	120-450	11.50	on	2.5	40	0.984	39.37	0.5	30	70	1.3
Disc VCT 64	helical	large body	120	100-700	14.14	on	2.5	40	0.984	39.37	0.8	NA	NA	2.0

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right
AX SOFT	2.5	2.5	std full	400/40	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.5	2.5	std full	400/40	head/feet

Add the following recons for **arthrograms**:

COR SOFT	2.5	2.5	std full	400/40	front/back
SAG SOFT	2.5	2.5	std full	400/40	left/right

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	103	20	on	0.80	64	0.625	0.75	2.3

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX BONE	3.0	3.0	YC	bone	3	head/feet
COR BONE	3.0	3.0	YC	bone	3	front/back
SAG BONE	3.0	3.0	YC	bone	3	left/right
AX SOFT	3.0	3.0	B	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	B	abdomen	3	head/feet

Add the following recons for **arthrograms**:

COR SOFT	3.0	3.0	B	abdomen	3	front/back
SAG SOFT	3.0	3.0	B	abdomen	3	left/right

CT Knee

Updated 05/04/25
Reviewed 05/15/25

Indications - trauma, fracture, dislocation, pain, bone tumor, soft tissue mass, infection, abscess, soft tissue gas, osteomyelitis, pre/post surgical evaluation.

Bill under CT Knee charges.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.

Topogram - distal femur to proximal tibia/fibula (through prosthesis if present).

Craniocaudal scan coverage - distal femur to proximal tibia/fibula (through prosthesis if present).

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

IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 60 secs scan delay.

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	140	on	NA	0.55	16	0.75	1.0	22.7
Go Up 32	spiral	Sn 110	366	on	on 75	0.40	32	0.7	1.0	16.7
Sensation 64	spiral	120	140	on	NA	0.90	64	0.6	1.0	8.7
Definition 64	spiral	120	100	on	**off**	0.80	64	0.6	1.0	9.8
Go Top 64	spiral	Sn 110	898	on	on	0.40	64	0.6	1.0	9.8
Drive 128	spiral	120	70	on	**off**	0.80	128	0.6	1.0	4.9
Force 192	spiral	120	70	on	**off**	0.80	192	0.6	1.0	3.3

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	head/feet
COR BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	front/back
SAG BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	left/right
AX SOFT	3.0	3.0	Br40 / B31f	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	Br40 / B31f	abdomen	3	head/feet

Add the following recons for **arthrograms**:

COR SOFT	3.0	3.0	Br40 / B31f	abdomen	3	front/back
SAG SOFT	3.0	3.0	Br40 / B31f	abdomen	3	left/right

CT Knee

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	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA	8.0
Opt 540	helical	large	120	100-440	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA	8.0
LS VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	0.984	39.37	0.5	20	20	1.9
Disc VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	0.984	39.37	0.5	20	20	1.9

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right
AX SOFT	2.5	2.5	std full	400/40	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.5	2.5	std full	400/40	head/feet

Add the following recons for **arthrograms**:

COR SOFT	2.5	2.5	std full	400/40	front/back
SAG SOFT	2.5	2.5	std full	400/40	left/right

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	32	20	**off**	0.80	64	0.625	1.00	4.7

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX BONE	3.0	3.0	YB	bone	3	head/feet
COR BONE	3.0	3.0	YB	bone	3	front/back
SAG BONE	3.0	3.0	YB	bone	3	left/right
AX SOFT	3.0	3.0	B	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

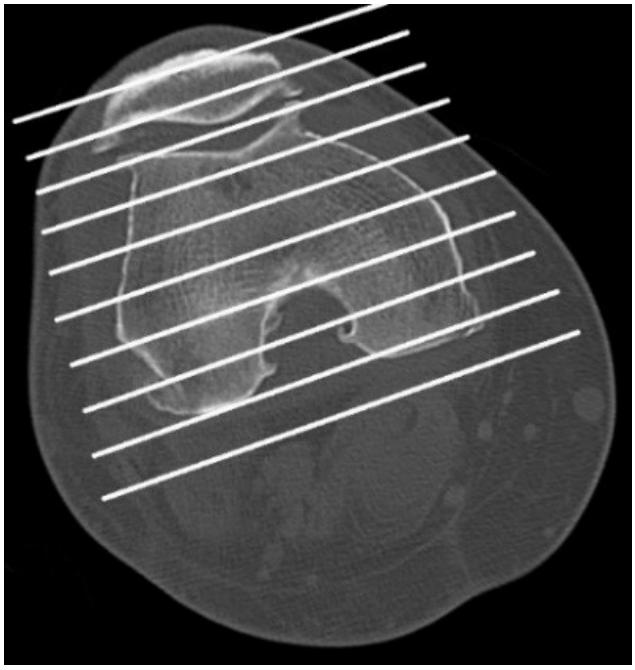
Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	B	abdomen	3	head/feet

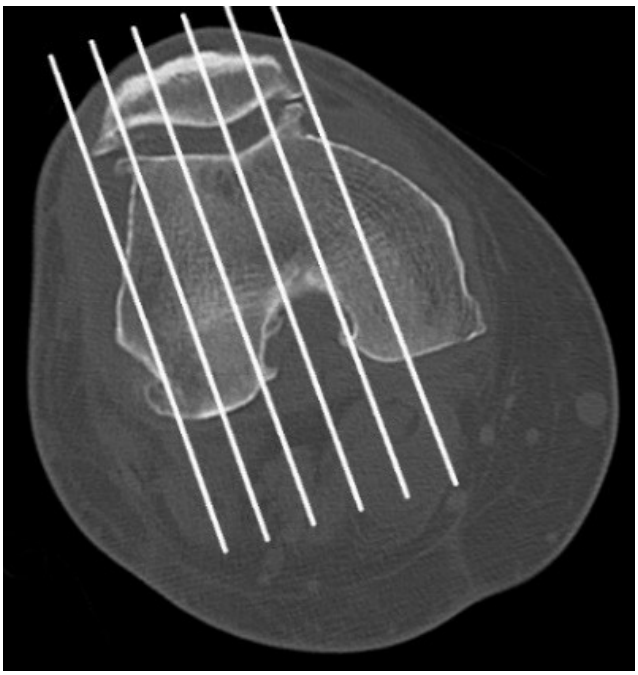
Add the following recons for **arthrograms**:

COR SOFT	3.0	3.0	B	abdomen	3	front/back
SAG SOFT	3.0	3.0	B	abdomen	3	left/right

CT Knee



Coronal Plane



Sagittal Plane

CT Ankle/Hindfoot

Updated 05/05/25
Reviewed 05/15/25

Indications - trauma, fracture, dislocation, pain, bone tumor, soft tissue mass, infection, abscess, soft tissue gas, osteomyelitis, pre/post surgical evaluation.

Bill under CT Ankle charges.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.

Patient positioning:

Have opposite leg bent at knee with ankle/foot out of way of ankle of interest.

Foot must be dorsiflexed with foot perpendicular to tibia (see images at end of protocol).

Topogram - distal tibia through bottom of foot.

Craniocaudal scan coverage - 3 cm above ankle joint through skin of ball of foot.

Base of metatarsals through skin over Achilles tendon (front/back coverage).

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

IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 60 secs scan delay.

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	120	on	NA	0.55	16	0.75	1.0	5.3
Go Up 32	spiral	Sn 110	366	on	on 75	0.40	32	0.7	1.0	3.9
Sensation 64	spiral	120	120	on	NA	0.90	64	0.6	1.0	2.0
Definition 64	spiral	120	100	on	**off**	0.80	64	0.6	1.0	2.3
Go Top 64	spiral	Sn 100	898	on	on 75	0.40	64	0.6	1.0	2.3
Drive 128	spiral	120	70	on	**off**	0.80	128	0.6	1.0	1.1
Force 192	spiral	120	70	on	**off**	0.80	192	0.6	1.0	0.8

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX BONE	2.0	2.0	Br59 / B60f	bone/osteo	3	head/feet
COR BONE	2.0	2.0	Br59 / B60f	bone/osteo	3	front/back
SAG BONE	2.0	2.0	Br59 / B60f	bone/osteo	3	left/right
AX SOFT	2.0	2.0	Br40 / B31f	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.0	2.0	Br40 / B31f	abdomen	3	head/feet

CT Ankle/Hindfoot

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	17.68	on	1.25	10	0.938	9.37	0.5	NA	NA	1.9
Opt 540	helical	large	120	100-440	17.68	on	1.25	10	0.938	9.37	0.5	NA	NA	1.9
LS VCT 64	helical	large body	120	100-450	22.63	on	1.25	40	0.984	39.37	0.5	20	20	0.4
Disc VCT 64	helical	large body	120	100-450	22.63	on	1.25	40	0.984	39.37	0.5	NA	NA	0.4

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX BONE	**1.25**	**1.25**	**bone full**	**2500/480**	**head/feet**
COR BONE	1.25	1.25	bone full	2500/480	front/back
SAG BONE	1.25	1.25	bone full	2500/480	left/right
AX SOFT	1.25	1.25	std full	400/40	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	1.25	1.25	std full	400/40	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	85	32	on	0.80	64	0.625	1.00	1.1

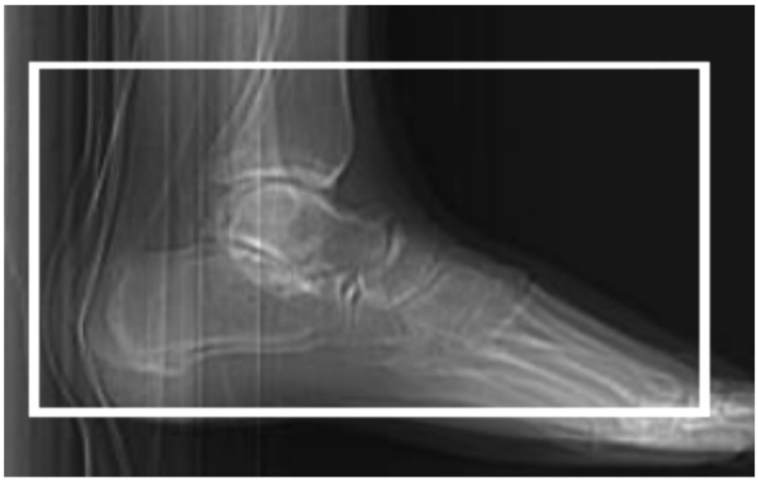
Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX BONE	2.0	2.0	YC	bone	3	head/feet
COR BONE	2.0	2.0	YC	bone	3	front/back
SAG BONE	2.0	2.0	YC	bone	3	left/right
AX SOFT	2.0	2.0	B	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

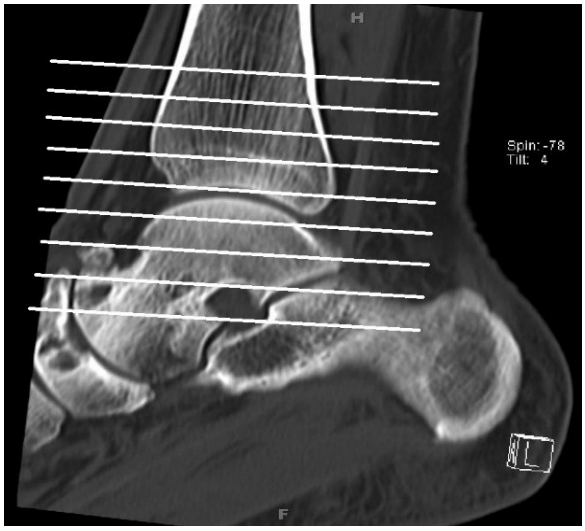
Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.0	2.0	B	abdomen	3	head/feet

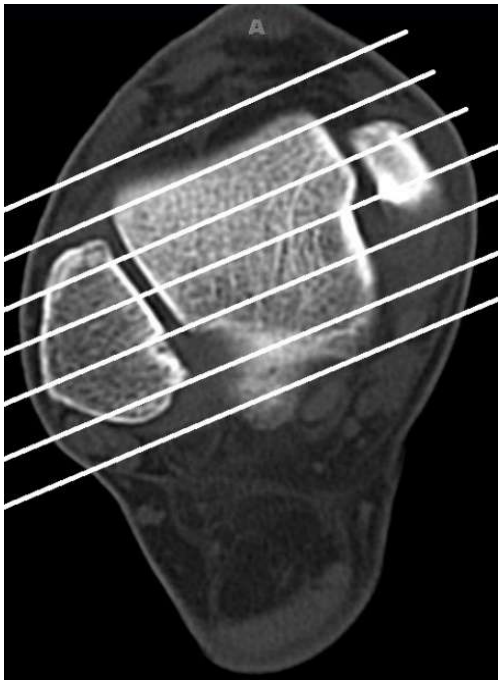
CT Ankle/Hindfoot



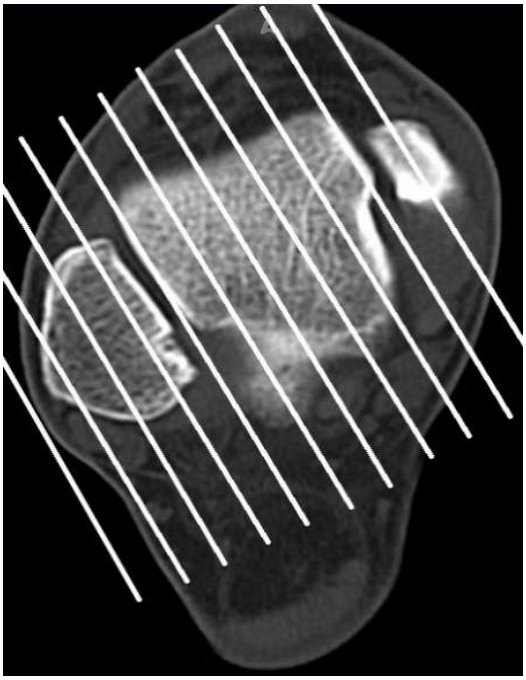
Foot must be dorsiflexed with foot perpendicular to tibia.



Axial Plane



Coronal Plane



Sagittal Plane

CT Forefoot

Updated 05/05/25
Reviewed 05/15/25

Indications - trauma, fracture, dislocation, pain, bone tumor, soft tissue mass, infection, abscess, soft tissue gas, osteomyelitis, pre/post surgical evaluation.

Bill under CT Lower Extremity charges.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.

Patient positioning - have opposite leg bent at knee with ankle/foot out of way of foot of interest.

Topogram - distal tibia through bottom of foot.

Craniocaudal scan coverage - skin of dorsum of forefoot/toes through skin of plantar aspect of forefoot/toes. Skin of toes through 1 cm posterior to tarsometatarsal joints (front/back coverage).

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

IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 60 secs scan delay.

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	120	on	NA	0.55	16	0.75	1.0	5.3
Go Up 32	spiral	Sn 110	366	on	on 75	0.40	32	0.7	1.0	3.9
Sensation 64	spiral	120	120	on	NA	0.90	64	0.6	1.0	2.0
Definition 64	spiral	120	100	on	**off**	0.80	64	0.6	1.0	2.3
Go Top 64	spiral	Sn 100	898	on	on 75	0.40	64	0.6	1.0	2.3
Drive 128	spiral	120	70	on	**off**	0.80	128	0.6	1.0	1.1
Force 192	spiral	120	70	on	**off**	0.80	192	0.6	1.0	0.8

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX BONE	2.0	2.0	Br59 / B60f	bone/osteo	3	head/feet
COR BONE	2.0	2.0	Br59 / B60f	bone/osteo	3	front/back
SAG BONE	2.0	2.0	Br59 / B60f	bone/osteo	3	left/right
AX SOFT	2.0	2.0	Br40 / B31f	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.0	2.0	Br40 / B31f	abdomen	3	head/feet

CT Forefoot

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	17.68	on	1.25	10	0.938	9.37	0.5	NA	NA	1.9
Opt 540	helical	large	120	100-440	17.68	on	1.25	10	0.938	9.37	0.5	NA	NA	1.9
LS VCT 64	helical	large body	120	100-450	22.63	on	1.25	40	0.984	39.37	0.5	20	20	0.4
Disc VCT 64	helical	large body	120	100-450	22.63	on	1.25	40	0.984	39.37	0.5	NA	NA	0.4

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX BONE	**1.25**	**1.25**	**bone full**	**2500/480**	**head/feet**
COR BONE	1.25	1.25	bone full	2500/480	front/back
SAG BONE	1.25	1.25	bone full	2500/480	left/right
AX SOFT	1.25	1.25	std full	400/40	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	1.25	1.25	std full	400/40	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	85	32	on	0.80	64	0.625	1.00	1.1

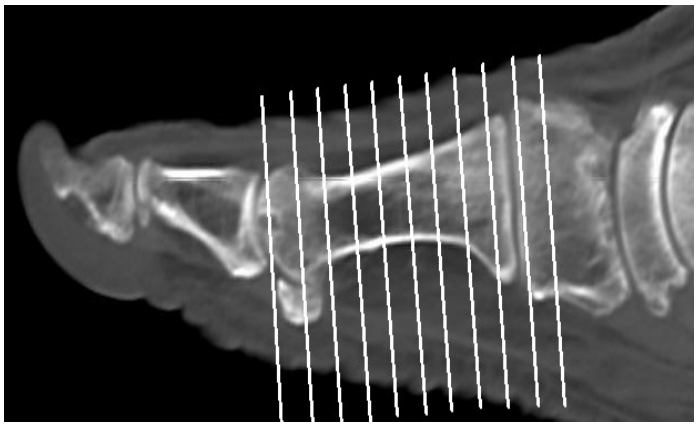
Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX BONE	2.0	2.0	YC	bone	3	head/feet
COR BONE	2.0	2.0	YC	bone	3	front/back
SAG BONE	2.0	2.0	YC	bone	3	left/right
AX SOFT	2.0	2.0	B	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

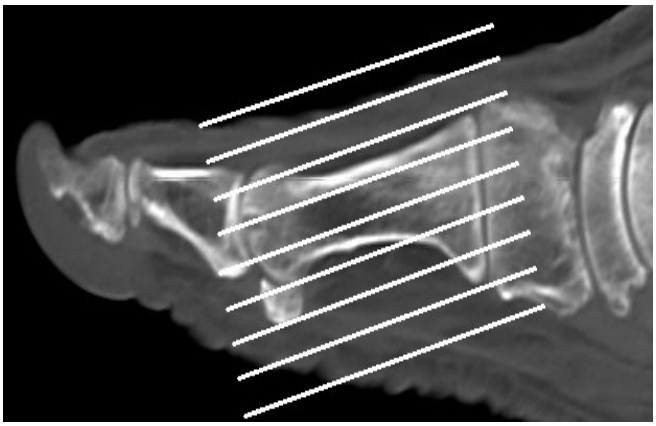
Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.0	2.0	B	abdomen	3	head/feet

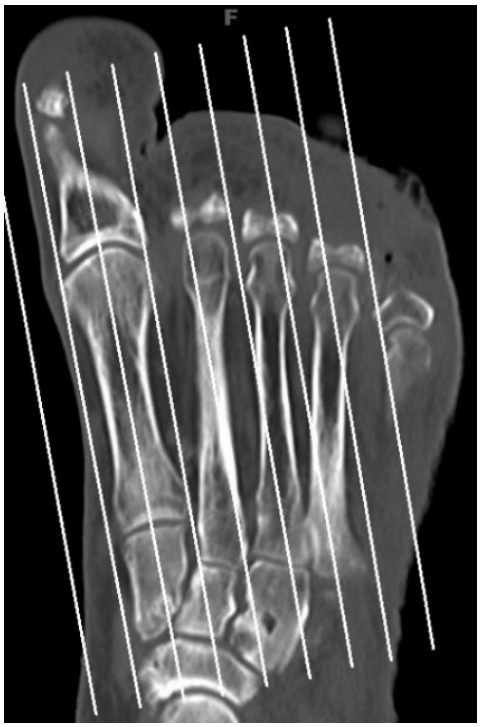
CT Forefoot



Axial Plane



Coronal Plane



Sagittal Plane

CT Long Bones

Updated 05/05/25
Reviewed 05/15/25

Indications - trauma, fracture, dislocation, pain, bone tumor, soft tissue mass, infection, abscess, soft tissue gas, osteomyelitis, pre/post surgical evaluation.

Bill under:

CT Humerus charges for **humerus**.
CT Upper Extremity charges for **radius/ulna**.
CT Femur charges for **femur**.
CT Lower Extremity charges for **tibia/fibula**.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.

Topogram / Craniocaudal scan coverage:

Radius/Ulna - just above elbow to just below wrist.
Humerus - just above humeral head to just below elbow.
Femur - just above acetabulum to just below knee.
Tibia/Fibula - just above knee to just below ankle.

Scan through entire prosthesis or fracture if one is present.

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

IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 60 secs scan delay.

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.

CT Long Bones

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	150	on	NA	0.80	16	0.75	1.0	31.3
Go Up 32	spiral	Sn 110	366	on	on 75	0.40	32	0.7	1.0	33.5
Sensation 64	spiral	120	150	on	NA	0.90	64	0.6	1.0	17.4
Definition 64	spiral	120	100	on	**off**	0.80	64	0.6	1.0	19.5
Go Top 64	spiral	Sn 100	898	on	on 75	0.40	64	0.6	1.0	19.5
Drive 128	spiral	120	70	on	**off**	0.80	128	0.6	1.0	9.8
Force 192	spiral	120	70	on	**off**	0.80	192	0.6	1.0	6.5

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	head/feet
COR BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	front/back
SAG BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	left/right
AX SOFT	3.0	3.0	Br40 / B31f	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	Br40 / B31f	abdomen	3	head/feet

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	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA	16.0
Opt 540	helical	large	120	100-440	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA	16.0
LS VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	0.984	39.37	0.5	20	20	3.8
Disc VCT 64	helical	large body	140	100-610	14.14	on	2.5	40	0.516	20.625	0.6	NA	NA	8.7

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right
AX SOFT	2.5	2.5	std full	400/40	head/feet

Must be first recon.

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	2.5	2.5	std full	400/40	head/feet

CT Long Bones

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	129	22	on	0.80	64	0.625	1.00	9.4

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX BONE	3.0	3.0	YC	bone	3	head/feet
COR BONE	3.0	3.0	YC	bone	3	front/back
SAG BONE	3.0	3.0	YC	bone	3	left/right
AX SOFT	3.0	3.0	B	abdomen	3	head/feet

Send the above recons on the pre contrast scan (if without only) or on the post contrast scan (if IV given).

Send only the following recon on the pre contrast scan (if without and with).

AX SOFT PRE	3.0	3.0	B	abdomen	3	head/feet

CT Limb Length

Updated 05/05/25
Reviewed 05/15/25

Indications - leg length discrepancy.
Bill under CT LE w/o Contrast Bilateral charge.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Get ruler from X-Ray.
Topogram scan only.

SIEMENS PARAMETERS

	kVp	mA	Scan Length	Kernel	Window
Sensation 16	120	35	1536	T20	Topogram Body
Go Up 32	130	30	1536	Tr20	Topogram Body
Sensation 64	120	35	1536	T20	Topogram Body
Definition 64	100	20	1536	Tr20	Topogram Body
Go Top 64	Sn 140	60	1536	Tr20	Topogram Body
Drive 128	100	20	1536	Tr20	Topogram Body
Force 192	Sn 100	75	1536	Tr20	Topogram Body

GE PARAMETERS

	kV	mA	Scan Length	Window Width/Level
LS 16	120	10	1536	250/-250
Opt 540	120	10	1536	250/-250
LS VCT 64	120	10	1536	250/-250
Disc VCT 64	120	10	1536	250/-250

PHILIPS PARAMETERS & RECONS

	kV	mA	Scan Length
Incisive 128	120	30	1536

CT Mako Hip

Updated 03/09/25
Reviewed 05/15/25

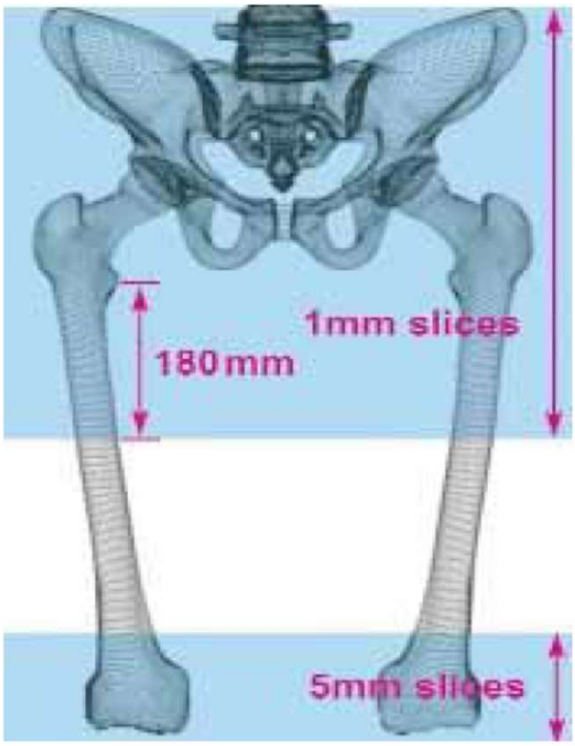
Indications - pre surgical evaluation for hip joint replacement.
Bill under CT LE w/o Contrast charge. Do not include separate hip and knee charges.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Patient positioning:
- Patient in supine position with feet first with both knees and ankles aligned.
- Do not allow patient movement between or during the scans.

Topogram - iliac crests through mid lower leg.
Craniocaudal scan coverage (see image below):
- Hip - iliac crests to 18 cm below lesser trochanter of femur. FOV to include both sides of pelvic bones.
- Knee - 10 cm above knee joint to 10 cm below knee joint. FOV to include both knees.
- FOV must be <500 mm and matrix must be 512 x 512 squared.

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.
Prepare an uncompressed DICOM disc containing all images (without DICOM viewer).



Craniocaudal Scan Coverage

CT Mako Hip

SIEMENS PARAMETERS & RECONS

For both **Hip** and **Knee** scans:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time
Sensation 16	spiral	120	200	on	NA	0.80	16	0.75	0.5
Go Up 32	spiral	130	200	on	on 170	0.80	32	0.7	1.0
Sensation 64	spiral	120	200	on	NA	0.90	64	0.6	0.5
Definition 64	spiral	120	200	on	on	0.80	64	0.6	1.0
Go Top 64	spiral	120	200	on	on 170	0.80	64	0.6	1.0
Drive 128	spiral	120	200	on	on	0.80	128	0.6	1.0
Force 192	spiral	120	200	on	on	0.80	192	0.6	1.0

HIP RECONS

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction	
AX HIP BONE	3.0	3.0	Br59 / B60	bone/osteo	3	head/feet	
COR HIP BONE	3.0	3.0	Br59 / B60	bone/osteo	3	front/back	
SAG HIP BONE	3.0	3.0	Br59 / B60	bone/osteo	3	left/right	
AX HIP THINS	**1.0**	**1.0**	**Br59 / B60**	**abdomen**	**3**	**head/feet**	**Mako specific recon.**

KNEE RECONS

AX KNEE BONE	**3.0**	**3.0**	**Br59 / B60**	**bone/osteo**	**3**	**head/feet**	**Mako specific recon.**
COR KNEE BONE	3.0	3.0	Br59 / B60	bone/osteo	3	front/back	
SAG KNEE BONE	3.0	3.0	Br59 / B60	bone/osteo	3	left/right	

CT Mako Hip

GE PARAMETERS & RECONS

For both **Hip** and **Knee** scans:

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR
LS 16	helical	large	120	100-440	19.09	on	2.5	20	1.375	27.50	0.5	NA	NA
Opt 540	helical	large	120	100-440	19.09	on	2.5	20	1.375	27.50	0.5	NA	NA
LS VCT 64	helical	large body	120	120-450	11.50	on	2.5	40	0.984	39.37	0.5	30	70
Disc VCT 64	helical	large body	120	100-700	14.14	on	2.5	40	0.984	39.37	0.8	NA	NA

HIP RECONS

Name of Series	Thickness	Interval	Recon Algorithm/Mode	Window Width/Level	Recon Direction	
AX HIP BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**	**Must be first recon.**
COR HIP BONE	2.5	2.5	bone full	2500/480	front/back	
SAG HIP BONE	2.5	2.5	bone full	2500/480	left/right	
AX HIP THINS	**0.625**	**0.625**	**bone plus full**	**2500/480**	**head/feet**	**Mako specific recon.**

KNEE RECONS

AX KNEE BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**	**Must be first recon.**
COR KNEE BONE	2.5	2.5	bone full	2500/480	front/back	**Mako specific recon.**
SAG KNEE BONE	2.5	2.5	bone full	2500/480	left/right	

CT Mako Hip

PHILIPS PARAMETERS & RECONS

For both **Hip** and **Knee** scans:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time
Incisive 128	helical	120	285	29	**off**	1.00	64	0.625	0.75

HIP RECONS

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction	
AX HIP BONE	3.0	3.0	YC	bone	3	head/feet	
COR HIP BONE	3.0	3.0	YC	bone	3	front/back	
SAG HIP BONE	3.0	3.0	YC	bone	3	left/right	
AX HIP THINS	**1.0**	**1.0**	**YC**	**bone**	**3**	**head/feet**	**Mako specific recon.**

KNEE RECONS

AX KNEE BONE	**3.0**	**3.0**	**YC**	**bone**	**3**	**head/feet**	**Mako specific recon.**
COR KNEE BONE	3.0	3.0	YC	bone	3	front/back	
SAG KNEE BONE	3.0	3.0	YC	bone	3	left/right	

1. PATIENT SETUP AND CONFIGURATION

- Scan patient in supine position feet first, anytime before MAKOplasty® THA procedure (up to 8 weeks in advance).
- Position patient to minimize pelvic obliquity through the following measures:
  - Align both ankles and both knees
  - Ensure patient is in true supine position by palpating the anterior superior iliac spines and comparing relative height above the CT scanner bed
  - Align longitudinal axis of the body with longitudinal axis of CT scanning bed

2. IMAGING REQUIREMENTS

Two regions:

- Continuous scan with regions (using one series or topogram with two groups)

Pelvis + Proximal Femur

- 0.5 - 1mm interval spacing throughout the scan. No gap / no overlap
- Axial slices (1:1 pitch) using helical (spiral) scanning
- FOV: Scan includes the entire bi-lateral pelvis (Medial/ Lateral/Anterior/Posterior/Superior) and at least 180mm below the lesser trochanter on the femur
- Table not included in the scan
- Complete Scanning and Data reconstruction in bone
- 512 x 512 matrix: Image must be a square
- kV: 120 - 140
- mA: 200 - 250

Knee

- 2.0 - 5.0mm interval spacing throughout the scan
- Axial slices (1:1 pitch) using helical (spiral) scanning
- FOV: Scan includes bilateral knee - joint lines between femur and tibia and 10cm proximal to joint line on femur
- Complete scanning and data reconstruction in bone
- 512 x 512 matrix: Image must be a square
- kV: 120 - 140
- mA: 200 - 250

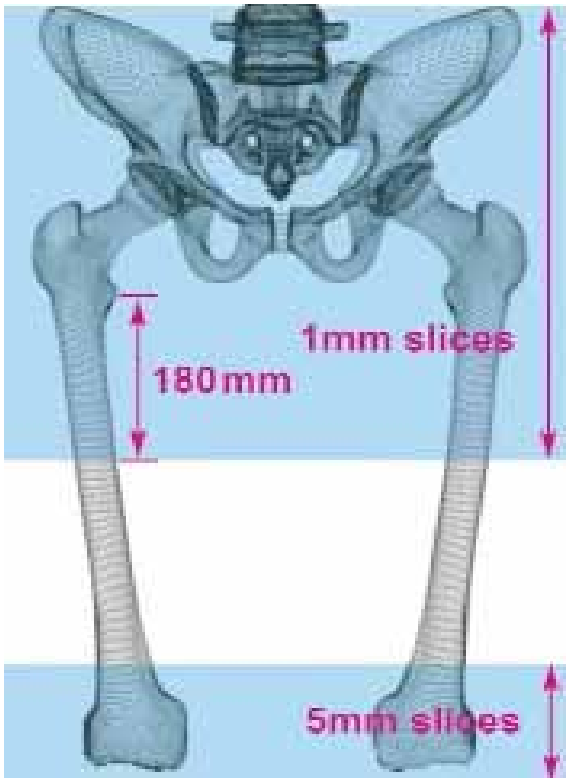


Figure 1. Scan Location and Characteristics

FOV should not exceed 500 mm

Slice Interval Spacing, mm	Distance mm	Number of Slices
0.500	180	360
0.625	180	288
0.750	180	240
0.875	180	206
1.000	180	180

3. POSITIONING THE PATIENT

During the scan, the pelvis and leg must remain motionless.

Imaging Artifacts

- Ensuring the patient is comfortable and relaxed is an important factor for achieving a motionless scan
- If metallic components are present in the pelvis or proximal femur, it may not be possible to obtain an image of significant quality to support a RIO® THA procedure
- Move metallic component away from scan region, if possible or use a metal suppression scan protocol

4. POST SCAN EXAMINATION

Scan Region

The physician and CT technologist should verify the following:

- Patient's orientation is correct
- Regions of interest in protocol are visible in dataset
- Image slice thickness resulted as required by the protocol
- Bone images in scan image are not degraded by metal-induced artifacts

5. DATASET TRANSFER

Archive all rendered images onto a single CD in DICOM 3 compatible format.

Include:

- Patient Name: (First and Last)
- Surgeon Name (Last)
- Operative Side (L,R or Bi)
- Gender (M or F)
- Date of Surgery xx/xx/xxxx

CT Mako Knee

Updated 05/05/24
Reviewed 05/15/25

Indications - pre surgical evaluation for knee joint replacement.
Bill under CT LE w/o Contrast charge. Do not include separate hip, knee and ankle charges.

GENERAL SCAN NOTES

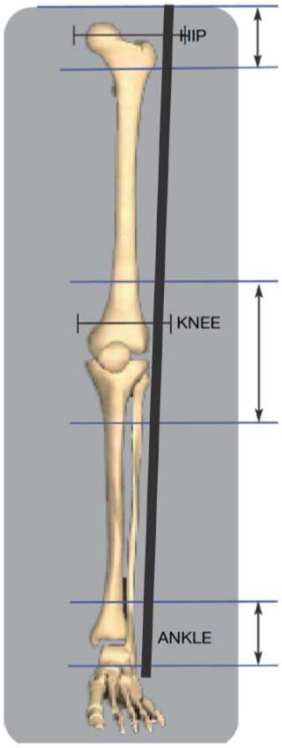
Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Patient positioning:

- Patient in supine position feet first with both knees and ankles aligned.
- Elevate the knee of interest slightly with a rolled towel or blanket.
- Motion rod should be placed along lateral aspect of leg.
- Wrap the Velcro strap one complete revolution around the rod.
- Do not allow patient movement between or during the scans.

Topogram - iliac crests through feet.
Craniocaudal scan coverage (see image below):

- Hip - above femoral head to lesser trochanter of femur. FOV must be <500 mm.
- Knee - 10 cm above knee joint to 10 cm below knee joint. FOV must be <250 mm.
- Ankle - few centimeters above ankle joint through bottom of talus. FOV must be <500 mm.
- Matrix must be 512 x 512 squared.

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.
Prepare an uncompressed DICOM disc containing all images (without DICOM viewer).



Craniocaudal Scan Coverage

Metal Rod Placement

CT Mako Knee

SIEMENS PARAMETERS & RECONS

For **Hip**, **Knee** and **Ankle** scans:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time
Sensation 16	spiral	120	200	on	NA	0.80	16	0.75	0.5
Go Up 32	spiral	130	200	on	on 170	0.80	32	0.7	1.0
Sensation 64	spiral	120	200	on	NA	0.90	64	0.6	0.5
Definition 64	spiral	120	200	on	on	0.80	64	0.6	1.0
Go Top 64	spiral	120	200	on	on 170	0.80	64	0.6	1.0
Drive 128	spiral	120	200	on	on	0.80	128	0.6	1.0
Force 192	spiral	120	200	on	on	0.80	192	0.6	1.0

HIP RECONS

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction	
AX HIP BONE	**3.0**	**3.0**	**Br59 / B60**	**bone/osteo**	**3**	**head/feet**	**Mako specific recon.**
COR HIP BONE	3.0	3.0	Br59 / B60	bone/osteo	3	front/back	
SAG HIP BONE	3.0	3.0	Br59 / B60	bone/osteo	3	left/right	

KNEE RECONS

AX KNEE BONE	3.0	3.0	Br59 / B60	bone/osteo	3	head/feet	
COR KNEE BONE	3.0	3.0	Br59 / B60	bone/osteo	3	front/back	
SAG KNEE BONE	3.0	3.0	Br59 / B60	bone/osteo	3	left/right	
AX KNEE THINS	**0.75**	**0.75**	**Br59 / B60**	**bone/osteo**	**3**	**head/feet**	**Mako specific recon.**

ANKLE RECONS

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction	
AX ANKLE BONE	**3.0**	**3.0**	**Br59 / B60**	**bone/osteo**	**3**	**head/feet**	**Mako specific recon.**
COR ANKLE BONE	3.0	3.0	Br59 / B60	bone/osteo	3	front/back	
SAG ANKLE BONE	3.0	3.0	Br59 / B60	bone/osteo	3	left/right	

CT Mako Knee

GE PARAMETERS & RECONS

For **Hip**, **Knee** and **Ankle** scans:

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR
LS 16	helical	large	120	100-440	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA
Opt 540	helical	large	120	100-440	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA
LS VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	0.984	39.37	0.5	20	20
Disc VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	0.984	39.37	0.5	20	20

HIP RECONS

Name of Series	Thickness	Interval	Recon Algorithm/Mode	Window Width/Level	Recon Direction	
AX HIP BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**	**Must be first recon.**
COR HIP BONE	2.5	2.5	bone full	2500/480	front/back	
SAG HIP BONE	2.5	2.5	bone full	2500/480	left/right	**Mako specific recon.**

KNEE RECONS

AX KNEE BONE	2.5	2.5	bone full	2500/480	head/feet	**Must be first recon.**
COR KNEE BONE	2.5	2.5	bone full	2500/480	front/back	
SAG KNEE BONE	2.5	2.5	bone full	2500/480	left/right	
AX KNEE THINS	**0.625**	**0.625**	**bone plus full**	**2500/480**	**head/feet**	**Mako specific recon.**

ANKLE RECONS

AX ANKLE BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**	**Must be first recon.**
COR ANKLE BONE	2.5	2.5	bone full	2500/480	front/back	**Mako specific recon.**
SAG ANKLE BONE	2.5	2.5	bone full	2500/480	left/right	

CT Mako Knee

PHILIPS PARAMETERS & RECONS

For **Hip**, **Knee** and **Ankle** scans:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	285	29	**off**	1.00	64	0.625	0.75	5.6

HIP RECONS

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction	
AX HIP BONE	**3.0**	**3.0**	**YC**	**bone**	**3**	**head/feet**	**Mako specific recon.**
COR HIP BONE	3.0	3.0	YC	bone	3	front/back	
SAG HIP BONE	3.0	3.0	YC	bone	3	left/right	

KNEE RECONS

AX KNEE BONE	3.0	3.0	YC	bone	3	head/feet	
COR KNEE BONE	3.0	3.0	YC	bone	3	front/back	
SAG KNEE BONE	3.0	3.0	YC	bone	3	left/right	
AX KNEE THINS	**0.75**	**0.75**	**YC**	**bone**	**3**	**head/feet**	**Mako specific recon.**

ANKLE RECONS

AX ANKLE BONE	**3.0**	**3.0**	**YC**	**bone**	**3**	**head/feet**	**Mako specific recon.**
COR ANKLE BONE	3.0	3.0	YC	bone	3	front/back	
SAG ANKLE BONE	3.0	3.0	YC	bone	3	left/right	

1. KNEE SCAN PARAMETERS

Position/Landmark	Supine, Feet First
Topogram (Scout) Direction	Cranio-Caudal. AP and Lateral scout
kVp **mA (*if available)** **Pitch**	120-140kV (recommended 120 kVp) Auto Exposure Control* (200-400 mA) 1:1 (no gaps)
Helical Set Slice Thickness, Spacing, Algorithm	**Region / Thickness / Spacing / Algorithm** Hip / 2-5 mm / 2-5 mm / Bone Knee / 0.5-1 mm / 0.5-1 mm / Bone Ankle / 2-5 mm / 2-5 mm / Bone
Image Resolution Matrix	512 x 512 Matrix: Image must be a square
DFOV	Hip=500 mm, Knee=250 mm, Ankle=500 mm Do not exceed limits.
Scan Plan	Scan in the Axial plane, for all 3 regions (Hip, Knee, and Ankle)
Scan Start/End Locations	Begin scan at the Hip, through the Knee, ending at and including the Ankle joint.
Hip Region	Include the entire femoral head and motion rod. Center around the femoral head.
Knee Region	Scan a region a minimum of 10 cm above and 10 cm below the distal femoral condyles. Include margin above the patellofemoral joint, margin below the distal boundary of the tibial tuberosity, and the motion rod. Center around the joint line.
Ankle Region	Include the medial and lateral malleoli and motion rod. Center around the ankle joint.
Images required for transfer	Transfer all Axial bone images of the Hip, Knee, and Ankle including the AP Topogram in DICOM format, to PACS or CD.

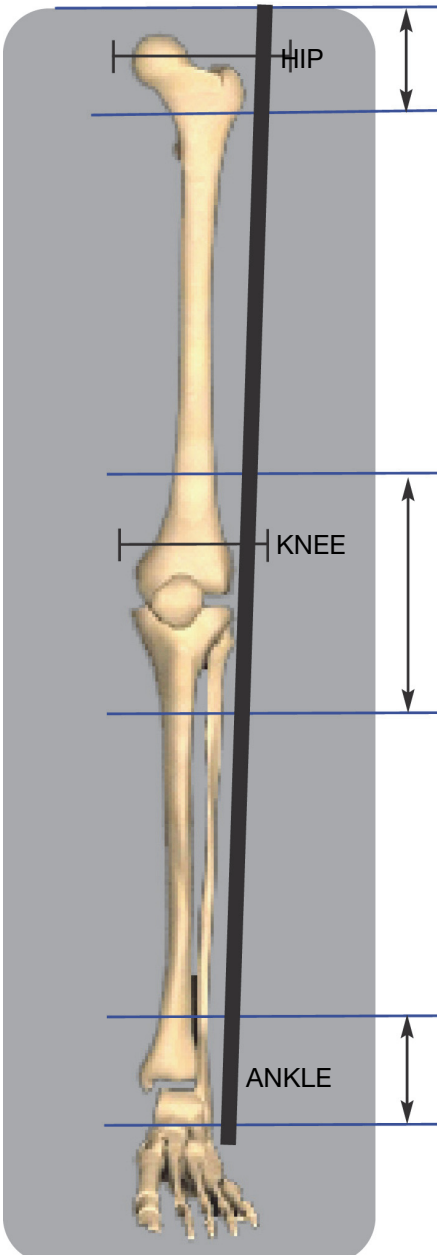


Figure. 1. Scan Location and Characteristics

2. POSITIONING THE PATIENT

During the scan, the pelvis, leg, and Motion Rod must remain motionless.

1. Position patient supine, feet first with foot secured in an upright position with a rolled towel or blanket wrapped around the bottom of the foot to secure the ankle as shown.

2. Elevate the knee of the patient slightly with a rolled towel or blanket.

3. Wrap the velcro strap one complete revolution around the rod as shown in Figure 2. Do this for both Velcro straps, one at the hip position and one at the ankle position as shown.

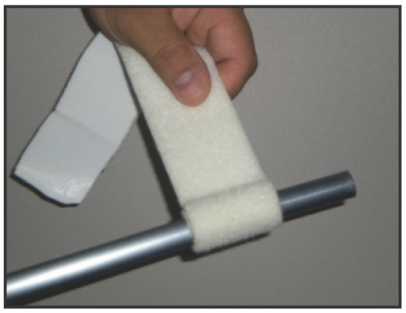


Figure 2.

4. Set the Motion Rod on the patient to pass from just proximal of Hip Center to distal of Ankle Center as shown in Figure 3.

5. Adjust the femoral and tibial straps to secure the rod.

6. Verify the rod is in both anterior/posterior and medial/lateral field of views for all scan regions.

The velcro strap must be wrapped around the rod in one complete revolution, before wrapping around the leg. Straps should be snug, but not excessively tight.

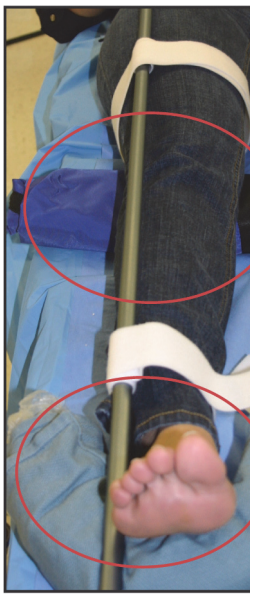


Figure 3.

3. CONSIDERATIONS

- Scan patient anytime before procedure (up to 8 weeks in advance)
- Ensure the patient is comfortable and relaxed. This is critical for achieving a motionless scan
- If metallic components are present in the operative leg, it may not be possible to obtain an image of significant quality to support a Mako procedure. If metal components are present in the non-operative leg (e.g. knee components), attempt to isolate the non-operative leg from the scan region.

4. POST SCAN EXAMINATION

The Physician and CT Technologist should verify the following:

- Patient's orientation is correct
- Regions of interest in Figure 1 are visible in dataset
- Scan includes complete femoral head, knee joint and ankle joint
- Image Slice thickness and FOV is correct
- Motion Rod is visible and complete (full circle is present) in all slices
- Bone images in scan image are not degraded by metal-induced artifacts

5. DATA SET TRANSFER

Archive all acquired images onto single CD in DICOM 3 compatible format

Do not include DICOM viewer

A surgeon must always rely on his or her own professional clinical judgment when deciding whether to use a particular product when treating a particular patient. Stryker does not dispense medical advice and recommends that surgeons be trained in the use of any particular product before using it in surgery.

The information presented is intended to demonstrate the breadth of Stryker product offerings. A surgeon must always refer to the package insert, product label and/or instructions for use before using any Stryker product. The products depicted are CE marked according to the Medical Device Directive 93/42/EEC. Products may not be available in all markets because product availability is subject to the regulatory and/or medical practices in individual markets. Please contact your Stryker representative if you have questions about the availability of Stryker products in your area.

PN 200004 Rev 11 01/16

Printed in USA

CT Zimmer Knee

Updated 05/05/24
Reviewed 05/15/25

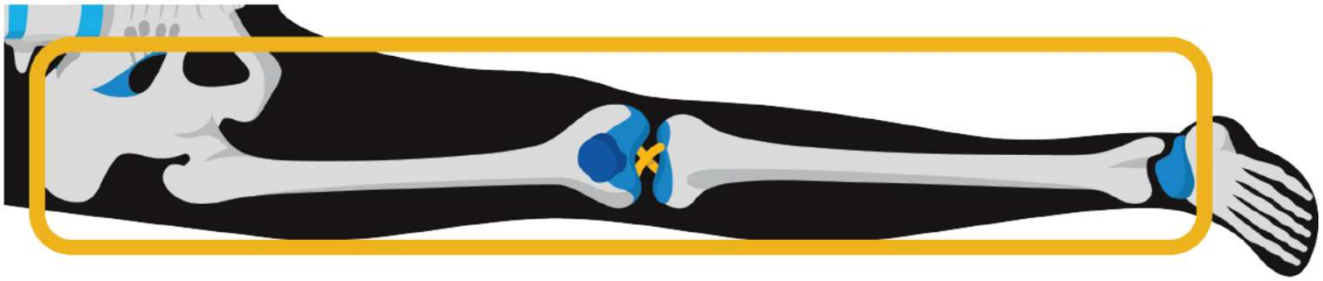
Indications - pre surgical evaluation prior to knee joint replacement.
Bill under CT LE w/o Contrast charge. Do not include separate hip, knee and ankle charges.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Patient positioning:
- Patient in supine position feet first with knees extended and toes pointing straight up.
- Elevate contralateral leg if prosthesis present to minimize streak artifact.
- Do not allow patient movement between or during the scans.

Topogram - iliac crests through feet.
Craniocaudal scan coverage (see image below):
- 3 cm above hip joint through bottom of talus.
- FOV must be ≤250 mm (up to 320 mm if bilateral) and matrix must be 512 x 512 squared.
- If bilateral cannot fit in FOV <320 mm, scan with FOV of 500 mm and recon each leg at 250 mm.
- Only bones have to be included in FOV (soft tissues do not have to be included).

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.
Prepare an uncompressed DICOM disc containing only axial soft tissue images (do not send coronal and sagittal recons).
Zimmer Customer Support: 800-348-2759.



Craniocaudal Scan Coverage

CT Zimmer Knee

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time
Sensation 16	spiral	120	200	on	NA	0.80	16	0.75	0.5
Go Up 32	spiral	130	109	on	on 170	0.80	32	0.7	1.0
Sensation 64	spiral	120	200	on	NA	0.90	64	0.6	0.5
Definition 64	spiral	120	190	on	on	0.80	64	0.6	1.0
Go Top 64	spiral	120	131	on	on 170	0.80	64	0.6	1.0
Drive 128	spiral	120	133	on	on	0.80	128	0.6	1.0
Force 192	spiral	120	133	on	on	0.80	192	0.6	1.0

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	**1.5**	**0.75**	**Br40 / B31f**	**abdomen**	**3**	**head/feet**
AX BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	head/feet
COR BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	front/back
SAG BONE	3.0	3.0	Br59 / B60f	bone/osteo	3	left/right

Zimmer specific recon.

Only the axial soft tissue images are sent to Zimmer.

GE PARAMETERS & RECONS

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR
LS 16	helical	large	120	100-440	27.00	on	1.25	20	1.375	27.50	0.5	NA	NA
Opt 540	helical	large	120	100-440	27.00	on	1.25	20	1.375	27.50	0.5	NA	NA
LS VCT 64	helical	large body	120	120-450	16.26	on	1.25	40	0.984	39.37	0.5	30	70
Disc VCT 64	helical	large body	120	100-700	20.00	on	1.25	40	0.984	39.37	0.8	NA	NA

Name of Series	Thickness	Interval	Recon Algorithm/Mode	Window Width/Level	Recon Direction
AX SOFT	**1.25**	**0.625**	**std full**	**400/40**	**head/feet**
AX BONE	2.5	2.5	bone full	2500/480	head/feet
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right

Must be first recon.

Zimmer specific recon.

Only the axial soft tissue images are sent to Zimmer.

CT Zimmer Knee

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time
Incisive 128	helical	120	103	20	on	0.80	64	0.625	0.75

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	**1.5**	**0.75**	**B**	**abdomen**	**3**	**head/feet**
AX BONE	3.0	3.0	YC	bone	3	head/feet
COR BONE	3.0	3.0	YC	bone	3	front/back
SAG BONE	3.0	3.0	YC	bone	3	left/right

Zimmer specific recon.

Only the axial soft tissue images are sent to Zimmer.

Purpose and Summary

This CT protocol is applicable for the Zimmer Biomet PSI and Signature Total Knee Guides* manufactured by Materialise. Zimmer Biomet cannot be held liable for other possible subsequent uses (i.e. diagnostic uses).

The scan protocol is created to obtain all relevant clinical data of the anatomical structures of the patient's knee, as well as the overall alignment of the entire limb. The resulting scans of this sequence will be used to create 3-dimensional virtual anatomical models, a personalized surgical plan and surgical guides of the patient's knee prior to knee arthroplasty surgery.

General Scan Requirements

- This protocol is intended for **16-slice** scanners or higher.

Patient Preparation

- Discuss the procedure with the patient. Make sure they understand the table will move during scanning.
- Remove any non-fixed metal prosthesis, jewelry, zippers, etc. that might interfere with the imaging region.
- Position the patient to maximize comfort and minimize motion.
- The patient must not move during any part of the scanning sequence. Patient movement will alter the relative alignment of the joints and invalidate the scan.

Patient Positioning

- Position the patient feet first, supine. Toes should be pointing up.
- Ensure the ankle is scanned on the same plane or slightly lower than the knee joint: the protocol allows for up to a 20 degree flexion of the knee joint.
- The knee can be rotated up to 20 degrees to allow for patient comfort.
- If an implant is present in the contralateral leg, elevate the contralateral knee to prevent the artifact from affecting the surgical side.

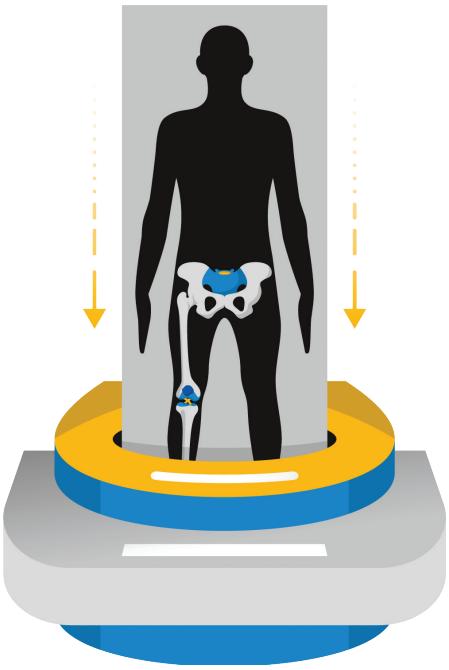
Imaging Guidelines

- Execute sagittal and coronal localizers from the anterior superior iliac spine through the calcaneus.
- When scanning the series, do not re-landmark. Laser light on first scan only.
- Only true axial will be accepted: **NO OBLIQUE**
- Do not use gantry tilt
- Use manufacturer's defaults for parameters not listed
- Use the smallest FOV possible to capture the whole required bone regions. This will require careful alignment of the leg to capture the femoral head, knee, and talus.
- Capturing all soft tissue is not necessary, only the bony regions are of interest.

For Bilateral Scans

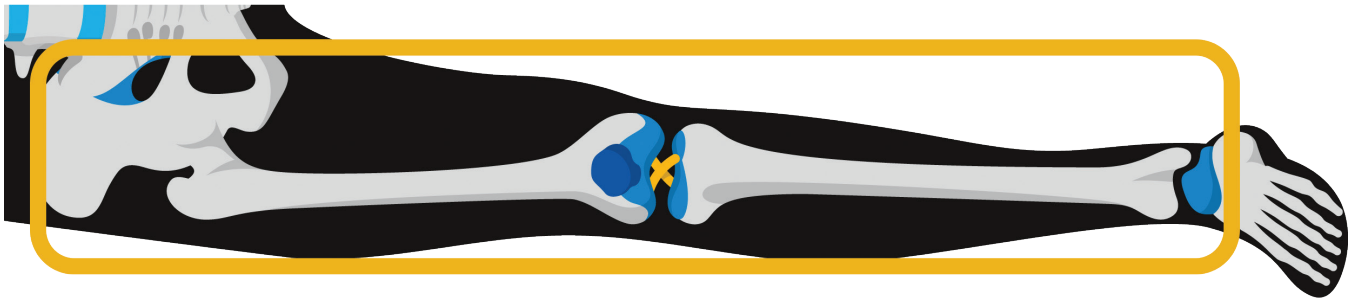
- Maximum FOV allowed for bilateral scans is 320 mm
- If both legs cannot be captured in 320 mm FOV, acquire at 500 mm FOV and reconstruct individual limbs at 250 mm FOV.
- Scan both legs simultaneously, while still following the above guidelines.

Note: Unilateral images are recommended unless the patient is scheduled for a bilateral knee replacement.



Option 1: Full Leg
(Single Acquisition)

Scan entire limb from anterior superior iliac spine through mid-calcaneus on the surgical side.

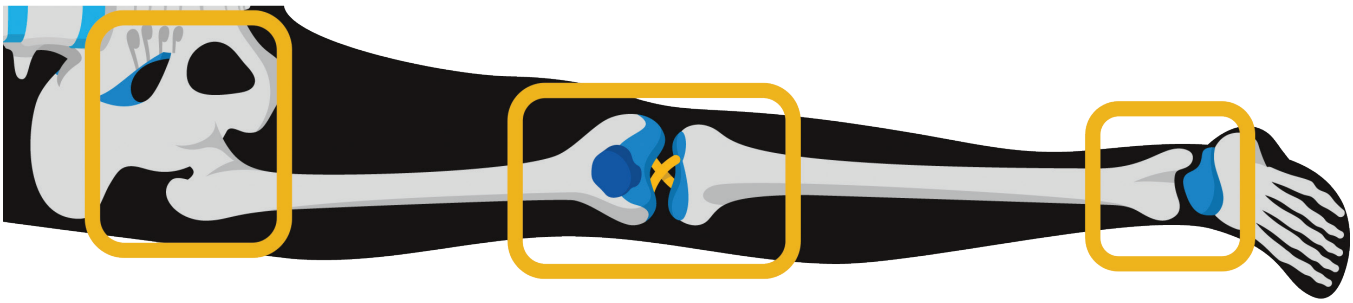


Collimation	*Slice thickness:* 1.5 mm or smaller | *Slice increment:* 50% overlap
Field of View	250 mm or smaller (<320 mm for bilateral scans)
Matrix	512 x 512
Algorithm	Moderate, standard, or soft tissue algorithm with no edge enhancement | Do not use bone algorithm
Pitch	1 or smaller
kVp and mAs	*kVp:* 90-140 | *mAs:* as given by automatic tube current modulation **Adjust depending on patient body habitus and the presence of metal in scan region.**

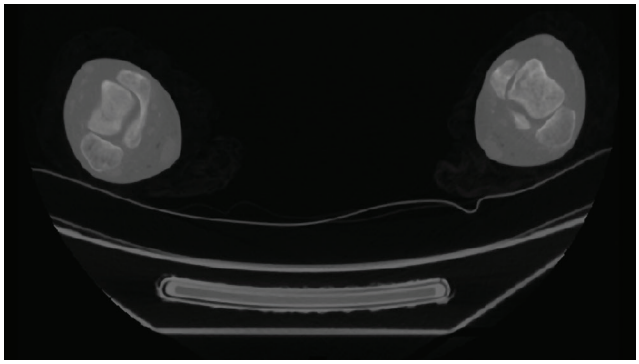
Option 2: Three Region
(Sectional Acquisition)

Scan each lower joint from the surgical side. The minimum scanning volumes required for each scan are as follows:

- Ankle scan to cover the malleoli
- Knee scan to cover at least 100 mm above and 100 mm below the joint, to include the patellar ligament attachment at the tibial tubersoity.
- Hip scan to cover the femoral head and neck



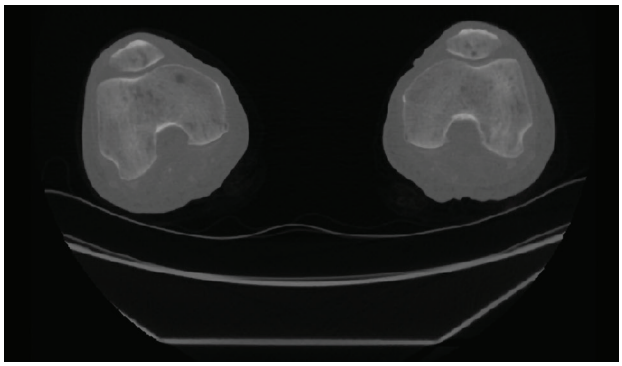
Scan region 1: Ankle



Note: Example images are bilateral, scanned at a 320 mm FOV.

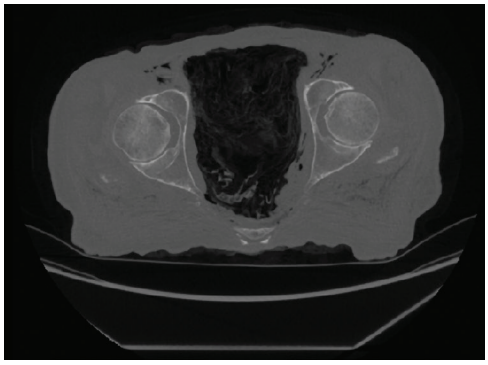
Region of interest	20 mm above and below the ankle joint, to include the malleoli and talus
Collimation	*Slice thickness:* 1.5 mm or smaller | *Slice increment:* Contiguous slices
Field of View	250 mm or smaller (<320 mm for bilateral scans)
Matrix	512 x 512
Algorithm	Moderate, standard, or soft tissue algorithm with no edge enhancement | Do not use bone algorithm
Pitch	2 or smaller
kVp and mAs	*kVp:* 90 | *mAs:* as given by automatic tube current modulation **Adjust depending on patient body habitus and the presence of metal in scan region.**

Scan region 2: Knee



Region of interest	100 mm above and below the knee joint
Collimation	*Slice thickness:* 1.5 mm or smaller | *Slice increment:* 50% overlap
Field of View	250 mm or smaller (<320 mm for bilateral scans)
Matrix	512 x 512
Algorithm	Moderate, standard, or soft tissue algorithm with no edge enhancement | Do not use bone algorithm
Pitch	1 or smaller
kVp and mAs	*kVp:* 90-140 | *mAs:* as given by automatic tube current modulation **Adjust depending on patient body habitus and the presence of metal in scan region.**

Scan region 3: Hip



Region of interest	Entire femoral head and neck
Collimation	*Slice thickness:* 1.5 mm or smaller | *Slice increment:* Contiguous slices
Field of View	250 mm or smaller (<320 mm for bilateral scans)
Matrix	512 x 512
Algorithm	Moderate, standard, or soft tissue algorithm with no edge enhancement | Do not use bone algorithm
Pitch	2 or smaller
kVp and mAs	*kVp:* 90 | *mAs:* as given by automatic tube current modulation **Adjust depending on patient body habitus and the presence of metal in scan region.**

Submitting the Images

- Only DICOM format will be accepted
- No .jpg images or other formats are acceptable
- Do not submit reconstructed or reformatted images.
- Only original scan data is acceptable.
- Uncompressed Dicom data is required for processing.
- Lossy and other forms of compression are not recommended
- The scanner should be set to DICOM format “raw image,” with no compression.
  If loading from PACs, import and export the scan as DICOM files with the uncompressed option.

CT Conformis Knee

Updated 05/05/24
Reviewed 05/15/25

Indications - pre surgical evaluation prior to knee joint replacement.
Bill under CT LE w/o Contrast charge. Do not include separate hip, knee and ankle charges.

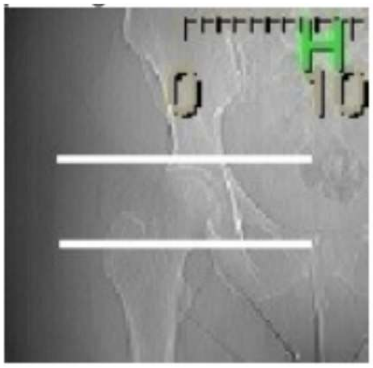
GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Patient positioning:
- Patient in supine position feet first with knees extended and toes pointing straight up.
- Elevate contralateral leg if prosthesis present to minimize streak artifact.
- Do not allow patient movement between or during the scans.

Topogram - iliac crests through feet.
Craniocaudal scan coverage (see images below):
- Hip - acetabulum through bottom of femoral head. FOV 250-300 mm.
- Knee - distal third of femur through proximal half of tibia. FOV 200-250 mm.
- Ankle - 2 cm above to 2 cm below ankle joint. FOV 150-200 mm.

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.
Prepare an uncompressed DICOM disc containing all images.

Knee CC Coverage



Hip CC Coverage

Ankle CC Coverage

CT Conformis Knee

SIEMENS PARAMETERS & RECONS

For **Hip** scan:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time
Sensation 16	spiral	120	200	on	NA	0.80	16	0.75	0.5
Go Up 32	spiral	130	109	on	on 170	0.80	32	0.7	1.0
Sensation 64	spiral	120	200	on	NA	0.90	64	0.6	0.5
Definition 64	spiral	120	190	on	on	0.80	64	0.6	1.0
Go Top 64	spiral	120	131	on	on 170	0.80	64	0.6	1.0
Drive 128	spiral	120	133	on	on	0.80	128	0.6	1.0
Force 192	spiral	120	133	on	on	0.80	192	0.6	1.0

For **Knee** and **Ankle** scans:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time
Sensation 16	spiral	120	140	on	NA	0.55	16	0.75	1.0
Go Up 32	spiral	Sn 110	366	on	on 75	0.40	32	0.7	1.0
Sensation 64	spiral	120	140	on	NA	0.90	64	0.6	1.0
Definition 64	spiral	120	100	on	**off**	0.80	64	0.6	1.0
Go Top 64	spiral	Sn 110	898	on	on	0.40	64	0.6	1.0
Drive 128	spiral	120	70	on	**off**	0.80	128	0.6	1.0
Force 192	spiral	120	70	on	**off**	0.80	192	0.6	1.0

HIP RECONS

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX HIP BONE	2.0	2.0	Br59 / B60	bone/osteo	3	head/feet

KNEE RECONS

AX KNEE BONE	1.0	0.5	Br59 / B60	bone/osteo	3	head/feet
COR KNEE BONE	1.0	1.0	Br59 / B60	bone/osteo	3	front/back
SAG KNEE BONE	1.0	1.0	Br59 / B60	bone/osteo	3	left/right

ANKLE RECONS

AX ANKLE BONE	2.0	2.0	Br59 / B60	bone/osteo	3	head/feet

CT Conformis Knee

GE PARAMETERS & RECONS

For **Hip** and **Ankle** scans:

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR
LS 16	helical	large	120	100-440	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA
Opt 540	helical	large	120	100-440	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA
LS VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	0.984	39.37	0.5	20	20
Disc VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	0.984	39.37	0.5	20	20

For **Knee** scan:

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR
LS 16	helical	large	120	100-440	17.68	on	1.25	10	0.938	9.37	0.5	NA	NA
Opt 540	helical	large	120	100-440	17.68	on	1.25	10	0.938	9.37	0.5	NA	NA
LS VCT 64	helical	large body	120	100-450	22.63	on	1.25	40	0.984	39.37	0.5	20	20
Disc VCT 64	helical	large body	120	100-450	22.63	on	1.25	40	0.984	39.37	0.5	20	20

HIP RECONS

Name of Series	Thickness	Interval	Recon Algorithm/Mode	Window Width/Level	Recon Direction	
AX HIP BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**	**Must be first recon.**

KNEE RECONS

AX KNEE BONE	**1.25**	**0.625**	**bone full**	**2500/480**	**head/feet**	**Must be first recon.**
COR KNEE BONE	0.625	0.625	bone plus full	2500/480	front/back	
SAG KNEE BONE	0.625	0.625	bone plus full	2500/480	left/right	

ANKLE RECONS

AX ANKLE BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**	**Must be first recon.**

CT Conformis Knee

PHILIPS PARAMETERS & RECONS

For **Hip**, **Knee** and **Ankle** scans:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time
Incisive 128	helical	120	103	20	on	0.80	64	0.625	0.75

HIP RECONS

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX HIP BONE	2.0	2.0	YC	bone	3	head/feet

KNEE RECONS

AX KNEE BONE	1.0	0.5	YC	bone	3	head/feet
COR KNEE BONE	1.0	1.0	YC	bone	3	front/back
SAG KNEE BONE	1.0	1.0	YC	bone	3	left/right

ANKLE RECONS

AX ANKLE BONE	2.0	2.0	YC	bone	3	head/feet

Introduction:

Patients who present with an order for a CT Scan of the lower extremity following Conformis protocol are being considered as a candidate for one of the Conformis Inc. knee implants. These are customized implants designed from CT scans.

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2.0	IMAGE ACQUISITION	PAGE 4
	—Protocol Chart	PAGE 5
3.0	IMAGE ARCHIVING	PAGE 8
4.0	IMAGE DATA TRANSFER	PAGE 8

All questions regarding this protocol reference guide should be addressed to:

Conformis Imaging Support
600 Technology Park Drive
Billerica, MA 01821
Tel: 781-345-9170
Email: imaging-support@conformis.com

Conformis Imaging Support is available:
Monday-Friday
8:00 am – 6:00 pm (Eastern Time)

Medical Device Safety Service, GMBH
Schiffgraben 41
30175 Hannover, Germany
Tel: +49(511)6262-8630

CE 0086

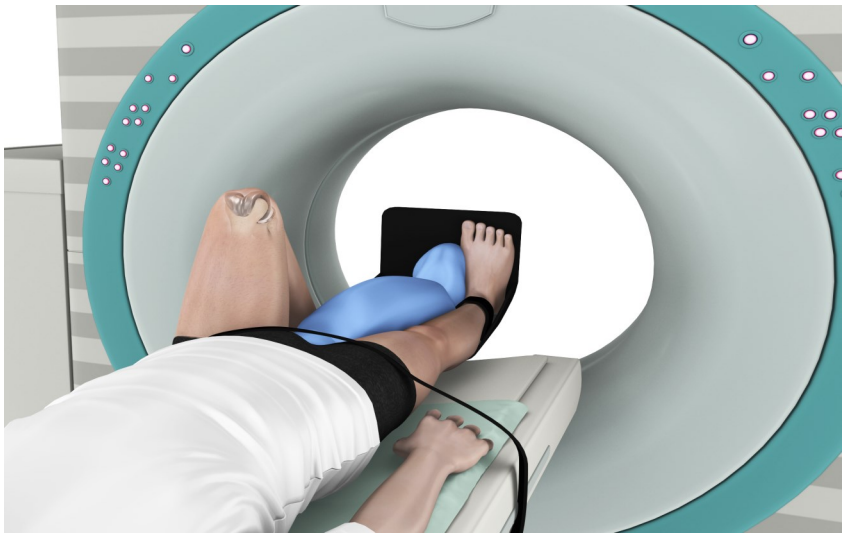
1.0 Patient Position:

To ensure our ability to correct for malalignment position the extremity of interest with the foot perpendicular to the table and with the toes pointing straight up. While some patients may not be able to be placed exactly as described please position them as closely as possible to the desired orientation. Immobilize the legs and toes to prevent motion. The use of positioning aids is encouraged. It is best not to place a sponge or pillow beneath the knee or ankle of interest. Instruct the patient to hold very still during the scan acquisition. Ensure that no foreign objects are in the scan field.

The use of a solid, firm positioning aid (as depicted by the black board in the images on this page) is recommended to help immobilize the feet and legs to prevent motion during the scan. There are many common objects that can be used for this purpose.

IMMOBILIZATION IS ESSENTIAL

*** *When an implant or other device is present in the opposite knee, please make every effort to position that knee flexed and out of the FOV to reduce the artifacts in the affected knee joint. Please do so before acquiring any of the study images. If available please use a metal artifact reduction technique.* ***



2.0 Image Acquisition:

The patient's first and last name data in the DICOM header
MUST reflect the patient's legal name associated with supporting documentation
(ex: license or insurance card)

From the full leg scout scan the hip, knee and ankle images in a single acquisition following the protocol outlined in the graph on page 4.

Series 1: Full leg scout from the hip through the ankle
Series 2: Hip, Knee, Ankle
Series 3: Coronal MPR Knee
Series 4: Sagittal MPR Knee

Please note: It is acceptable to scan the Hip, Knee and Ankle in separate series but Conformis strongly suggests scanning them as a single series to help reduce the chance of patient motion.

Although the knee is of primary interest, limited images of the hip and ankle are required to ensure appropriate alignment of the personalized implant. The axial reconstruction parameters are to be followed as closely as possible as permitted by your specific CT system's capabilities.

Displayed Field Of View (DFOV) on all series should be limited to only the affected side. Approximate FOV ranges for the hip are 25-30cm, knee 20-25cm, and ankle 15-20cm. Check the images to make sure that all the anatomy is included. If necessary please reconstruct any series with appropriate centering to recover missing anatomy.

Protocol Build, We recommend building a Conformis protocol in your CT scanner(s) with all of the appropriate ranges.

KV/MaS Settings should be set at your standard setting for each of the anatomic ranges to be scanned. Conformis suggests employing dose reduction techniques whenever possible.

Bilateral Imaging—To reduce radiation exposure bilateral imaging should be accomplished in a single acquisition with separate reconstructions of each leg.

***Before the patient leaves the scan table, please review all images to ensure that there is no motion and that the patient did not change position during the scan.

If motion and/or positional changes are detected, all series (hip, knee and ankle) should be reacquired.***

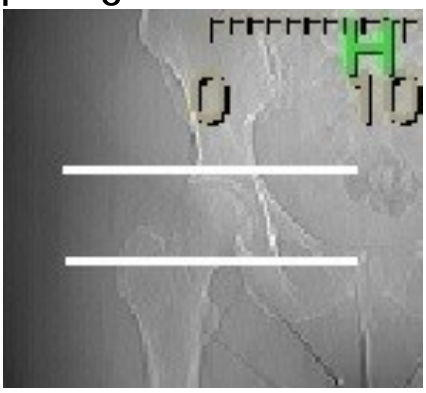
Conformis Protocol for CT of the Lower Extremity

Series	**All scans should be acquired in the helical/spiral mode, pitch as close to 1:1 as possible, using the body filter (50 cm SFOV). From the full leg scout the hip, knee and ankle images can be acquired in a single scan acquisition. Then provide reconstructed series in the coronal and sagittal planes of the knee. Send **all** images that are acquired including the scout and dose page.**			
1	*Scout*	*FULL LEG, Hip through Ankle*		
		Kernel / Algorithm	Reconstruction Thickness X Increment (table increment should not exceed slice thickness)	Projection
2	**Hip** – Femoral head only (acetabulum only)	Bone	2mm X 2mm or 2.5mm X 2.5mm	Axial
2	**Knee** – distal 1/3 of the femur through proximal 1/2 of tibia *(should include the entire patella through midpoint of the lower leg)*	Bone	1mm X .5mm or 1.25mm X .625mm	Axial
2	**Ankle** – center at tibiotalar joint space scan 2cm above the joint to 2cm below	Bone	2mm X 2mm or 2.5mm X 2.5mm	Axial
3	**Multi Planar Reformat**– knee only	Bone	1mm X 1mm	Coronal
4	**Multi Planar Reformat**– knee only	Bone	1mm X 1mm	Sagittal

Note: The imaging protocol described in this manual is only for the purpose of providing information needed by Conformis to generate the personalized implant design. It might differ from knee imaging protocols routinely used by your institution for diagnostic purposes and might not provide the same information. The responsible radiologist should decide whether additional scans from your routine diagnostic protocol should be added to the exam to provide any additional information.

Scout

Hip Range



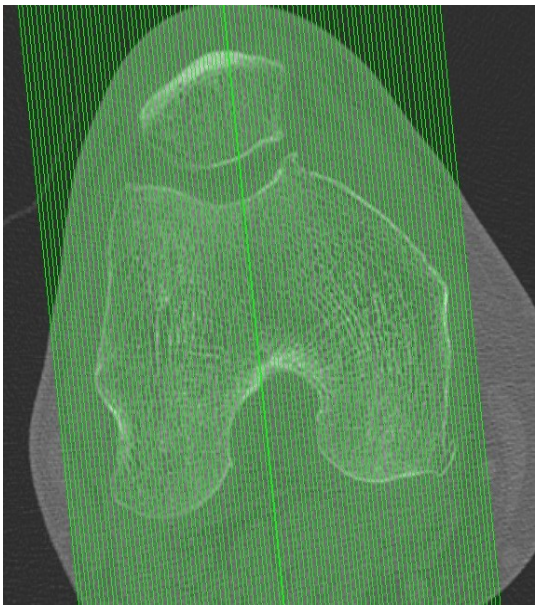
Knee Range

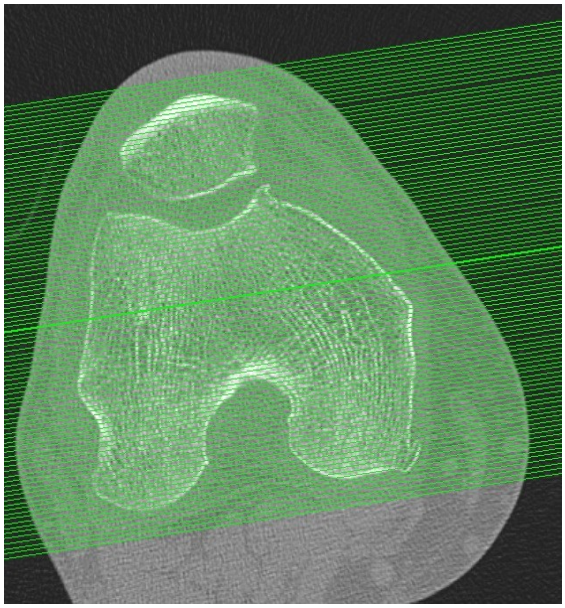
Ankle Range

Knee MPR: Sagittal and Coronal

Sagittal MPR
Perpendicular to femoral condyles

Coronal MPR
Parallel to femoral condyles





3.0 Image Archive

Important: Your site **must** keep a permanent archive (PACS) copy of the CT exams. We also encourage you to protect the the raw data for as long as possible.

4.0 Image Data Transfer:

******It is critical that Conformis protocol scans are <u>sent immediately</u> upon completion of the exam via electronic upload whenever possible to ensure the best possible care for the patient.******

There are several methods of image transfer available for Conformis protocol scans. Prior to transmitting, ensure that your DICOM data file is complete, containing the scout, the dose page and all images and series aquired for the patient.

4.1 Secure Web Upload:

Conformis scans can be uploaded from a CD, DVD, or a web enabled PACS to our secure website. Go to https://www.conformis.info/scanupload/details.faces to upload a scan through our secure .ftp site.

** Requires the use of Java which is not supported by Google Chrome**

4.2 Secure DICOM transfer via Cloud Sharing Networks:

Conformis is able to retrieve images from cloud based image sharing sites. If you are currently using one of these types of applications or are interested in establishing a secure cloud connection please contact Conformis Image Support at 781-345-9170 to discuss establishing a connection.

4.3 Priority Shipping:

To ensure that the patient's images are received and reviewed as quickly as possible we strongly recommend the use of an electronic method of DICOM data transfer for Conformis protocol scans. However if you are unable to send studies electronically Conformis scans that have been saved in uncompressed or loss–less compression DICOM format on a disk (CD or DVD) can be shipped to Conformis. We provide pre-paid envelopes. To obtain a supply please email imaging-support@Conformis.com or visit http://www.Conformis.com/Imaging-Professionals/Request-CD-Mailers

CT DePuy Knee

Updated 05/05/24
Reviewed 05/15/25

Indications - pre surgical evaluation prior to knee joint replacement.
Bill under CT LE w/o Contrast charge. Do not include separate hip, knee and ankle charges.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Patient positioning:
Patient in supine position feet first with knees extended and toes pointing straight up.
Elevate contralateral leg if prosthesis present to minimize streak artifact.
Do not allow patient movement between or during the scans.
Topogram - iliac crests through feet.
Craniocaudal scan coverage - just above femoral head through just below talus.
Must use FOV 150-200 mm.
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.
Prepare an uncompressed DICOM disc containing axial soft tissue images and send to:

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time
Sensation 16	spiral	120	200	on	NA	0.80	16	0.75	0.5
Go Up 32	spiral	130	109	on	on 170	0.80	32	0.7	1.0
Sensation 64	spiral	120	200	on	NA	0.90	64	0.6	0.5
Definition 64	spiral	120	190	on	on	0.80	64	0.6	1.0
Go Top 64	spiral	120	131	on	on 170	0.80	64	0.6	1.0
Drive 128	spiral	120	133	on	on	0.80	128	0.6	1.0
Force 192	spiral	120	133	on	on	0.80	192	0.6	1.0

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction	
AX BONE	3.0	3.0	Br59 / B60	bone/osteo	3	head/feet	
COR BONE	3.0	3.0	Br59 / B60	bone/osteo	3	front/back	
SAG BONE	3.0	3.0	Br59 / B60	bone/osteo	3	left/right	
AX SOFT	**0.75**	**0.7**	**Br40 / B31**	**abdomen**	**3**	**head/feet**	**DePuy specific recon.**

CT DePuy Knee

GE PARAMETERS & RECONS

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR
LS 16	helical	large	120	100-440	19.09	on	2.5	20	1.375	27.50	0.5	NA	NA
Opt 540	helical	large	120	100-440	19.09	on	2.5	20	1.375	27.50	0.5	NA	NA
LS VCT 64	helical	large body	120	120-450	11.50	on	2.5	40	0.984	39.37	0.5	30	70
Disc VCT 64	helical	large body	120	100-700	14.14	on	2.5	40	0.984	39.37	0.8	NA	NA

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
AX BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**	**Must be first recon.**
COR BONE	2.5	2.5	bone full	2500/480	front/back	
SAG BONE	2.5	2.5	bone full	2500/480	left/right	
AX SOFT	**0.625**	**0.625**	**std full**	**400/40**	**head/feet**	**DePuy specific recon.**

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time
Incisive 128	helical	120	103	20	on	0.80	64	0.625	0.75

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction	
AX BONE	3.0	3.0	YC	bone	3	head/feet	
COR BONE	3.0	3.0	YC	bone	3	front/back	
SAG BONE	3.0	3.0	YC	bone	3	left/right	
AX SOFT	**0.75**	**0.7**	**B**	**abdomen**	**3**	**head/feet**	**DePuy specific recon.**

CPI
DePuy Orthopaedics, Inc.
700 Orthopaedic Drive
Warsaw, Indiana 46581-0988
(800) 689-0746

DePuy

Computed Tomography CT

Scanner Brand	Scanner Type	Scanner Specific Parameters		
		Recon Filter	Knee Slab Thickness/Spacing	Image Transfer Options
Siemens®	Sensation	B31s	0.6 mm	CD-R, DVD-R, MOD, PACS secure DICOM send
GE®	Lightspeed	STANDARD	0.625 mm	CD-R, MOD, PACS secure DICOM send
Philips®	Brilliance	B	0.6 mm OR 0.625 mm	CD-R, MOD, PACS secure DICOM send
Toshiba®	Aquilion	FC04	0.5 mm	MOD, DVD-RAM, CD-R, PACS secure DICOM send

Siemens® is a registered trademark of Siemens AG.
GE® is a registered trademark of General Electric Company.
Philips® is a registered trademark of Koninklijke Philips Electronics N.V..
Toshiba® is a registered trademark of Toshiba Corporation.

Frequently Asked Questions:

Q1: Are there special instructions if the patient has metal devices in the knee slab region?
A1: Yes, attempt to flex the contralateral knee as far as possible to place the metal artifact in slices outside of the knee articular region.

Q2: Can I shift the image center for each slab such that each joint is centered in the image?
A2: No, set the field of view (FOV) and image center based on the entire leg and just adjust the start and stop locations as necessary.

Q3: How should the physical image media (i.e. CD-R) be shipped to DePuy?
A3: Overnight. The surgeon and patient are counting on the delivery of the scan as soon as possible in order to meet the surgery date.

Q4: Should I be concerned about setting windowing for the project?
A4: If you have the ability to adjust the windowing, please use a soft tissue window such that the Hounsfield unit (HU) range is large.

Q5: Can I include significant overlap and thus extra slices in the project?
A5: No, follow the protocol as specified on the previous page with minimal or no overlap.

Q6: Can I scan the patient the patient in the prone position?
A6: Yes, if necessary due to patient limitations but be sure to label the orientation correctly in your scan and note the prone position on the disk.

CPI
DePuy Orthopaedics, Inc.
700 Orthopaedic Drive
Warsaw, Indiana 46581-0988
(800) 689-0746

Also called TrueMet

DePuy

Computed Tomography CT

Total Knee Replace

DePuy CPI Knee Scanning Protocol

This protocol is to ensure that an accurate 3-D model can be created by DePuy and used to design a patient specific knee instrument. Scan settings should be optimized to capture bony geometry and cartilage of the knee. The hip and ankle data is needed to align the entire leg for a total knee replacement. Review the following information before proceeding with the scanning process.

Scanning Procedure

- ***All data must be collected in same-center/size study(s), with the same FOV, without gaps and minimal overlap.***
- **Patient movement during the scan will disqualify the study and require rescan.**
- Minimize FOV in the range of 15 cm to 20 cm so the image captures the knee of interest, and corresponding hip and ankle. Leg alignment on the table will assist with this goal.
- Use a standard (soft tissue) reconstruction filter.
- If there are metal devices in the contralateral knee, please see page 2 for instructions.

Scan Parameters

Contrast	Area	FOV	Center	Spacing/ Thickness	Pitch	kV	Recon Filter
None	Specified Leg	15-20 cm	Constant	Equal - see diagram for values	1:1	120	Soft Tissue

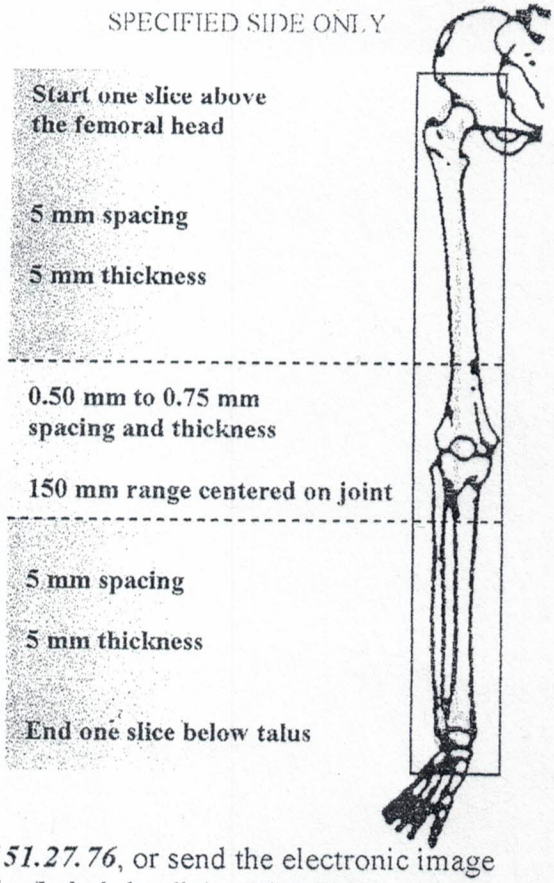
X Y Z's

Note: If your scanner will not support the whole leg in a single study, as shown, you may perform three separate studies. To do this, set the FOV on the full leg scout and only adjust the start and stop position such that the end position of the previous study is the start of the next study.
Patient movement between and during the scans will disqualify the study and require rescan.

Just send axial's images
Write Doctor's name on disk

CPI
DePuy Orthopaedics, Inc.
700 Orthopaedic Drive
Warsaw, IN 46581-0988
(800) 689-0746

SPECIFIED SIDE ONLY



Jeff Roose or (DePuy ENGINEERS)
Brian Rose 800-473-3789

Call to arrange secure DICOM transfer to our PACS server, ***70.151.27.76***, or send the electronic image data as individual DICOM images on a CD, DVD, or optical disk. Label the disk with "CPI Knee", patient name, doctor name, imaging facility name, and imaging facility telephone number.

CT Prophecy Ankle

Updated 05/05/24
Reviewed 05/15/25

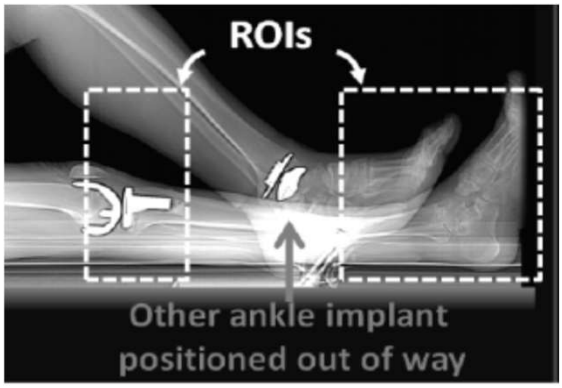
Indications - pre surgical evaluation prior to ankle joint replacement.
Bill under CT LE w/o Contrast charge. Do not include separate knee and ankle charges.

GENERAL SCAN NOTES

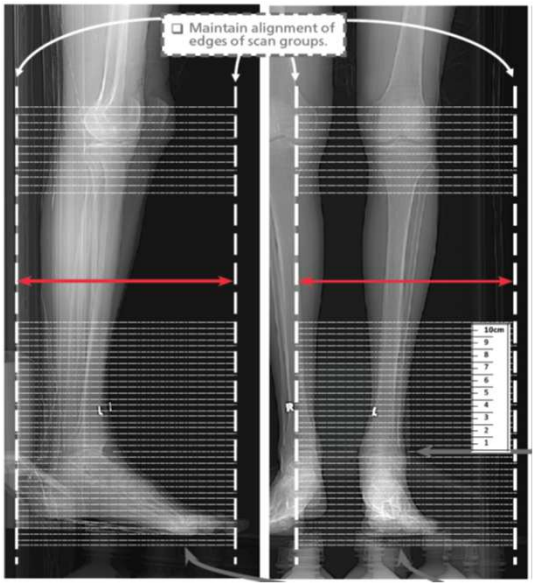
Remove any metal from the imaging field of view.
Patient positioning (see images at bottom of page):
- Have opposite leg bent at knee with ankle/foot out of way of ankle of interest.
- Foot must be dorsiflexed with foot perpendicular to tibia (90 degrees).
- Do not allow patient movement between or during the scans.

Topogram - from above knee through bottom of foot.
Craniocaudal scan coverage (see images at bottom of page):
- Knee - 5 cm superior to and 5 cm inferior to joint.
- Ankle - 10 cm superior to ankle joint through bottom of foot (including all toes).
- FOV of 280 mm preferred (must be <400 mm) using a 512 x 512 matrix squared.
- Okay if soft tissue from contralateral extremity is included.

IV Contrast: 100 mL Omnipaque-300, inject at 2.5 mL/sec, 60 secs scan delay.
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.
Prepare an uncompressed DICOM disc including the AP and lateral topograms, axial images of the knee and axial thin images of the ankle. This CD will need to go with the patient after the exam.



Ankle Positioning



Craniocaudal Scan Coverage

CT Prophecy Ankle

SIEMENS PARAMETERS & RECONS

For **Knee** and **Ankle** scans:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time
Sensation 16	spiral	120	140	on	NA	0.55	16	0.75	1.0
Go Up 32	spiral	Sn 110	366	on	on 75	0.40	32	0.7	1.0
Sensation 64	spiral	120	140	on	NA	0.90	64	0.6	1.0
Definition 64	spiral	120	100	on	**off**	0.80	64	0.6	1.0
Go Top 64	spiral	Sn 110	898	on	on	0.40	64	0.6	1.0
Drive 128	spiral	120	70	on	**off**	0.80	128	0.6	1.0
Force 192	spiral	120	70	on	**off**	0.80	192	0.6	1.0

KNEE RECONS

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction	
AX KNEE BONE	**3.0**	**3.0**	**Br59 / B60**	**bone/osteo**	**3**	**head/feet**	**Prophecy specific recon.**
COR KNEE BONE	3.0	3.0	Br59 / B60	bone/osteo	3	front/back	
SAG KNEE BONE	3.0	3.0	Br59 / B60	bone/osteo	3	left/right	

ANKLE RECONS

AX ANKLE BONE	2.0	2.0	Br59 / B60	bone/osteo	3	head/feet	
COR ANKLE BONE	2.0	2.0	Br59 / B60	bone/osteo	3	front/back	
SAG ANKLE BONE	2.0	2.0	Br59 / B60	bone/osteo	3	left/right	
AX ANKLE THINS	**1.0**	**1.0**	**Br59 / B60**	**bone/osteo**	**3**	**head/feet**	**Prophecy specific recon.**

CT Prophecy Ankle

GE PARAMETERS & RECONS

For **Knee** and **Ankle** scans:

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR
LS 16	helical	large	120	100-440	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA
Opt 540	helical	large	120	100-440	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA
LS VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	0.984	39.37	0.5	20	20
Disc VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	0.984	39.37	0.5	20	20

KNEE RECONS

Name of Series	Thickness	Interval	Recon Algorithm/Mode	Window Width/Level	Recon Direction	
AX KNEE BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**	**Must be first recon.**
COR KNEE BONE	2.5	2.5	bone full	2500/480	front/back	**Prophecy specific recon.**
SAG KNEE BONE	2.5	2.5	bone full	2500/480	left/right	

ANKLE RECONS

AX ANKLE BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**	**Must be first recon.**
COR ANKLE BONE	2.5	2.5	bone full	2500/480	front/back	
SAG ANKLE BONE	2.5	2.5	bone full	2500/480	left/right	
AX ANKLE THINS	**0.625**	**0.625**	**bone plus full**	**2500/480**	**head/feet**	**Prophecy specific recon.**

CT Prophecy Ankle

PHILIPS PARAMETERS & RECONS

For **Knee** and **Ankle** scans:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time
Incisive 128	helical	120	85	32	on	0.80	64	0.625	1.00

KNEE RECONS

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction	
AX KNEE BONE	**3.0**	**3.0**	**YC**	**bone**	**3**	**head/feet**	**Prophecy specific recon.**
COR KNEE BONE	3.0	3.0	YC	bone	3	front/back	
SAG KNEE BONE	3.0	3.0	YC	bone	3	left/right	

ANKLE RECONS

AX ANKLE BONE	2.0	2.0	YC	bone	3	head/feet	
COR ANKLE BONE	2.0	2.0	YC	bone	3	front/back	
SAG ANKLE BONE	2.0	2.0	YC	bone	3	left/right	
AX ANKLE THINS	**1.0**	**1.0**	**YC**	**bone**	**3**	**head/feet**	**Prophecy specific recon.**

PROPHECY Ankle CT Scan Protocol

PROPHECY INBONE™, INFINITY™ and INVISION™ Preoperative Navigation Reports and Guides are patient-specific tools for total ankle replacement surgery. Adherence to this lower extremity CT protocol of the ankle, with knee, is critical for success. In every case, please follow these instructions:

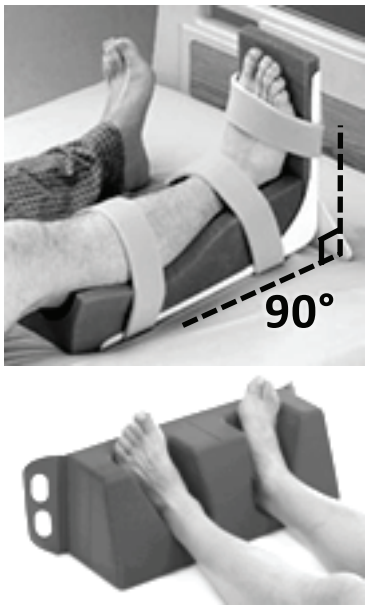


FIGURE 1 Examples of neutral ankle positioning devices (not provided). Any radiolucent object can be used to prop the bottom of the foot at 90°, such as a box.

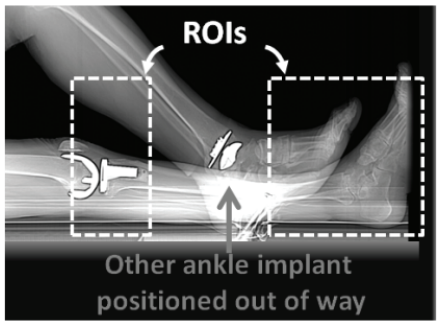


FIGURE 2 Bending the other limb to position the other ankle implant away from the ankle of interest. This minimizes image artifact in the ankle Region Of Interest.

Patient Position

- ❑ The foot of interest should be positioned in neutral (90°) to the leg. FIGURE 1

  NOTE: If this is not possible due to a patient's condition, such as severe contracture, ensure the CT scan contains slices through the ball of the foot (see bottom of next page).

- ❑ If a contra-lateral implant is present, bend the contra-lateral limb out of the field of view of the ankle to be scanned. FIGURE 2
- ❑ Do not allow patient movement between or during scans.

Scanning Instructions

Helical, axial, and cone beam CT modes are acceptable.

Bone or Standard algorithms are acceptable.

No contrast agent is to be used.

- ❑ All scan groups' edges should stay aligned. See dashed lines, next page.
  - Maintain a single coordinate system for both the knee and foot scan.
  - Maintain a consistent field of view and pixel size for both the knee and foot scan.
  - Adjusting the width of both knee and foot groups together to span the required anatomy of both groups is appropriate.
  - One single scan from the bottom of the foot through the knee is also acceptable.
- ❑ In-plane pixel size (resolution) must be less than 0.8mm.

  Example: A Field of View of ~28 cm is ideal for a 512x512 matrix in order to keep the pixel size small. The Field of View must be less than 40 cm.
- ❑ Include full knee-to-foot scout images (coronal and sagittal) when submitting CT files to Wright.

Other:

- Do not scan at higher slice spacing and reconstruct to smaller increments.
- Only the raw axial images are needed; coronal and sagittal reconstructions are not necessary.
- Images must be provided in uncompressed DICOM format.

If the ankle of interest has existing hardware it can be scanned with the same parameters as listed here.

NOTE: It is highly recommended that additional x-ray studies be submitted to Wright for analysis for PROPHECY pre-op navigation. Useful additional studies include:

- Weight-bearing lateral x-ray
- Stress x-rays/Talar tilt x-rays of the medial deltoid and/or lateral ligaments.

PROPHECY Ankle CT Scan Protocol

This "ankle" protocol involves a section at the knee.

REQUIRED:

- ❑ Provide full Knee-to-Foot CT "scout" images (coronal & sagittal).
- ❑ Scan both the Foot-&-Ankle AND Knee sections at the same time.
- ❑ Refer to additional requirements on previous page.
- ❑ Refer to typical errors and FAQs on next pages.

Sagittal Scout *Coronal Scout*

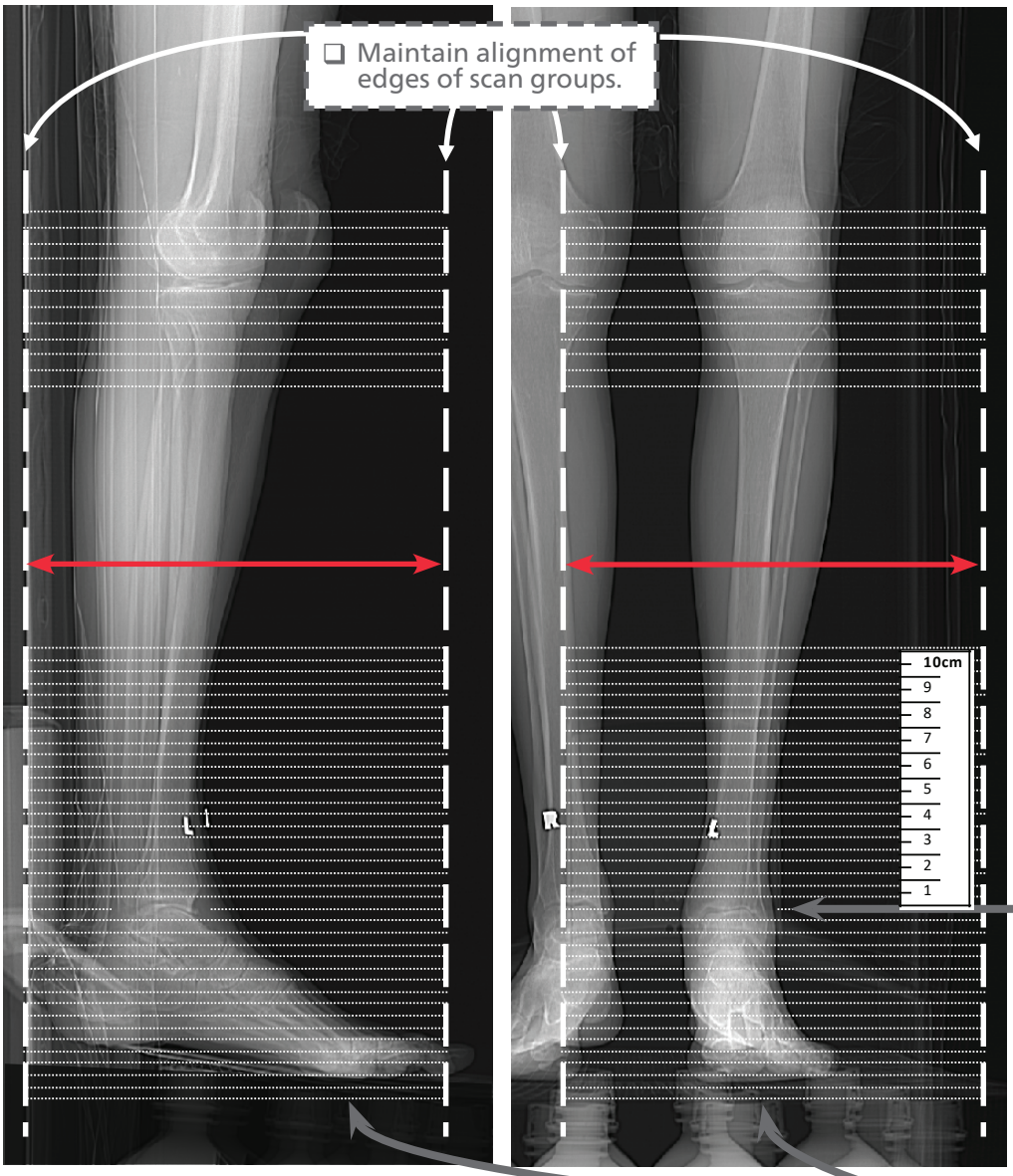


FIGURE 3

REQUIRED:

- ❑ Scan 5cm proximal, and 5cm distal to the knee joint line.
- ❑ Slice increment: 5mm (or smaller).
- ❑ Field Of View: Typical: ~28cm. Max: 40cm.

REQUIRED:

- ❑ Ankle and foot scan slice increment: 1.25mm (or smaller).
- ❑ Scan >10cm above the joint line Measure this, see note below.
- ❑ Scan past the ball of the foot, and get the toes.

"Joint Line"

- ❑ Position the foot at 90° with a positioning device or heavy box.

NOTE:

- ❑ *It's better to "airball" the last slices than to not get enough.*

NOTE:

- ❑ Measure (or calculate) to get >10cm above the joint line.
  Examples: 80 slices @ 1.25mm or 100 slices @ 1.0mm or 160 slices @ 0.625mm above the joint line.

Common Scan Protocol Errors

The most common protocol errors resulting in failed scans are shown below:

Region missing from scan.

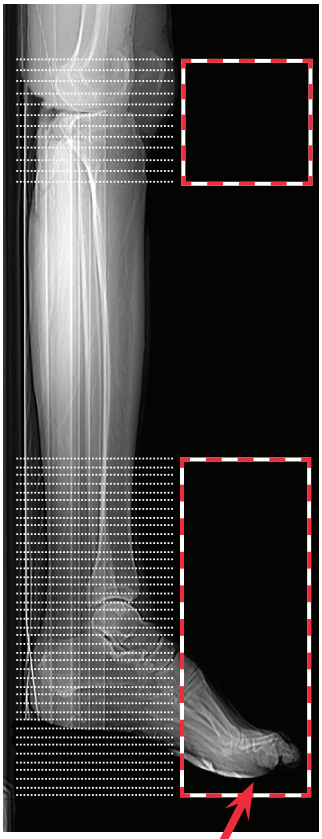


FIGURE 4
☒ *Failure to scan the entire foot.*

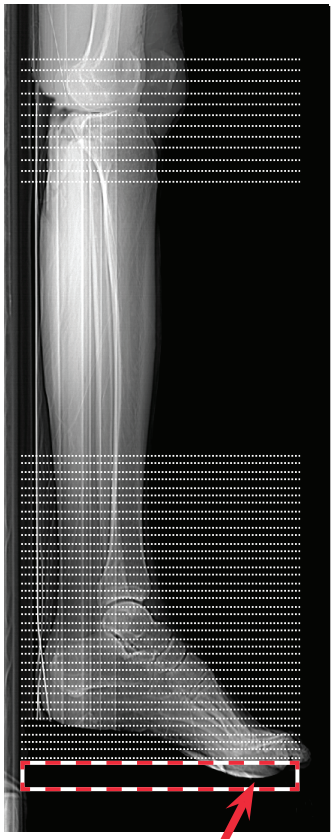


FIGURE 5
☒ *Failure to scan the entire foot.*

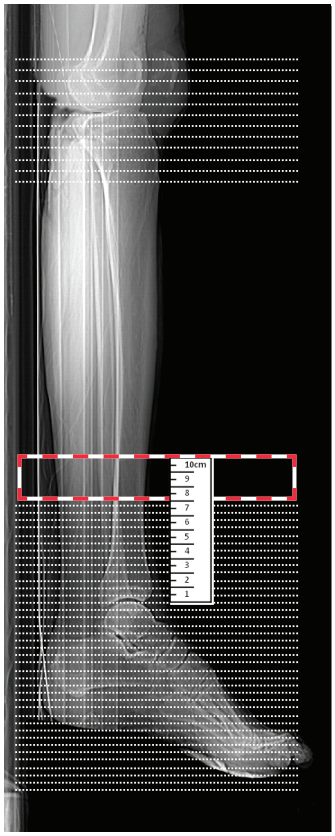


FIGURE 6
☒ *Failure to scan at least 10cm above the ankle joint.*

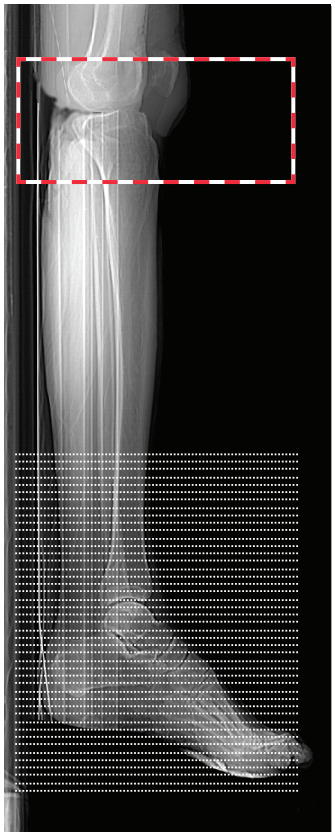
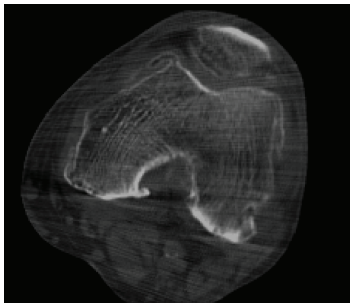
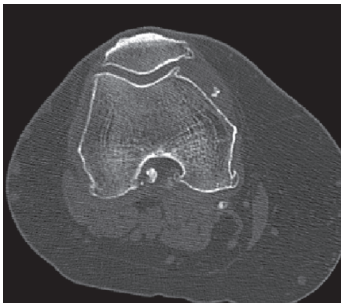


FIGURE 7
☒ *Scan of the knee was not performed simultaneously with the ankle.*

CT Imaging Examples



Unacceptable CT imaging
☒ *Blurry, poor contrast.*



Satisfactory CT Imaging
☑ *Clear, sharp, distinct boundaries between bone and soft tissue.*

Frequently Asked Questions

Q. "I can't put in a 1.25mm slice. I can only do a 1mm increment. Is that ok?"
A. Slices thinner than our specified slice thickness are acceptable; however, using larger slices will result in the scan being rejected for PROPHECY processing.

Q. "What type of CT acquisition can be used?"
A. Axial, helical, and cone beam CT modes are acceptable.

Q. "Is it really necessary to scan 10cm above the ankle joint?"
A. Yes. At least 10cm of the tibia shaft, measured from the ankle joint line, is required.

Q. "Do I need to scan the knee for an ankle surgery?"
A. Yes. The knee scan is required to obtain the complete axis of the lower extremity. Information based on the entire tibia is used to plan the ankle procedure.

Q. "How should the patient be positioned?"
A. Patients are typically supine for the scan, but it does not matter as long as the patient's ankle is in neutral dorsiflexion.

Submitting the Scan

Rapid Electronic Scan Transfer

Preoperative CT may be sent to the PROPHECY engineering team through our secure, rapid electronic transfer system: https://prophecyscans.wmt.com

Please follow these steps to request an account and transfer scans:

1. E-mail prophecy@wright.com with the e-mail address of the person who needs access to the system (No other information is needed)

2. Within a few hours, an invitation message will be sent to that address with instructions to complete registration on the scan transfer site.

*** upload times may vary based on connection speed.*

Scan submission is typically done by first putting the DICOM files from the CT Scanner computer onto a CD, then putting the CD into a typical office computer for uploading. Therefore, ensure the CD contains the Axial CT slices and full-length scout images.

FAQ: Can I mail the CD of the CT scan?
A. This method is not preferred.

If uploading the scans directly from the scanning facility is not possible, please contact the local Wright Medical sales rep to do so. If the sales rep contact information is not known, call the number below.

Contact for Assistance

PROPHECY Operations at Wright Medical Technology
Phone: 901.290.5884 **Fax:** 901.867.4791
email: prophecy@wright.com

The Centers for Medicare & Medicaid Services (CMS) established a National Coverage Determination (NCD) for CT Scans. It states, in part, the following, "Diagnostic examinations of the head (head scans) and of other parts of the body (body scans) performed by computerized tomography (CT) scanners are covered if medical and scientific literature and opinion support the effective use of a scan for the condition, and the scan is: (1) reasonable and necessary for the individual patient." CTs performed prior to total joint replacement procedures for diagnostic purposes may be considered medically necessary. In which case, the procedure should be billed using the CPT codes that accurately describe the imaging procedure furnished to the patient. These same images from the diagnostic CT scan may, in turn, be further utilized for developing the personalized cutting or navigation guides that are used in orthopaedic procedures. However, if providers perform CT scans solely for the purpose of developing personalized cutting instruments or guides, providers should contact the payer for billing and coverage guidance and/or the American College of Radiology with billing questions.

CT MAVEN Ankle

Updated 05/09/25
Reviewed 05/15/25

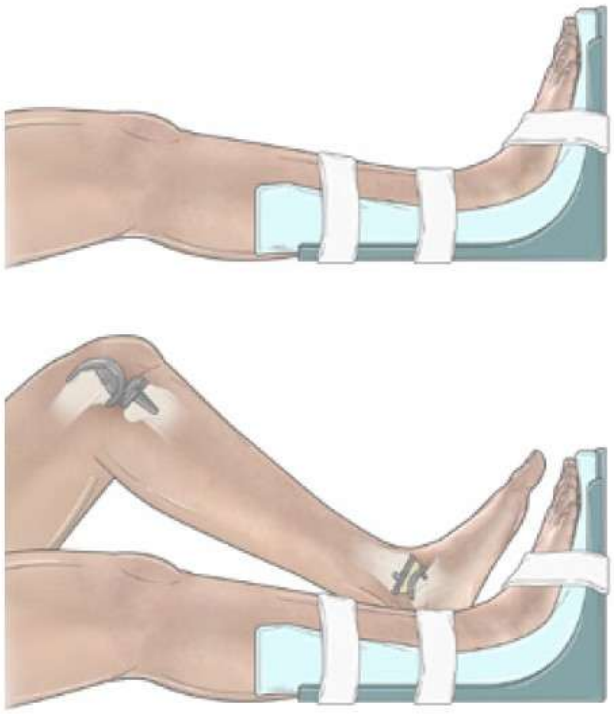
Indications - pre surgical evaluation prior to ankle joint replacement.
Bill under CT LE w/o Contrast charge. Do not include separate knee and ankle charges.

GENERAL SCAN NOTES

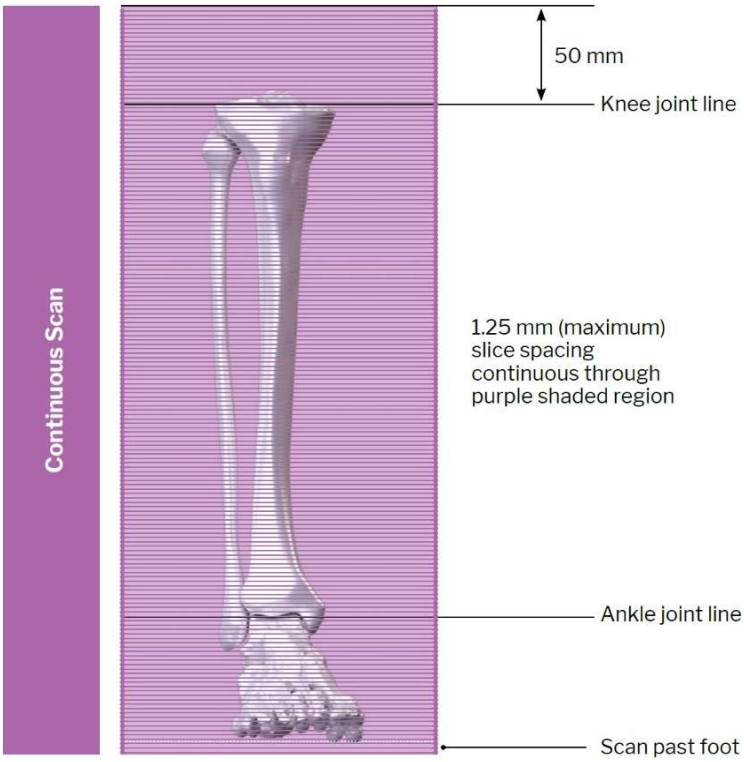
Remove any metal from the imaging field of view.
Patient positioning (see images at bottom of page):
- Foot of interest must be dorsiflexed with foot perpendicular to tibia (90 degrees).
- A foot holder/brace is not required. Do not place a cushion/pillow under the leg of interest.
- The opposite leg can be flat next to the leg of interest, unless there is knee and/or ankle hardware in the opposite leg, then have the opposite leg bent at knee with ankle/foot out of way of ankle of interest.

Topogram - from above knee through bottom of foot.
Craniocaudal scan coverage (see images at bottom of page):
- 5 cm superior to knee continuously through bottom of foot (metatarsals must be imaged entirely).

FOV: 25 cm (preferred) up to 40 cm acceptable.
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.
Prepare an uncompressed DICOM disc and upload to www.apexankle.com.
Contact: Rick Agliata, RAgliata@paragon28.com, 904-562-9334.



Ankle Positioning



Craniocaudal Scan Coverage

CT MAVEN Ankle

SIEMENS PARAMETERS & RECONS

For **Knee** and **Ankle** scans:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time
Sensation 16	spiral	120	140	on	NA	0.55	16	0.75	1.0
Go Up 32	spiral	Sn 110	366	on	on 75	0.40	32	0.7	1.0
Sensation 64	spiral	120	140	on	NA	0.90	64	0.6	1.0
Definition 64	spiral	120	100	on	**off**	0.80	64	0.6	1.0
Go Top 64	spiral	Sn 110	898	on	on	0.40	64	0.6	1.0
Drive 128	spiral	120	70	on	**off**	0.80	128	0.6	1.0
Force 192	spiral	120	70	on	**off**	0.80	192	0.6	1.0

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction	
AX BONE	3.0	3.0	Br59 / B60	bone/osteo	3	head/feet	
AX THINS BONE	**1.0**	**1.0**	**Br59 / B60**	**bone/osteo**	**3**	**head/feet**	**MAVEN specific recon.**
COR BONE	3.0	3.0	Br59 / B60	bone/osteo	3	front/back	
SAG BONE	3.0	3.0	Br59 / B60	bone/osteo	3	left/right	
AX SOFT	3.0	3.0	Br59 / B60	abdomen	3	head/feet	

GE PARAMETERS & RECONS

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR
LS 16	helical	large	120	100-440	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA
Opt 540	helical	large	120	100-440	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA
LS VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	0.984	39.37	0.5	20	20
Disc VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	0.984	39.37	0.5	20	20

KNEE RECONS

Name of Series	Thickness	Interval	Recon Algorithm/Mode	Window Width/Level	Recon Direction	
AX BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**	**Must be first recon.**
AX THINS	**1.25**	**1.25**	**bone full**	**2500/480**	**head/feet**	**MAVEN specific recon.**
COR BONE	2.5	2.5	bone full	2500/480	front/back	
SAG BONE	2.5	2.5	bone full	2500/480	left/right	
AX SOFT	2.5	2.5	bone full	400/40	head/feet	

CT MAVEN Ankle

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time
Incisive 128	helical	120	85	32	on	0.80	64	0.625	1.00

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction	
AX BONE	3.0	3.0	YC	bone	3	head/feet	
AX THINS	**1.0**	**1.0**	**YC**	**bone**	**3**	**head/feet**	**MAVEN specific recon.**
COR BONE	3.0	3.0	YC	bone	3	front/back	
SAG BONE	3.0	3.0	YC	bone	3	left/right	
AX SOFT	3.0	3.0	YC	abdomen	3	head/feet	

SIMULATED WEIGHT-BEARING CT SCANNING PROTOCOL

MAVEN™ PSI System – APEX 3D™ Total Ankle Replacement

MAVEN™ PATIENT SPECIFIC SURGERY

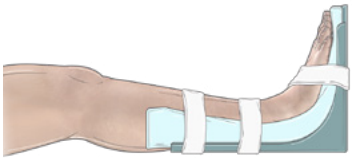
Paragon 28®

PURPOSE:

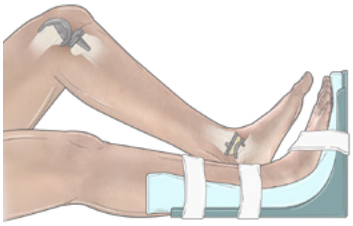
Conduct simulated weight-bearing CT scan for MAVEN™ Patient-Specific Guide and Surgical Planning Case Report creation for the Paragon 28® APEX 3D™ Total Ankle Replacement System. Adhering to this CT scan protocol is critical.

PATIENT POSITION ON CT TABLE:

- **Patient: Supine position**
  - No cushions/wedges under legs or feet; may push metatarsal bases out of the field of view, causing scans to be rejected.



- **Affected leg: Foot in neutral flexion**
  - Foot MUST be perpendicular to table with toes pointed up
  - Holder/brace use is REQUIRED to ensure foot alignment



- **Unaffected leg: Flat on table next to affected leg, UNLESS:**
  - If there is a knee (TKR) or ankle (TAR) implant in the unaffected leg, flex leg to get implant out of plane from affected leg and FOV. Positioned in neutral/90° to the leg. (Use of box or positioning box if necessary).

- **INSTRUCT: Patient CANNOT move during scan OR between scan(s).**

SCAN REQUIREMENTS:

- **Scout**
  - Above knee contiguous – down through extents of foot.
- **Scan**
  - Range: Include full knee to ankle. Ensure complete foot is in view (MUST include metatarsals without cut off; can cut off posterior heel and distal toes). See following page.
  - Scan mode: Helical
  - Gantry tilt: 0°
  - File format: Uncompressed DICOM
  - Pixel size: 0.8mm or smaller in axial view (25cm DFOV preferred, up to 40cm accepted)
- **Reformats: None**
- **Burn: DICOM CD**
  - Upload through website: www.apexankle.com
  - Mail:

Attn: Paragon 28® MAVEN™ TAR PSI
5381 South Alkire Circle
Littleton, CO 80127

SIMULATED WEIGHT-BEARING CT SCANNING PROTOCOL

MAVEN™ PSI System – APEX 3D™ Total Ankle Replacement

CT SCAN PARAMETERS – PARAGON 28 MAVEN TAR PROTOCOL

Exam	Scan Mode	Pitch	Slice Thickness (mm)	Slice Spacing (mm)	kV	mA/Auto mA Noise Index Dose Range	DFOV (cm)	Recon Type
Lower Extremity	Helical	Up to 1	1.25	1.25	120	115	25 preferred (Up to 40 accepted)	Bone 2000/400

- **Continuous Scan:**
  - 5 cm proximal to knee joint through bottom of foot (MUST include metatarsals without cut off; can cut off posterior heel and distal toes; see gray shaded region in figure)

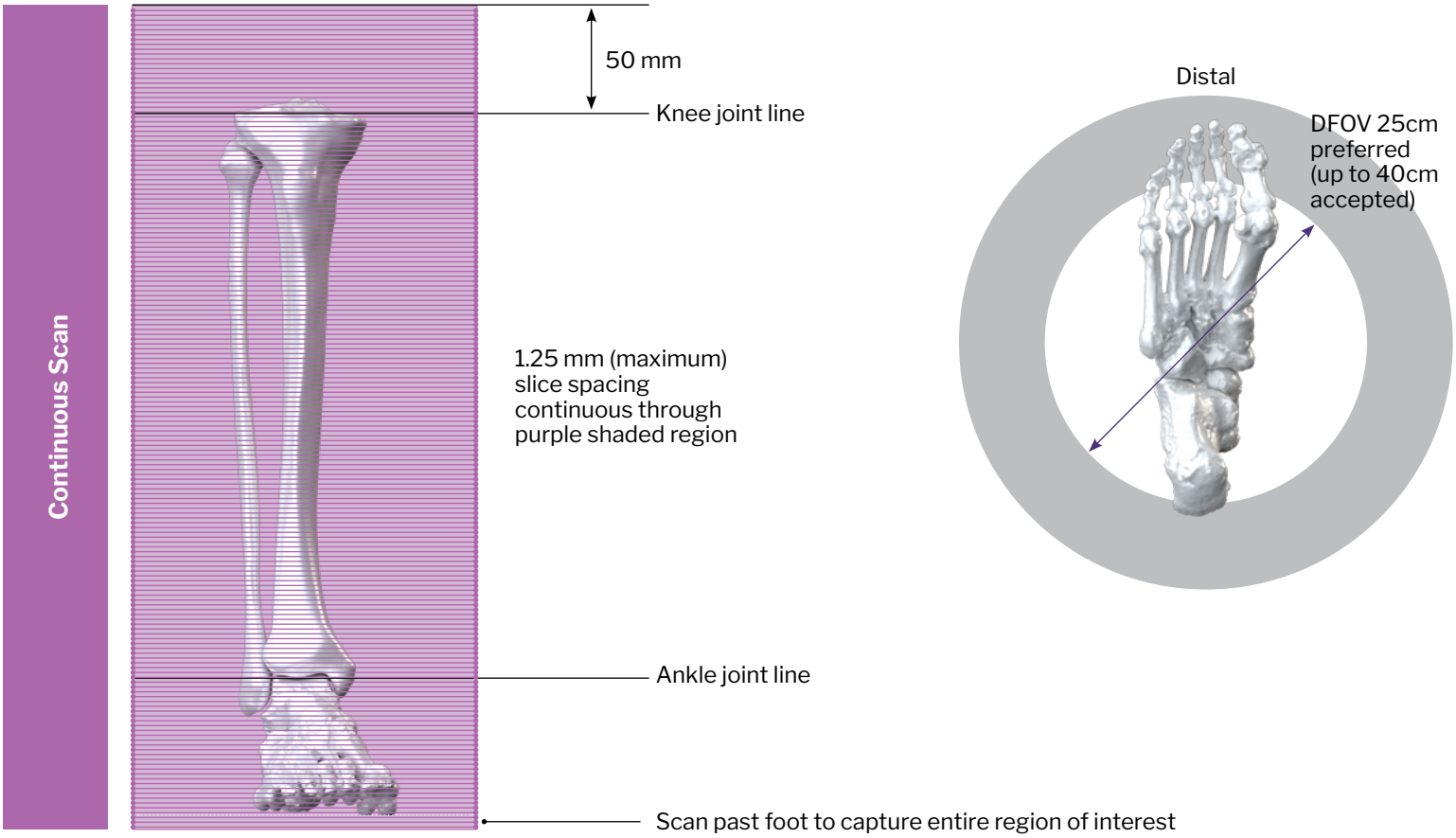


Figure 1. Schematic of scan boundary and slice spacing for continuous knee and ankle scan

CTA Full Aorta (CAP)

Updated 05/02/24
Reviewed 05/14/25

Indications - chest pain, aneurysm, dissection, aneurysm repair including open repair and endograft.
Bill under CT Angio CAP w/ and w/o Contrast Charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung apices through pubic symphysis (obtained during end inspiration).
Craniocaudal scan coverage:
- Pre contrast phase - CAP (obtained during end inspiration).
- Angio phase - CAP (obtained during end inspiration).
- **Only do a delayed phase if there is a stent/endograft in the aorta.**
- Delay phase
  - **Chest only** if the stent is in the chest (obtained during end inspiration).
  - **Abdomen/pelvis** only if the stent is in the abdomen (obtained during end inspiration).

Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast:
- Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **150 mL** (100 mL minimum).
- Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.
- Bolus track off **ascending aorta** triggered at **100 HU**.

Oral Contrast: generally 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.

CTA Full Aorta (CAP)

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast, Angio** and **Delay (5 mins)** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	150	on	NA	1.15	16	1.5	0.5	14.5
Go Up 32	spiral	110	92	on	on 115	1.50	32	0.7	0.8	19.0
Sensation 64	spiral	120	150	on	NA	1.20	64	0.6	0.5	17.4
Definition 64	spiral	120	120	on	on	1.40	64	0.6	0.5	14.9
Go Top 64	spiral	100	101	on	on 115	1.50	64	0.6	0.33	4.6
Drive 128	spiral	120	84	on	on	1.20	128	0.6	0.5	8.7
Force 192	spiral	110	90	on	on	1.20	192	0.6	0.5	5.8

PRE CONTRAST

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Anatomy	Recon Direction
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	CAP	head/feet

ANGIO PHASE

AX ANGIO	3.0	3.0	Br40 / B41f	mediastinum	3	CAP	head/feet
AX ANGIO THINS	1.0 2.0 (16 slice)	1.0 2.0 (16 slice)	Br40 / B41f	mediastinum	3	CAP	head/feet
COR ANGIO	3.0	3.0	Br40 / B41f	mediastinum	3	CAP	front/back
CANDY CANE ANGIO	3.0	3.0	Br40 / B41f	mediastinum	3	CAP	left/right
AX LUNG	3.0	3.0	Br57 / B70f	lung	3	chest	head/feet
AX MIPS	8.0	3.0	Br40 / B41f	lung	3	chest	head/feet
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio			

DELAY PHASE (5 mins)

AX DELAY	3.0	3.0	Br40 / B41f	mediastinum	3	stent area	head/feet

CTA Full Aorta (CAP)

GE PARAMETERS & RECONS

For the **Pre Contrast, Angio** and **Delay (5 mins)** phases:

	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	14.5
Opt 540	helical	large	120	100-440	16.36	on	2.5	20	1.375	27.50	0.5	NA	NA	14.5
LS VCT 64	helical	large body	120	100-700	14.14	on	2.5	40	1.375	55.00	0.5	50	50	7.3
Disc VCT 64	helical	large body	120	100-700	14.14	on	2.5	40	1.375	55.00	0.5	NA	NA	7.3

PRE CONTRAST

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Anatomy	Recon Direction
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**CAP**	**head/feet**

This must be the first recon for the prescribed Noise Index to be valid.

ANGIO PHASE

AX ANGIO	**2.5**	**2.5**	**std full**	**400/40**	**CAP**	**head/feet**

This must be the first recon for the prescribed Noise Index to be valid.

AX ANGIO THINS	1.25	1.25	std full	400/40	CAP	head/feet
COR ANGIO	2.5	2.5	std full	400/40	CAP	front/back
CANDY CANE ANGIO	2.5	2.5	std full	400/40	CAP	left/right
AX LUNG	2.5	2.5	lung	1600/-600	chest	head/feet
AX MIPS	8.0	3.0	std full	1600/-600	chest	head/feet
3D VRT (spin)	0.625	0.625	std full	400/40		

DELAY PHASE (5 mins)

AX DELAY	**2.5**	**2.5**	**std full**	**400/40**	**stent area**	**head/feet**

This must be the first recon for the prescribed Noise Index to be valid.

CTA Full Aorta (CAP)

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast, Angio** and **Delay (5 mins)** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	103	20	on	1.00	64	0.625	0.75	15.0

PRE CONTRAST

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	CAP	head/feet

ANGIO PHASE

AX ANGIO	3.0	3.0	B	mediastinum	3	CAP	head/feet
AX ANGIO THINS	1.0	1.0	B	mediastinum	3	CAP	head/feet
COR ANGIO	3.0	3.0	B	mediastinum	3	CAP	front/back
CANDY CANE ANGIO	3.0	3.0	B	mediastinum	3	CAP	left/right
AX LUNG	3.0	3.0	YA	lung	3	chest	head/feet
AX MIPS	8.0	3.0	B	lung	3	chest	head/feet
3D VRT (spin)	0.75	0.5					

DELAY PHASE (5 mins)

AX DELAY	3.0	3.0	B	mediastinum	3	CAP	head/feet

CTA Thoracic Aorta (Chest Only)

Updated 05/02/24
Reviewed 05/14/25

Indications - chest pain, aneurysm, dissection, hemoptysis, aneurysm repair including open repair and endograft.

If indication is PE and hemoptysis, tech should contact ordering clinician to pick either PE or hemoptysis which will determine which protocol to use.

Bill under CT Angiography Chest w/ and w/o Contrast charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

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

Craniocaudal scan coverage - lung apices through adrenal glands on all phases (obtained during end inspiration).

Only do a delayed phase if there is a stent/endograft in the aorta.

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

Scan parameters are the same as PE protocol.

IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **150 mL** (100 mL minimum).

Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

Bolus track off **ascending aorta** triggered at **100 HU**.

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.

CTA Thoracic Aorta (Chest Only)

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast, Angio** and **Delay (5 mins)** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	150	on	NA	1.15	16	0.75	0.5	10.9
Go Up 32	spiral	110	56	on	on 70	1.50	32	0.7	0.8	7.1
Sensation 64	spiral	120	150	on	NA	1.20	64	0.6	0.5	6.5
Definition 64	spiral	120	127	on	on	1.40	64	0.6	0.3	3.3
Go Top 64	spiral	100	62	on	on 70	1.50	64	0.6	0.33	1.7
Drive 128	spiral	100	105	on	on	1.20	128	0.6	0.28	1.8
Force 192	spiral	100	105	on	on	1.20	192	0.5	0.25	1.3

PRE CONTRAST

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Anatomy
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

ANGIO PHASE

AX ANGIO	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
AX ANGIO THINS	1.0	1.0	Br40 / B41f	mediastinum	3	head/feet
COR ANGIO	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
CANDY CANE ANGIO	3.0	3.0	Br40 / B41f	mediastinum	3	left/right
AX LUNG	3.0	3.0	Br57 / B70f	lung	3	head/feet
AX MIPS	8.0	3.0	Br40 / B41f	lung	3	head/feet
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio		

DELAY PHASE (5 mins)

AX DELAY	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

CTA Thoracic Aorta (Chest Only)

GE PARAMETERS & RECONS

For the **Pre Contrast,** **Angio** and **Delay (5 mins)** phases:

	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	100-600	14.14	on	2.5	40	0.984	39.375	0.5	40	40	3.8
Disc VCT 64	helical	large body	120	100-600	14.14	on	2.5	40	0.984	39.375	0.5	40	40	3.8

PRE CONTRAST

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**

ANGIO PHASE

AX ANGIO	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**
AX ANGIO THINS	1.25	1.25	std full	400/40	head/feet	
COR ANGIO	2.5	2.5	std full	400/40	front/back	
CANDY CANE ANGIO	2.5	2.5	std full	400/40	left/right	
AX LUNG	2.5	2.5	lung	1600/-600	head/feet	
AX MIPS	8.0	3.0	std full	1600/-600	head/feet	
3D VRT (spin)	0.625	0.625	std full	400/40		

DELAY PHASE (5 mins)

AX DELAY	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**

CTA Thoracic Aorta (Chest Only)

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast, Angio** and **Delay (5 mins)** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	103	20	on	1.00	64	0.625	0.75	5.6

PRE CONTRAST

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	head/feet

ANGIO PHASE

AX ANGIO	3.0	3.0	B	mediastinum	3	head/feet
AX ANGIO THINS	1.0	1.0	B	mediastinum	3	head/feet
COR ANGIO	3.0	3.0	B	mediastinum	3	front/back
CANDY CANE ANGIO	3.0	3.0	B	mediastinum	3	left/right
AX LUNG	3.0	3.0	YA	lung	3	head/feet
AX MIPS	8.0	3.0	B	lung	3	head/feet
3D VRT (spin)	0.75	0.5				

DELAY PHASE (5 mins)

AX DELAY	3.0	3.0	B	mediastinum	3	head/feet

CTA Abdominal Aorta (Abdomen/Pelvis)

Updated 04/27/24
Reviewed 05/14/25

Indications - chest pain, aneurysm, dissection, aneurysm repair including open repair and endograft.
Bill under CT Angio Combo AP w/ and w/o Contrast Charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung bases through pubic symphysis (obtained during end inspiration).
Craniocaudal scan coverage - lung bases through pubic symphysis on all phases (obtained during end inspiration).

Only do a delayed phase if there is a stent/endograft in the aorta.

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

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **150 mL** (100 mL minimum).
Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.
Bolus track off **proximal abdominal aorta** triggered at **100 HU**.

Oral Contrast: generally 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.

CTA Abdominal Aorta (Abdomen/Pelvis)

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast,** **Angio** and **Delay (5 mins)** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	150	on	NA	1.15	16	0.75	0.5	18.1
Go Up 32	spiral	110	92	on	on 115	1.50	32	0.7	0.8	11.9
Sensation 64	spiral	120	150	on	NA	1.20	64	0.6	0.5	10.9
Definition 64	spiral	120	120	on	on	1.40	64	0.6	0.5	9.3
Go Top 64	spiral	100	101	on	on 115	1.50	64	0.6	0.33	2.9
Drive 128	spiral	120	84	on	on	1.20	128	0.6	0.5	5.4
Force 192	spiral	110	90	on	on	1.20	192	0.6	0.5	3.6

PRE CONTRAST

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Anatomy
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

ANGIO PHASE

AX ANGIO	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
AX ANGIO THINS	1.0	1.0	Br40 / B41f	mediastinum	3	head/feet
COR ANGIO	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG ANGIO	3.0	3.0	Br40 / B41f	mediastinum	3	left/right
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio		

DELAY PHASE (5 mins)

AX DELAY	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

CTA Abdominal Aorta (Abdomen/Pelvis)

GE PARAMETERS & RECONS

For the **Pre Contrast,** **Angio** and **Delay (5 mins)** phases:

	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	9.1
Opt 540	helical	large	120	100-440	16.36	on	2.5	20	1.375	27.50	0.5	NA	NA	9.1
LS VCT 64	helical	large body	120	100-700	14.14	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	100-700	14.14	on	2.5	40	1.375	55.00	0.5	50	50	4.5

PRE CONTRAST

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction	
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**

ANGIO PHASE

AX ANGIO	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**
COR ANGIO	2.5	2.5	std full	400/40	front/back	
SAG ANGIO	2.5	2.5	std full	400/40	left/right	
AX ANGIO THINS	1.25	1.25	std full	400/40	head/feet	
3D VRT (spin)	0.625	0.625	std full	400/40		

DELAY PHASE (5 mins)

AX DELAY	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**	**Must be first recon.**

CTA Abdominal Aorta (Abdomen/Pelvis)

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast, Angio** and **Delay (5 mins)** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	103	20	on	1.00	64	0.625	0.75	9.4

PRE CONTRAST

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	head/feet

ANGIO PHASE

AX ANGIO	3.0	3.0	B	mediastinum	3	head/feet
AX ANGIO THINS	1.0	1.0	B	mediastinum	3	head/feet
COR ANGIO	3.0	3.0	B	mediastinum	3	front/back
SAG ANGIO	3.0	3.0	B	mediastinum	3	left/right
3D VRT (spin)	0.75	0.5				

DELAY PHASE (5 mins)

AX DELAY	3.0	3.0	B	mediastinum	3	head/feet

CTA PE (Pulmonary Embolus)

Updated 05/02/24
Reviewed 05/14/25

Indications - shortness of breath, dyspnea, chest pain, tachycardia, pulmonary embolus, DVT, elevated D-dimer, pulmonary hypertension.

Hemoptysis indication uses CTA thoracic aorta protocol. If indication is PE and hemoptysis, tech should contact ordering clinician to pick either PE or hemoptysis which will determine which protocol to use.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

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

Craniocaudal scan coverage:

Regular patients - lung apices through adrenal glands (**just have patient stop breathing**).

Pregnant patient - lung apices through **lung bases** (**just have patient stop breathing**).

Having the patient just stop breathing rather than taking in a deep breath reduces the influx of unopacified contrast from the abdomen into the pulmonary arteries.

Scan caudal to cranial to reduce motion artifact in lung bases where PEs are more common.

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

IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **150 mL** (100 mL minimum).

Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

Bolus track off **right atrium** triggered at **95 HU**.

Test Bolus Method – Give 20 mL contrast bolus followed by saline flush. Track enhancement curve off pulmonary artery with target 100 HU to get timing delay. Give another 80 mL contrast and begin scanning caudal-cranial after timing delay. Use 25 mL contrast for test bolus and 100 mL contrast for actual scan in patients weighing over 250 lbs.

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.

CTA PE (Pulmonary Embolus)

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	150	on	NA	1.15	16	0.75	0.5	10.9
Go Up 32	spiral	110	56	on	on 70	1.50	32	0.7	0.8	7.1
Sensation 64	spiral	120	150	on	NA	1.20	64	0.6	0.5	6.5
Definition 64	spiral	120	127	on	on	1.40	64	0.6	0.3	3.3
Go Top 64	spiral	100	62	on	on 70	1.50	64	0.6	0.33	1.7
Drive 128	spiral	100	105	on	on	1.20	128	0.6	0.28	1.8
Force 192	spiral	100	105	on	on	1.20	192	0.5	0.25	1.3

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX LUNG	3.0	3.0	Br57 / B70f	lung	3	head/feet
AX ANGIO	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
AX ANGIO THINS	1.5	1.5	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
AX MIPS	5.0	3.0	Br40 / B41f	mediastinum	3	head/feet
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio		

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	100-600	14.14	on	2.5	40	0.984	39.375	0.5	40	40	3.8
Disc VCT 64	helical	large body	120	100-600	14.14	on	2.5	40	0.984	39.375	0.5	40	40	3.8

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX LUNG	**2.5**	**2.5**	**lung**	**1600/-600**	**head/feet**
AX ANGIO	2.5	2.5	std full	400/40	head/feet
AX ANGIO THINS	1.25	1.25	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
AX MIPS	5.0	3.0	std full	1600/-600	head/feet
3D VRT (spin)	0.625	0.625	std full	400/40	

Must be first recon.

CTA PE (Pulmonary Embolus)

PHILLIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	103	20	on	1.20	64	0.625	0.50	3.1

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX LUNG	3.0	3.0	YA	lung	3	head/feet
AX ANGIO	3.0	3.0	B	mediastinum	3	head/feet
AX ANGIO THINS	1.5	1.5	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
AX MIPS	5.0	3.0	B	mediastinum	3	head/feet
3D VRT (spin)	0.75	0.5	B			

CT SVC (Superior Vena Cava)

Updated 05/02/24
Reviewed 05/14/25

Indications - SVC thrombus/occlusion, SVC syndrome.
Use CT Chest w/ Contrast charge. Do not use CT Angiography Chest w/ + w/o Contrast charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung apices through diaphragm (obtained during end inspiration).
Craniocaudal scan coverage - lung apices through adrenal glands (obtained during end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
Scan parameters are the same as PE protocol.
IV Contrast:

Administer **125 mL contrast mixture**.
Pharmacy prepares contrast mixture - 15 mL **Omnipaque-300** diluted to 150 mL with normal saline.
Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.
30 secs scan delay.

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	150	on	NA	1.15	16	0.75	0.5	10.9
Go Up 32	spiral	110	56	on	on 70	1.50	32	0.7	0.8	7.1
Sensation 64	spiral	120	150	on	NA	1.20	64	0.6	0.5	6.5
Definition 64	spiral	120	127	on	on	1.40	64	0.6	0.3	3.3
Go Top 64	spiral	100	62	on	on 70	1.50	64	0.6	0.33	1.7
Drive 128	spiral	100	105	on	on	1.20	128	0.6	0.28	1.8
Force 192	spiral	100	105	on	on	1.20	192	0.5	0.25	1.3

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
AX THINS	1.0	0.8	Br40 / B41f	mediastinum	3	head/feet
AX MIPS	8.0	3.0	Br40 / B41f	lung	3	head/feet

CT SVC (Superior Vena Cava)

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	100-600	14.14	on	2.5	40	0.984	39.375	0.5	40	40	3.8
Disc VCT 64	helical	large body	120	100-600	14.14	on	2.5	40	0.984	39.375	0.5	40	40	3.8

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX LUNG	**2.5**	**2.5**	**lung**	**1600/-600**	**head/feet**
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
AX THINS	1.25	1.0	std full	400/40	head/feet
AX MIPS	8.0	3.0	std full	1600/-600	head/feet

Must be first recon.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	103	20	on	1.20	64	0.625	0.50	3.1

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
AX THINS	1.0	0.75	B	mediastinum	3	head/feet
AX MIPS	8.0	2.0	B	lung	3	head/feet

CTA Renal Artery

Updated 04/27/24
Reviewed 05/14/25

Indications - renal artery stenosis or aneurysm, hypertension, fibromuscular dysplasia.
Bill under CT Angio Combo AP w/ and w/o Contrast Charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung bases through pubic symphysis (obtained during end inspiration).
Craniocaudal scan coverage - lung bases through pubic symphysis on both phases (obtained during end inspiration).
If only abdomen ordered, only image the abdomen regardless of what coverage areas below indicate.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
Scan parameters are the same as CTA abdominal aorta.
IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **150 mL** (100 mL minimum).
Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.
Bolus track off **proximal abdominal aorta** triggered at **100 HU**.

Oral Contrast: generally 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.

CTA Renal Artery

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast** and **Angio** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	150	on	NA	1.15	16	0.75	0.5	18.1
Go Up 32	spiral	110	92	on	on 115	1.50	32	0.7	0.8	11.9
Sensation 64	spiral	120	150	on	NA	1.20	64	0.6	0.5	10.9
Definition 64	spiral	120	120	on	on	1.40	64	0.6	0.5	9.3
Go Top 64	spiral	100	101	on	on 115	1.50	64	0.6	0.33	2.9
Drive 128	spiral	120	84	on	on	1.20	128	0.6	0.5	5.4
Force 192	spiral	110	90	on	on	1.20	192	0.6	0.5	3.6

PRE CONTRAST

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Anatomy
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

ANGIO PHASE

AX ANGIO	2.0	2.0	Br40 / B41f	mediastinum	3	head/feet
AX ANGIO THINS	1.0	1.0	Br40 / B41f	mediastinum	3	head/feet
COR ANGIO	2.0	2.0	Br40 / B41f	mediastinum	3	front/back
SAG ANGIO	2.0	2.0	Br40 / B41f	mediastinum	3	left/right
CURVED RIGHT ANGIO MIPS	2.0	2.0	Br40 / B41f	mediastinum	3	front/back
CURVED LEFT ANGIO MIPS	2.0	2.0	Br40 / B41f	mediastinum	3	front/back
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio		

CTA Renal Artery

GE PARAMETERS & RECONS

For the **Pre Contrast** and **Angio** phases:

	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	9.1
Opt 540	helical	large	120	100-440	16.36	on	2.5	20	1.375	27.50	0.5	NA	NA	9.1
LS VCT 64	helical	large body	120	100-700	14.14	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	100-700	14.14	on	2.5	40	1.375	55.00	0.5	50	50	4.5

PRE CONTRAST

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**

This must be the first recon for the prescribed Noise Index to be valid.

ANGIO PHASE

AX ANGIO	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**

This must be the first recon for the prescribed Noise Index to be valid.

COR ANGIO	2.5	2.5	std full	400/40	front/back
SAG ANGIO	2.5	2.5	std full	400/40	left/right
AX ANGIO THINS	1.25	1.25	std full	400/40	head/feet
CURVED RIGHT ANGIO MIPS	2.5	2.5	std full	400/40	front/back
CURVED LEFT ANGIO MIPS	2.5	2.5	std full	400/40	front/back
3D VRT (spin)	0.625	0.625	std full	400/40	

CTA Renal Artery

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast** **and** **Angio** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	103	20	on	1.00	64	0.625	0.75	9.4

PRE CONTRAST

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX PRE	3.0	3.0	B	mediastinum	3	head/feet

ANGIO PHASE

AX ANGIO	2.0	2.0	B	mediastinum	3	head/feet
AX ANGIO THINS	1.0	1.0	B	mediastinum	3	head/feet
COR ANGIO	2.0	2.0	B	mediastinum	3	front/back
SAG ANGIO	2.0	2.0	B	mediastinum	3	left/right
CURVED RIGHT ANGIO MIPS	2.0	2.0	B	mediastinum	3	front/back
CURVED LEFT ANGIO MIPS	2.0	2.0	B	mediastinum	3	front/back
3D VRT (spin)	0.75	0.5				

CT IVC (Inferior Vena Cava)

Updated 05/02/24
Reviewed 05/14/25

Indications - IVC, iliac or renal vein thrombus, malfunctioning IVC filter.
Use CT AP w/ + w/o Contrast. Do not use CT Angio Combo AP w/ + w/o Contrast charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung bases through pubic symphysis (obtained during end inspiration).
Craniocaudal scan coverage - lung bases through pubic symphysis on both phases (obtained during end inspiration).
If only the abdomen is ordered, only image the abdomen regardless of what coverage areas below indicate.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast:

Administer weight-based **Omnipaque-300** - **1 mL/kg** up to **150 mL** (**100 mL minimum**).
Inject at **2.5 mL/sec**.

Oral Contrast: generally 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

For the **Pre Contrast** and **Delay (120 secs)** phases:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	200	on	NA	0.80	16	1.5	0.5	13.0
Go Up 32	spiral	130	92	on	on 145	0.80	32	0.7	0.8	22.3
Sensation 64	spiral	120	200	on	NA	1.20	24	1.2	0.5	7.2
Definition 64	spiral	120	180	on	on	0.60	64	0.6	0.5	21.7
Go Top 64	spiral	120	112	on	on 145	0.80	64	0.6	0.5	8.1
Drive 128	spiral	120	147	on	on	0.60	128	0.6	0.5	10.9
Force 192	spiral	120	147	on	on	0.60	192	0.6	0.5	7.2

PRE CONTRAST

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Anatomy
AX PRE	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet

DELAY PHASE (120 secs)

AX 120 SECS	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR 120 SECS	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG 120 SECS	3.0	3.0	Br40 / B41f	mediastinum	3	left/right

CT IVC (Inferior Vena Cava)

GE PARAMETERS & RECONS

For the **Pre Contrast** and **Delay (120 secs)** phases:

	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	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
Opt 540	helical	large	120	50-440	16.36	on	2.5	20	1.375	27.50	0.6	NA	NA	10.9
LS VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	50	50	4.5
Disc VCT 64	helical	large body	120	50-650	16.36	on	2.5	40	1.375	55.00	0.5	NA	NA	4.5

PRE CONTRAST

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX PRE	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**

Must be first recon.

DELAY PHASE (120 secs)

AX 120 SECS	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR 120 SECS	2.5	2.5	std full	400/40	front/back
SAG 120 SECS	2.5	2.5	std full	400/40	left/right

Must be first recon.

PHILIPS PARAMETERS & RECONS

For the **Pre Contrast** and **Delay (120 secs)** phases:

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	115	20	on	1.00	64	0.625	0.75	9.4

PRE CONTRAST

AX PRE	3.0	3.0	B	mediastinum	3	head/feet

DELAY PHASE (120 secs)

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX 120 SECS	3.0	3.0	B	mediastinum	3	head/feet
COR 120 SECS	3.0	3.0	B	mediastinum	3	front/back
SAG 120 SECS	3.0	3.0	B	mediastinum	3	left/right

CTA Runoff (Aorta/Iliofemoral)

Updated 04/27/24
Reviewed 05/14/25

Indications - peripheral artery disease, claudication, ischemia, absent pulses, aneurysm, trauma.
Bill under CT Angiography Abd Aorta + Iliofemoral charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung bases through toes (obtained during end inspiration).
Craniocaudal scan coverage - lung bases through toes (obtained during end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **150 mL** (100 mL minimum).
Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.
Bolus track off **proximal abdominal aorta** triggered at **100 HU**.

Oral Contrast: generally 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.

CTA Runoff (Aorta/Iliofemoral)

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	150	on	NA	1.15	16	1.5	0.5	23.6
Go Up 32	spiral	110	124	on	on 155	1.00	32	0.7	0.8	46.4
Sensation 64	spiral	120	150	on	NA	1.20	64	0.6	0.5	28.2
Definition 64	spiral	120	120	on	on	0.85	64	0.6	0.3	23.9
Go Top 64	spiral	100	136	on	on 155	0.35	64	0.6	0.5	48.4
Drive 128	spiral	120	84	on	on	0.60	128	0.6	0.5	28.2
Force 192	spiral	110	90	on	on	0.60	192	0.6	0.5	18.8

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Anatomy	Recon Direction
AX ANGIO	3.0	3.0	Br40 / B41f	mediastinum	3	AP thru feet	head/feet
AX ANGIO THINS	1.0 2.0 (16 slice)	1.0 2.0 (16 slice)	Br40 / B41f	mediastinum	3	AP thru feet	head/feet
COR ANGIO AP	2.0	2.0	Br40 / B41f	mediastinum	3	AP	front/back
SAG ANGIO AP	2.0	2.0	Br40 / B41f	mediastinum	3	AP	left/right
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio			
COR ANGIO UPPER	2.0	2.0	Br40 / B41f	mediastinum	3	thighs	front/back
SAG ANGIO UPPER	2.0	2.0	Br40 / B41f	mediastinum	3	thighs	left/right
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio			
COR ANGIO LOWER	2.0	2.0	Br40 / B41f	mediastinum	3	lower legs	front/back
SAG ANGIO LOWER	2.0	2.0	Br40 / B41f	mediastinum	3	lower legs	left/right
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio			

CTA Runoff (Aorta/Iliofemoral)

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	50-380	16.36	on	2.5	20	1.750	35.00	0.6	NA	NA	22.3
Opt 540	helical	large	120	50-380	16.36	on	2.5	20	1.750	35.00	0.6	NA	NA	22.3
LS VCT 64	helical	large body	120	100-610	14.14	on	2.5	40	1.375	55.00	0.5	0	0	11.8
Disc VCT 64	helical	large body	120	100-515	14.14	on	2.5	40	1.375	55.00	0.5	0	0	11.8

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Anatomy	Recon Direction
AX ANGIO	**2.5**	**2.5**	**std full**	**400/40**	**AP thru feet**	**head/feet**

This must be the first recon for the prescribed Noise Index to be valid.

AX ANGIO THINS	1.25	1.25	std full	400/40	AP thru feet	head/feet
COR ANGIO AP	2.0	2.0	std full	400/40	AP	front/back
SAG ANGIO AP	2.0	2.0	std full	400/40	AP	left/right
3D VRT (spin)	0.625	0.625	std full	400/40		

COR ANGIO UPPER	2.0	2.0	std full	400/40	thighs	front/back
SAG ANGIO UPPER	2.0	2.0	std full	400/40	thighs	left/right
3D VRT (spin)	0.625	0.625	std full	400/40		

COR ANGIO LOWER	2.0	2.0	std full	400/40	lower legs	front/back
SAG ANGIO LOWER	2.0	2.0	std full	400/40	lower legs	left/right
3D VRT (spin)	0.625	0.625	std full	400/40		

CTA Runoff (Aorta/Iliofemoral)

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	103	20	on	1.00	64	0.625	0.75	24.4

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Anatomy	Recon Direction
AX ANGIO	3.0	3.0	B	mediastinum	3	AP thru feet	head/feet
AX ANGIO THINS	1.0	1.0	B	mediastinum	3	AP thru feet	head/feet
COR ANGIO AP	2.0	2.0	B	mediastinum	3	AP	front/back
SAG ANGIO AP	2.0	2.0	B	mediastinum	3	AP	left/right
3D VRT (spin)	0.75	0.5					
COR ANGIO UPPER	2.0	2.0	B	mediastinum	3	thighs	front/back
SAG ANGIO UPPER	2.0	2.0	B	mediastinum	3	thighs	left/right
3D VRT (spin)	0.75	0.5					
COR ANGIO LOWER	2.0	2.0	B	mediastinum	3	lower legs	front/back
SAG ANGIO LOWER	2.0	2.0	B	mediastinum	3	lower legs	left/right
3D VRT (spin)	0.75	0.5					

CTA Legs

Updated 04/27/24
Reviewed 05/14/25

Indications - peripheral artery disease, claudication, ischemia, absent pulses, aneurysm, trauma.
Bill under CT Angiography LE charges.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Topogram - lung bases through toes (obtained during end inspiration).
Craniocaudal scan coverage - iliac crests through toes (obtained during end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
Scan parameters are the same as CTA runoff.
IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **150 mL** (100 mL minimum).
Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.
Bolus track off **distal abdominal aorta** triggered at **100 HU**.

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.

CTA Legs

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	150	on	NA	1.15	16	1.5	0.5	19.9
Go Up 32	spiral	110	124	on	on 155	1.00	32	0.7	0.8	39.3
Sensation 64	spiral	120	150	on	NA	1.20	64	0.6	0.5	23.9
Definition 64	spiral	120	120	on	on	0.85	64	0.6	0.3	20.2
Go Top 64	spiral	100	136	on	on 155	0.35	64	0.6	0.5	40.9
Drive 128	spiral	120	84	on	on	0.60	128	0.6	0.5	23.9
Force 192	spiral	110	90	on	on	0.60	192	0.6	0.5	15.9

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Anatomy	Recon Direction
AX ANGIO	3.0	3.0	Br40 / B41f	mediastinum	3	pelvis thru feet	head/feet
AX ANGIO THINS	1.0 (64 slice) 2.0 (16 slice)	1.0 (64 slice) 2.0 (16 slice)	Br40 / B41f	mediastinum	3	pelvis thru feet	head/feet
COR ANGIO PELV	2.0	2.0	Br40 / B41f	mediastinum	3	pelvis	front/back
SAG ANGIO PELV	2.0	2.0	Br40 / B41f	mediastinum	3	pelvis	left/right
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio			
COR ANGIO UPPER	2.0	2.0	Br40 / B41f	mediastinum	3	thighs	front/back
SAG ANGIO UPPER	2.0	2.0	Br40 / B41f	mediastinum	3	thighs	left/right
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio			
COR ANGIO LOWER	2.0	2.0	Br40 / B41f	mediastinum	3	lower legs	front/back
SAG ANGIO LOWER	2.0	2.0	Br40 / B41f	mediastinum	3	lower legs	left/right
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio			

CTA Legs

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	50-380	16.36	on	2.5	20	1.750	35.00	0.6	NA	NA	18.9
Opt 540	helical	large	120	50-380	16.36	on	2.5	20	1.750	35.00	0.6	NA	NA	18.9
LS VCT 64	helical	large body	120	100-610	14.14	on	2.5	40	1.375	55.00	0.5	0	0	10.0
Disc VCT 64	helical	large body	120	100-515	14.14	on	2.5	40	1.375	55.00	0.5	0	0	10.0

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Anatomy	Recon Direction
AX ANGIO	**2.5**	**2.5**	**std full**	**400/40**	**pelvis thru feet**	**head/feet**

This must be the first recon for the prescribed Noise Index to be valid.

AX ANGIO THINS	1.25	1.25	std full	400/40	pelvis thru feet	head/feet
COR ANGIO PELV	2.0	2.0	std full	400/40	pelvis	front/back
SAG ANGIO PELV	2.0	2.0	std full	400/40	pelvis	left/right
3D VRT (spin)	0.625	0.625	std full	400/40		

COR ANGIO UPPER	2.0	2.0	std full	400/40	thighs	front/back
SAG ANGIO UPPER	2.0	2.0	std full	400/40	thighs	left/right
3D VRT (spin)	0.625	0.625	std full	400/40		

COR ANGIO LOWER	2.0	2.0	std full	400/40	lower legs	front/back
SAG ANGIO LOWER	2.0	2.0	std full	400/40	lower legs	left/right
3D VRT (spin)	0.625	0.625	std full	400/40		

CTA Legs

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	103	20	on	1.00	64	0.625	0.75	20.6

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Anatomy	Recon Direction
AX ANGIO	3.0	3.0	B	mediastinum	3	pelvis thru feet	head/feet
AX ANGIO THINS	1.0	1.0	B	mediastinum	3	pelvis thru feet	head/feet
COR ANGIO PELV	2.0	2.0	B	mediastinum	3	pelvis	front/back
SAG ANGIO PELV	2.0	2.0	B	mediastinum	3	pelvis	left/right
3D VRT (spin)	0.75	0.5					
COR ANGIO UPPER	2.0	2.0	B	mediastinum	3	thighs	front/back
SAG ANGIO UPPER	2.0	2.0	B	mediastinum	3	thighs	left/right
3D VRT (spin)	0.75	0.5					
COR ANGIO LOWER	2.0	2.0	B	mediastinum	3	lower legs	front/back
SAG ANGIO LOWER	2.0	2.0	B	mediastinum	3	lower legs	left/right
3D VRT (spin)	0.75	0.5					

CT Venogram Legs

Updated 04/27/24
Reviewed 05/14/25

Indications - May-Thurner syndrome, deep venous thrombosis, venous outflow obstruction.
Include the following charges: CT Pelvis w/ Contrast, CT LE w/ Contrast Right and CT LE w/ Contrast Left.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Topogram - lung bases through ankles (obtained during end inspiration).
Craniocaudal scan coverage - iliac crests through ankles (obtained during end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
Scan parameters are the same as CTA lower extremities.
IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **150 mL** (**120 mL** minimum).
Inject at **3 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.

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	150	on	NA	1.15	16	1.5	0.5	19.9
Go Up 32	spiral	110	124	on	on 155	1.00	32	0.7	0.8	39.3
Sensation 64	spiral	120	150	on	NA	1.20	64	0.6	0.5	23.9
Definition 64	spiral	120	120	on	on	0.85	64	0.6	0.3	20.2
Go Top 64	spiral	100	136	on	on 155	0.35	64	0.6	0.5	40.9
Drive 128	spiral	120	84	on	on	0.60	128	0.6	0.5	23.9
Force 192	spiral	110	90	on	on	0.60	192	0.6	0.5	15.9

120 SECS PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX 120 SECS	3.0	3.0	Br40 / B41f	mediastinum	3	head/feet
COR 120 SECS	3.0	3.0	Br40 / B41f	mediastinum	3	front/back
SAG 120 SECS	3.0	3.0	Br40 / B41f	mediastinum	3	left/right

CT Venogram Legs

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	50-380	16.36	on	2.5	20	1.750	35.00	0.6	NA	NA	18.9
Opt 540	helical	large	120	50-380	16.36	on	2.5	20	1.750	35.00	0.6	NA	NA	18.9
LS VCT 64	helical	large body	120	100-610	14.14	on	2.5	40	1.375	55.00	0.5	0	0	10.0
Disc VCT 64	helical	large body	120	100-515	14.14	on	2.5	40	1.375	55.00	0.5	0	0	10.0

120 SECS PHASE

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX 120 SECS	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
COR 120 SECS	2.5	2.5	std full	400/40	front/back
SAG 120 SECS	2.5	2.5	std full	400/40	left/right

Must be first recon.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	103	20	on	1.00	64	0.625	0.75	20.6

120 SECS PHASE

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX 120 SECS	3.0	3.0	B	mediastinum	3	head/feet
COR 120 SECS	3.0	3.0	B	mediastinum	3	front/back
SAG 120 SECS	3.0	3.0	B	mediastinum	3	left/right

CTA Arms

Updated 04/27/24
Reviewed 05/14/25

Indications - peripheral artery disease, claudication, ischemia, absent pulses, aneurysm, trauma.
Bill under CT Angiography UE charges.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Symptomatic arm (or both) over head with head tilted away from symptomatic arm.
Topogram - mid chest to cover arch through fingers (obtained during end inspiration).
Craniocaudal scan coverage - mid chest to cover arch through fingers (obtained during end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast:

Administer weight-based **Omnipaque-350** - **1 mL/kg** up to **150 mL** (100 mL minimum).
Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in forearm or more proximal.
Bolus track off **aortic arch** triggered at **100 HU**.

A peripheral IV must be on the side opposite from the more symptomatic arm.

A central line used for injection can be in either arm.

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	150	on	NA	1.15	16	0.75	0.5	29.0
Go Up 32	spiral	110	111	on	on 145	1.20	32	0.7	0.8	23.8
Sensation 64	spiral	120	150	on	NA	1.20	64	0.6	0.5	17.4
Definition 64	spiral	120	120	on	on	1.40	64	0.6	0.3	8.9
Go Top 64	spiral	100	115	on	on 145	1.20	64	0.6	0.33	5.7
Drive 128	spiral	120	84	on	on	1.20	128	0.6	0.285	4.9
Force 192	spiral	120	84	on	on	1.20	128	0.6	0.25	4.3

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX ANGIO*	2.0	2.0	Br40 / B41f	mediastinum	3	shoulder/hand
AX ANGIO THINS*	1.0	1.0	Br40 / B41f	mediastinum	3	shoulder/hand
COR ANGIO	2.0	2.0	Br40 / B41f	mediastinum	3	front/back
SAG ANGIO	2.0	2.0	Br40 / B41f	mediastinum	3	left/right
3D VRT (spin)	0.75	0.5	Bv36 / B31f	CT angio		

*The axial recons are along the long axis of the arms.

CTA Arms

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	14.5
Opt 540	helical	large	120	100-440	16.36	on	2.5	20	1.375	27.50	0.5	NA	NA	14.5
LS VCT 64	helical	large body	120	100-600	14.14	on	2.5	40	0.984	39.375	0.5	40	40	10.2
Disc VCT 64	helical	large body	120	100-600	14.14	on	2.5	40	0.984	39.375	0.5	40	40	10.2

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX ANGIO*	**2.5**	**2.5**	**std full**	**400/40**	**shoulder/hand**
AX ANGIO THINS*	1.25	1.25	std full	400/40	shoulder/hand
COR ANGIO	2.5	2.5	std full	400/40	front/back
SAG ANGIO	2.5	2.5	std full	400/40	left/right
3D VRT (spin)	0.625	0.625	std full	400/40	

Must be first recon.

*The axial recons are along the long axis of the arms.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	103	20	on	1.00	64	0.625	0.75	15.0

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX ANGIO*	2.0	2.0	B	mediastinum	3	shoulder/hand
AX ANGIO THINS*	1.0	1.0	B	mediastinum	3	shoulder/hand
COR ANGIO	2.0	2.0	B	mediastinum	3	front/back
SAG ANGIO	2.0	2.0	B	mediastinum	3	left/right
3D VRT (spin)	0.75	0.5				

*The axial recons are along the long axis of the arms.

CT Calcium Score

Updated 05/06/24
Reviewed 05/14/25

Indications - hypertension, hyperlipidemia, hypercholesterolemia, family history of cardiovascular disease.

Do not perform calcium score on the following patients:

- Patients with a history of CABG.
- Patients who have had calcium score within past 12 months.

Bill under CT Cardiac Calcium Score.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

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

Craniocaudal scan coverage - top of aortic arch through apex of left ventricle.

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

Patient does not receive metoprolol or nitroglycerin for this protocol.

EKG gating:

- For heart rate <75 bpm - use prospective scan parameters.
- For heart rate ≥75 bpm - use flash scan parameters.
- If scanner cannot do EKG gating - use non gated scan parameters.

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.

CT Calcium Score

SIEMENS PARAMETERS & RECONS

For **Non-Gated** scans:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Go Up 32	spiral	130	12	on	on 19	0.31	32	0.7	0.8	17.3
Definition 64	spiral	120	40	on	on	0.18	64	0.6	0.3	13.0
Drive 128	spiral	120	80	on	on	0.17	128	0.6	0.285	6.5
Force 192	spiral	120	80	on	on	0.17	192	0.6	0.25	3.8

For **EKG-Gated** scans:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Feed	Acq	Coll	Rot Time	Scan Time
Definition 64	sequential	120	40	on	on	17	16	1.2	0.3	2.6
Go Top 64	sequential	120	15	on	on 19	34.5	64	0.6	0.33	1.4
Drive 128	sequential	120	80	on	on	34.5	32	1.2	0.285	1.2
Force 192	sequential	120	80	on	on	48	48	1.2	0.25	0.8

For **Flash** scans:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Drive 128	spiral	120	80	on	on	3.4	128	0.6	0.285	0.3
Force 192	spiral	120	80	on	on	3.2	192	0.6	0.25	0.2

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	3.0	1.5	Sa36	mediastinum	3	head/feet
AX LUNG	3.0	3.0	Bl59	lung	3	head/feet
SAG SOFT	3.0	3.0	Br40	mediastinum	3	left/right

CT Calcium Score

GE PARAMETERS & RECONS

Smart Scan Cine mode:

	Scan Type	SFOV	kV	Manual mA	Smart mA	Slice Thick	Beam Coll	Pitch / Speed	Rot Time	Dose Red	ASIR
LS VCT 64	axial	large body	120	430	off	2.5	20	8i	0.35	0	0

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**2.5**	**1.25**	**std full**	**400/40**	**head/feet**
AX LUNG	2.5	2.5	lung	1600/-600	head/feet
SAG SOFT	2.5	2.5	std full	400/40	left/right

Must be first recon.

CTA Coronary Arteries

Updated 05/06/24
Reviewed 05/14/25

Indications - chest pain, tachycardia, hypotension, shortness of breath, dyspnea, orthopnea, abnormal EKG, abnormal cardiovascular study, coronary atherosclerosis, ischemic cardiomyopathy, coronary artery dissection/aneurysm, coronary artery malformation, anomalous coronary artery origin.

Bill under CT Angio Coronary w/ Contrast charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

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

Craniocaudal scan coverage:

- No CABG history - above carina through apex of left ventricle (obtained during end inspiration).
- Positive CABG history - lung apices through apex of left ventricle (obtained during end inspiration).

Adjust FOV (field of view) on topogram to smallest without cropping anatomy (target FOV 150-220 mm).

IV Contrast:

- Administer **80 mL** Omnipaque-350 (<350 lbs) or **100 mL** Omnipaque-350 (>350 lbs).
- Inject at **6 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in AC fossa.
- Bolus track off **ascending aorta** triggered at **100 HU** + **5 secs**.

EKG Gating

MEDICATIONS

Heart Rate Control

At Home Medications

- Metoprolol immediate-release 50 mg or diltiazem immediate-release 30 mg
- One tablet the night before and one tablet the morning of the exam.
- The prescription for this medication is the responsibility of whomever ordered the CTA.

Pre Exam Medications

- Metoprolol 10 mg IV or diltiazem 0.25 mg/kg (up to 25 mg) IV given 5 mins before CTA portion.
- Can repeat 5 mg metoprolol every 5 mins as needed.
- Only given if patient's heart rate >70 bpm and systolic BP >100 mmHg.

CTA Coronary Arteries

Contraindications to metoprolol - COPD, asthma, 2nd or 3rd degree heart block, systolic BP <100 mm Hg or allergy to metoprolol.

Contraindications to diltiazem - 2nd or 3rd degree heart block (w/o pacemaker), systolic BP < 100 mm Hg or allergy to diltiazem.

Vasodilatation Medications

Nitroglycerin 0.4 mg tablet given 3-5 mins before CTA portion.

- Can cause reflex elevated heart rate (which is blocked by metoprolol).
- Given to all patients regardless of heart rate (unless contraindicated)
- Contraindications to nitroglycerine - increased intracranial pressure, severe anemia, right-sided myocardial infarction or allergy to nitroglycerin.

CTA Coronary Arteries

SIEMENS PARAMETERS & RECONS

For **Calcium Score** scan:

Use technical parameters from calcium score protocol.
Perform calcium score scan in all patients except:
Patients with a history of CABG.
Patients who have had calcium score within past 12 months.

For **CTA Coronary** scan:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Feed	Acq	Coll	Rot Time	Scan Time
Go Top 64	spiral	100	54	on	on 64	0.31		64	0.6	0.33	4.2
Drive 128	sequential	120	282	on	on		34.5	128	0.6	0.285	1.2
Force 192	sequential	120	288	on	on		39	152	0.6	0.25	1.0

CALCIUM SCORE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	3.0	1.5	Sa36	mediastinum	3	head/feet

CTA CORONARY

AX SOFT	3.0	3.0	Bv40	cardiac	3	head/feet
AX THINS	0.6	0.3	Bv36	cardiac	3	head/feet
AX TRUESTACK	0.6	0.6	Bf44	cardiac	3	head/feet
*AX MULTI 20-80%	0.6	0.3	Bv36	cardiac	3	head/feet
AX LUNG	3.0	3.0	Bl59	lung	3	head/feet

* Ax Multi 20-80% series only applies with retrospective scans.

CTA TAVR

Updated 06/10/25
Reviewed 05/14/25

Indications - pre operative evaluation for aortic valve stenosis.
Bill under CT Angio CAP w/ and w/o Contrast Charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung apices through pubic symphysis (obtained during end inspiration).
Craniocaudal scan coverage:
- Pre contrast - **chest only** (lung apices through lung bases) (obtained during end inspiration).
- Cardiac phase - **heart only** (above carina through apex of left ventricle) (obtained during end inspiration).
- Angio phase - **CAP** (lung apices through pubic symphysis) (obtained during end inspiration).

The venous phase of the AP has been removed from this protocol.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
EKG gating:
- Only used for the cardiac phase of the chest.

IV Contrast:
- Administer 100 mL **Omnipaque-350** at **4 mL/sec** then decrease rate to **2 mL/sec** for additional 25 mL contrast.
- 20-gauge or larger in forearm or more proximal.
- Bolus track off **aortic arch** triggered at **100 HU**.

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast** phase:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
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	0.6	0.5	2.2

For the **Cardiac** phase:

Go Top 64	spiral	100	54	on	on 64	0.31	64	0.6	0.33	4.2
Drive 128	spiral	100	282	on	on	0.17	128	0.6	0.285	6.5
Force 192	spiral	100	288	on	on	0.15	192	0.6	0.25	4.3

For the **Angio** phase:

Go Top 64	spiral	100	62	on	on 70	1.50	64	0.6	0.33	4.6
Drive 128	spiral	100	120	on	on	2.35	128	0.6	0.285	2.5
Force 192	spiral	80	174	on	on	2.00	192	0.6	0.25	1.7

CTA TAVR

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Anatomy	Recon Direction
AX CHEST PRE	5.0	5.0	Br40	mediastinum	3	chest	head/feet

CARDIAC PHASE

AX HEART 65%	3.0	3.0	Br40	cardiac	3	heart	head/feet
COR HEART 65%	3.0	3.0	Bv36	cardiac	3	heart	front/back
SAG HEART 65%	3.0	3.0	Bv36	cardiac	3	heart	left/right
*AX MULTI 20-80%	1.5	1.0	Br40	cardiac	2	heart	head/feet
AX HEART THINS	1.0	1.0	Br40	cardiac	2	heart	head/feet

* Ax Multi 20-80% series only applies with retrospective scans.

ANGIO PHASE

AX ANGIO	3.0	3.0	Br40	mediastinum	2	CAP	head/feet
AX ANGIO THINS	1.0	1.0	Br40	mediastinum	2	CAP	head/feet
COR ANGIO CHEST	3.0	3.0	Br40	mediastinum	2	chest	front/back
SAG ANGIO CHEST	3.0	3.0	Br40	mediastinum	2	chest	left/right
AX MIPS	5.0	3.0	Br40	mediastinum	3	chest	head/feet
COR ANGIO AP	3.0	3.0	Br40	mediastinum	2	AP	front/back
SAG ANGIO AP	3.0	3.0	Br40	mediastinum	2	AP	left/right

CTA TMVR (Encircle)

Updated 05/06/24
Reviewed 05/14/25

Indications - pre operative evaluation for mitral valve replacement.
Bill under CT Angio Cardiac w/ Contrast charge. Do not use CT Angio Coronary w/ Contrast charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head. Remove any metal from the imaging field of view.
Topogram - lung apices through diaphragm (obtained during end inspiration).
Craniocaudal scan coverage - top of aortic arch through bottom of heart (obtained during end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy (target FOV 150-220 mm).
Matrix must be 512 x 512 square.
EKG gating - always **retrospective**.
IV Contrast (triphasic protocol):
1st injection - 60 mL Omnipaque-350 at 4 mL/sec.
2nd injection - 40 mL 50:50 mixture Omnipaque-350 & normal saline at 4 mL/sec.
3rd injection - 20 mL normal saline at 4 mL/sec.
All three injections immediately after one another.
20-gauge or larger in forearm or more proximal.
Bolus track off **ascending aorta** triggered at **100 HU**.

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Go Top 64	spiral	100	54	on	on 64	0.31	64	0.6	0.33	4.2
Drive 128	spiral	100	282	on	on	0.17	128	0.6	0.285	6.5
Force 192	spiral	100	288	on	on	0.15	192	0.6	0.25	4.3

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX BEST DIA	0.6	0.4	Bv40	cardiac	3	head/feet
AX BEST SYS	0.6	0.4	Bv40	cardiac	3	head/feet
AX MULTI 20-80%	0.6	0.4	Bv40	cardiac	3	head/feet
AX SOFT	3.0	3.0	Br40	mediastinum	3	head/feet
COR SOFT	3.0	3.0	Br40	mediastinum	3	front/back
SAG SOFT	3.0	3.0	Br40	mediastinum	3	left/right
AX LUNG	3.0	3.0	Bl59	lung	3	head/feet

CTA Watchman

Updated 05/06/24
Reviewed 05/14/25

Indications - pre and post operative evaluation for Watchman left atrial appendage occlusion.
This protocol includes patients in the Champion and Option clinical studies.
Bill under CT Angio Cardiac w/ Contrast charge. Do not use CT Angio Coronary w/ Contrast charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung apices through diaphragm (obtained during end inspiration).
Craniocaudal scan coverage - top of aortic arch through diaphragm **(just have patient stop breathing).**
Adjust FOV (field of view) on topogram to smallest without cropping anatomy (target FOV 150-220 mm).
EKG gating:

- Pre contrast phase - **prospective**.
- Cardiac phase - **prospective** preferred (30-60% RR interval) for the angio phase.
  - Can use retrospective for patients with high or irregular heart rates.
- Delay phase - **prospective**.

IV Contrast:

- Administer weight-based Omnipaque-350 - **1 mL/kg** up to **100 mL**.
- Inject at **5 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in AC fossa.
- Cardiac phase - bolus track off **left atrium** triggered at **150 HU**.
- Delay phase - **50 secs** from start of injection.

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast** phase:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Feed	Acq	Coll	Rot Time	Scan Time
Go Top 64	spiral	120	62	on	on 80	1.20		64	0.6	0.33	1.1
Drive 128	spiral	120	80	on	on		34.5	32	1.2	0.285	1.2
Force 192	sequential	120	80	on	on		38	38	1.2	0.25	1.0

For the **Cardiac** phase:

Go Top 64	spiral	100	65	on	on 64	0.31		64	0.6	0.33	22.2
Drive 128	spiral	100	282	on	on	0.17		128	0.6	0.285	6.5
Force 192	sequential	100	288	on	on		38.5	152	0.6	0.25	1.0

For the **Delay** phase:

Go Top 64	spiral	100	65	on	on 64	0.31		64	0.6	0.33	22.2
Drive 128	spiral	100	282	on	on	3.40		128	0.6	0.285	0.3
Force 192	sequential	100	288	on	on		38.5	152	0.6	0.25	1.0

CTA Watchman

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT PRE	3.0	3.0	Br40	mediastinum	2	head/feet
AX LUNG PRE	3.0	3.0	Bl59	lung	2	head/feet

CARDIAC PHASE

AX HEART THINS	0.75	0.6	Br40	cardiac	3	head/feet
AX SOFT	3.0	3.0	Br40	mediastinum	3	head/feet
COR SOFT	3.0	3.0	Br40	mediastinum	3	front/back
SAG SOFT	3.0	3.0	Br40	mediastinum	3	left/right
AX LUNG	3.0	3.0	Bl59	lung	3	head/feet

DELAY PHASE

AX DELAY THINS	0.75	0.6	Br40	cardiac	3	head/feet
AX DELAY	3.0	3.0	Br40	mediastinum	3	head/feet

CTA Converge

Updated 05/06/24
Reviewed 05/14/25

Indications - pre and post operative evaluation for atrial fibrillation.
Bill under CT Angio Cardiac w/ Contrast charge. Do not use CT Angio Coronary w/ Contrast charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung apices through diaphragm (obtained during end inspiration).
Craniocaudal scan coverage - lung apices through the adrenal glands **(just have patient stop breathing)**.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
EKG gating:
IV Contrast:

Administer weight-based Omnipaque-350 - **1 mL/kg** up to **150 mL** (100 mL minimum).
Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in AC fossa.
Bolus track off **pulmonary trunk** triggered at **180 HU**.

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Go Top 64	spiral	100	54	on	on 64	0.31	64	0.6	0.33	22.2
Drive 128	spiral	100	282	on	on	0.17	128	0.6	0.285	34.9
Force 192	spiral	100	288	on	on	0.15	192	0.6	0.25	23.1

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX LUNG	3.0	3.0	Br57	lung	3	head/feet
AX ANGIO	3.0	3.0	Br40	mediastinum	3	head/feet
AX ANGIO THINS	1.5	1.5	Br41	mediastinum	3	head/feet
COR SOFT	3.0	3.0	Br42	mediastinum	3	front/back
SAG SOFT	3.0	3.0	Br43	mediastinum	3	left/right
AX MIPS	5.0	3.0	Br44	mediastinum	3	head/feet
3D VRT (spin)	0.75	0.5	Bv36	CT angio		

CTA aMaze/Lariat

Updated 05/06/24
Reviewed 05/14/25

Indications - pre and post operative evaluation for atrial fibrillation.
Bill under CT Angio Cardiac w/ Contrast charge. Do not use CT Angio Coronary w/ Contrast charge.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung apices through diaphragm (obtained during end inspiration).
Craniocaudal scan coverage - lung apices through the adrenal glands **(just have patient stop breathing)**.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy (target FOV 150-220 mm).
Craniocaudal scan coverage:

- Pre contrast - lung apices through adrenal glands **(just have patient stop breathing).**
- Angio phase - above pulmonary artery through adrenal glands **(just have patient stop breathing)**.
- Delay phase - just through left atrium **(just have patient stop breathing)**.

EKG gating:

- Pre contrast phase - **non gated**.
- Cardiac phase - **prospective** preferred (30-60% RR interval) for the angio phase.
  - Can use retrospective for patients with high or irregular heart rates.
- Delay phase - **prospective**.

IV Contrast:

- Administer weight-based Omnipaque-350 - **1 mL/kg** up to **150 mL** (100 mL minimum).
- Inject at **4 mL/sec** followed by 40 mL saline flush, 20-gauge or larger in AC fossa.
- Cardiac phase - bolus track off **pulmonary artery** triggered at **100 HU**.
- Delay phase - **30 secs** from start of injection.

SIEMENS PARAMETERS & RECONS

For the **Pre Contrast** phase:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Go Top 64	spiral	120	62	on	on 80	1.20	64	0.6	0.33	1.1
Drive 128	spiral	120	66	on	on	1.20	128	0.6	0.5	1.6
Force 192	spiral	110	51	on	on	1.20	192	0.6	0.5	1.1

For the **Cardiac** phase:

Go Top 64	spiral	100	65	on	on 64	0.31	64	0.6	0.33	22.2
Drive 128	spiral	100	282	on	on	0.17	128	0.6	0.285	6.5
Force 192	spiral	100	288	on	on	0.15	192	0.6	0.25	4.3

For the **Delay** phase:

Go Top 64	spiral	100	65	on	on 64	0.31	64	0.6	0.33	22.2
Drive 128	spiral	100	282	on	on	3.40	128	0.6	0.285	0.3
Force 192	spiral	100	288	on	on	0.15	192	0.6	0.25	4.3

CTA aMaze/Lariat

PRE CONTRAST PHASE

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT PRE	3.0	3.0	Br40	mediastinum	2	head/feet
AX LUNG PRE	3.0	3.0	Bl59	lung	2	head/feet

CARDIAC PHASE

AX HEART 65%	3.0	3.0	Br40	cardiac	3	head/feet
COR HEART 65%	3.0	3.0	Bv36	cardiac	3	front/back
SAG HEART 65%	3.0	3.0	Bv36	cardiac	3	left/right
AX HEART THINS	1.0	1.0	Br40	cardiac	2	head/feet

DELAY PHASE

AX DELAY THINS	0.75	0.6	Br40	cardiac	3	head/feet
AX DELAY	3.0	3.0	Br40	mediastinum	3	head/feet

CT Peds Head

Updated 04/06/25
Reviewed 05/15/25

Indications - trauma, headache, hemorrhage, altered mental status, dizziness, syncope, mass.

Do not perform a with IV only exam unless a noncontrast head has been performed within last 6 hours. Change order to CT Head w/o + w/.

NEVER perform a multiphase or without and with exam on a pediatric patient unless approved by a rad.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.

For all pediatric head studies, it is very important for image quality purposes to position the patient in the center of the scan field. Use the lateral laser beam to make sure that the patient is positioned in the center.

Position patient's head so that the line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop.

Topogram - C1 vertebrae through top of head.

Craniocaudal scan coverage - C1 vertebrae through top of head. **Avoid scanning the lens of the eyes.**

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

IV Contrast: Weight-based Omnipaque-300, inject at 2 mL/sec, 22-gauge or larger, 3 mins scan delay.

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.

CT Peds Head

SIEMENS SPIRAL SCAN PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	150	on	NA	0.55	16	1.5	1.0	9.1
Go Up 32	spiral	110	314	on	on 345	0.55	32	0.7	1.0	9.7
Sensation 64	spiral	120	190	on	NA	0.85	64	0.6	1.0	7.4
Definition 64	spiral	100	300	on	on	0.80	64	0.6	1.0	7.8
Go Top 64	spiral	100	394	on	on 345	0.55	64	0.6	1.0	5.7
Drive 128	spiral	100	255	on	on	0.80	128	0.6	1.0	3.9
Force 192	spiral	100	248	on	on	0.80	192	0.6	1.0	2.6

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	3.0	3.0	Hr40 / C30s	cerebrum	3	feet/head
TRUE AX SOFT	3.0	3.0	Hr40 / C30s	cerebrum	3	feet/head
COR SOFT	3.0	3.0	Hr40 / C30s	cerebrum	3	front/back
AX BONE	2.0	2.0	Br59 / C60s	bone	3	feet/head

SIEMENS SEQUENTIAL SCAN PARAMETERS & RECONS

	Scan Mode	kV	Ref mAs	Care Dose	Care kV & Lvl	# Detect	Colli-mation	Feed / Scan	Scan Time	Cycle Time
Sensation 16	sequential	120	150	on	NA	12	1.5	18.0	1.0	2.0
Go Up 32										
Sensation 64	sequential	120	190	on	NA	24	1.2	28.5	1.0	2.0
Definition 64	sequential	100	300	on	on	64	0.6	17.0	1.0	2.0
Go Top 64										
Drive 128	sequential	100	210	on	on	128	0.6	34.5	1.0	4.0
Force 192	sequential	100	204	on	on	192	0.6	48.0	1.0	3.5

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	2.4 3.0 (16 slice)	2.4 3.0 (16 slice)	Hr40 / C30s	cerebrum	3	feet/head
TRUE AX SOFT	2.4 3.0 (16 slice)	2.4 3.0 (16 slice)	Hr40 / C30s	cerebrum	3	feet/head
COR SOFT	3.0	3.0	Hr40 / C30s	cerebrum	3	front/back
AX BONE	2.4 3.0 (16 slice)	2.4 3.0 (16 slice)	Br59 / C60s	bone	3	feet/head

CT Peds Head

GE PARAMETERS & RECONS

HELICAL SCAN

For patients **0-15 years** of age:

	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	head	120	100-190	6.00	on	2.5	10	0.562	11.25	0.5	NA	NA	5.3
Opt 540	helical	head	120	100-190	6.00	on	2.5	10	0.562	11.25	0.5	NA	NA	5.3
LS VCT 64	helical	small head	120	100-200	8.49	on	2.5	20	0.531	10.62	0.5	0	0	5.6
Disc VCT 64	helical	small head	120	100-200	8.49	on	2.5	20	0.531	10.62	0.5	NA	NA	5.6

For patients **15-18 years** of age:

LS 16	helical	head	120	100-220	11.31	on	2.5	10	0.562	11.25	0.5	NA	NA	5.3
Opt 540	helical	head	120	100-220	11.31	on	2.5	10	0.562	11.25	0.5	NA	NA	5.3
LS VCT 64	helical	small head	120	100-220	11.31	on	2.5	20	0.531	10.62	0.5	0	0	5.6
Disc VCT 64	helical	small head	120	100-220	11.31	on	2.5	20	0.531	10.62	0.5	NA	NA	5.6

AXIAL SCAN

For patients **<18 mths** of age:

	Scan Type	SFOV	kV	Manual mA	Smart mA	Slice Thick	Beam Coll	Pitch / Speed	Rot Time	Dose Red	ASIR
LS 16	axial	ped	120	120	off	2.5	10	2i	1.0	NA	NA
Opt 540	axial	ped	120	120	off	2.5	10	2i	1.0	NA	NA
LS VCT 64	axial	ped head	120	170	off	2.5	20	4i	0.5	30	30
Disc VCT 64	axial	ped head	120	240	off	2.5	20	4i	0.5	NA	NA

For patients **18 mths** to **5 years** of age:

LS 16	axial	head	120	170	off	2.5	10	4i	1.0	NA	NA
Opt 540	axial	head	120	170	off	2.5	10	4i	1.0	NA	NA
LS VCT 64	axial	small head	120	235	off	2.5	20	4i	0.5	30	30
Disc VCT 64	axial	small head	120	335	off	2.5	20	4i	0.5	NA	NA

For patients **5-18 years** of age:

LS 16	axial	head	120	230	off	2.5	10	4i	1.0	NA	NA
Opt 540	axial	head	120	230	off	2.5	10	4i	1.0	NA	NA
LS VCT 64	axial	small head	120	125	off	2.5	20	4i	1.0	30	30
Disc VCT 64	axial	small head	120	180	off	2.5	20	4i	1.0	NA	NA

CT Peds Head

GE RECONS

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**2.5**	**2.5**	**std full**	**80/40**	**feet/head**
TRUE AX SOFT	2.5	2.5	std full	80/40	feet/head
COR SOFT	2.5	2.5	std full	80/40	front/back
AX BONE	2.5	2.5	bone full	2500/480	feet/head

Must be first recon.

PHILIPS PARAMETERS & RECONS

HELICAL SCAN

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	208	35	on	0.40	64	0.625	0.5	3.8

RECONS

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	3.0	3.0	UB	brain	1	feet/head
TRUE AX SOFT	3.0	3.0	UB	brain	1	feet/head
COR SOFT	3.0	3.0	UB	brain	1	front/back
AX BONE	3.0	3.0	YB	bone	1	feet/head

CT Peds Maxillofacial/Orbits

Updated 04/06/25
Reviewed 05/15/25

Indications - pain, trauma, fracture, mass, infection.

NEVER perform a multiphase or without and with exam on a pediatric patient unless approved by a rad.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.

Topogram:

Maxillofacial - top of frontal sinuses through the bottom of mandible.

Orbits - Top of frontal sinuses through the bottom of maxilla.

Craniocaudal scan coverage:

Maxillofacial - top of frontal sinuses through the bottom of mandible.

Orbits - Top of frontal sinuses through the bottom of maxilla.

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

IV Contrast: Weight-based Omnipaque-300, inject at 2 mL/sec, 22-gauge or larger, 45 secs scan delay.

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	74	on	NA	0.45	16	0.75	1.00	14.8
Go Up 32	spiral	Sn 110	475	on	on 110	0.55	32	0.7	1.00	6.5
Sensation 64	spiral	120	65	on	NA	0.90	64	0.6	1.00	4.6
Definition 64	spiral	120	63	on	on	0.80	64	0.6	1.00	5.2
Go Top 64	spiral	Sn 110	1227	on	on 110	0.55	64	0.6	1.00	3.8
Drive 128	spiral	120	44	on	on	0.80	128	0.6	1.00	2.6
Force 192	spiral	100	60	on	on	0.80	192	0.6	1.00	1.7

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	2.0	2.0	Hr40 / C30s	abdomen	3	feet/head
AX BONE	2.0	2.0	Br59 / C60s	bone/sinus	3	feet/head
COR BONE	2.0	2.0	Br59 / C60s	bone/sinus	3	front/back
SAG BONE	2.0	2.0	Br59 / C60s	bone/sinus	3	left/right

Add the following recons if the indication is **soft tissue** related.

COR SOFT	2.0	2.0	Hr40 / C30s	abdomen	3	front/back
SAG SOFT	2.0	2.0	Hr40 / C30s	abdomen	3	left/right

CT Peds Maxillofacial/Orbits

GE PARAMETERS & RECONS

For patients **0-15 years** of age:

	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	head	120	100-190	6.00	on	2.5	10	0.562	11.25	0.5	NA	NA	5.3
Opt 540	helical	head	120	100-190	6.00	on	2.5	10	0.562	11.25	0.5	NA	NA	5.3
LS VCT 64	helical	small head	120	100-200	8.49	on	2.5	20	0.531	10.62	0.5	0	0	5.6
Disc VCT 64	helical	small head	120	100-200	8.49	on	2.5	20	0.531	10.62	0.5	NA	NA	5.6

For patients **15-18 years** of age:

LS 16	helical	head	120	100-220	11.31	on	2.5	10	0.562	11.25	0.5	NA	NA	5.3
Opt 540	helical	head	120	100-220	11.31	on	2.5	10	0.562	11.25	0.5	NA	NA	5.3
LS VCT 64	helical	small head	120	100-220	11.31	on	2.5	20	0.531	10.62	0.5	0	0	5.6
Disc VCT 64	helical	small head	120	100-220	11.31	on	2.5	20	0.531	10.62	0.5	NA	NA	5.6

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**2.5**	**2.5**	**std full**	**400/40**	**feet/head**
AX BONE	2.5	2.5	bone full	2500/480	feet/head
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right

Must be first recon.

Add the following recons if the indication is **soft tissue** related.

COR SOFT	2.5	2.5	std full	400/40	front/back
SAG SOFT	2.5	2.5	std full	400/40	left/right

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	208	35	on	0.40	64	0.625	0.5	3.8

RECONS

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	2.0	2.0	UB	brain	1	feet/head
AX BONE	2.0	2.0	YB	bone	1	feet/head
COR BONE	2.0	2.0	YB	bone	1	front/back
SAG BONE	2.0	2.0	YB	bone	1	left/right

Add the following recons if the indication is **soft tissue** related.

COR SOFT	2.0	2.0	UB	brain	1	front/back
SAG SOFT	2.0	2.0	UB	brain	1	left/right

CT Peds Sinuses

Updated 04/06/25
Reviewed 05/15/25

Indications - acute/chronic sinusitis, rhinitis, runny nose, sinus/nasal mass, trauma.

NEVER perform a multiphase or without and with exam on a pediatric patient unless approved by a rad.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view (particularly earrings).

Scan above any dental work to avoid artifact.

Topogram - bottom of mandibles through top of skull.

IV Contrast: Weight-based Omnipaque-300, inject at 2 mL/sec, 22-gauge or larger, 45 secs scan delay.

Recon FOVs:

Routine Recons - above frontal sinuses to hard palate (top/bottom coverage), tip of nose to clivus (front/back coverage) and zygomatic arch to zygomatic arch (left/right coverage)

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	74	on	NA	0.45	16	0.75	1.00	14.8
Go Up 32	spiral	Sn 110	236	on	on	0.55	32	0.7	1.00	6.5
Sensation 64	spiral	120	45	on	NA	0.90	64	0.6	1.00	4.6
Definition 64	spiral	120	50	on	on	0.80	64	0.6	1.00	5.2
Go Top 64	spiral	Sn 100	581	on	on 50	0.55	64	0.6	1.00	3.8
Drive 128	spiral	120	35	on	on	0.80	128	0.6	1.00	2.6
Force 192	spiral	100	48	on	on	0.80	192	0.6	1.00	1.7

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	2.0	2.0	Hr40 / C30s	abdomen	3	feet/head
AX BONE	2.0	2.0	Br59 / C60s	bone/sinus	3	feet/head
COR BONE	2.0	2.0	Br59 / C60s	bone/sinus	3	front/back
SAG BONE	2.0	2.0	Br59 / C60s	bone/sinus	3	left/right

Add the following recons if the indication is **soft tissue** related.

COR SOFT	2.0	2.0	Hr40 / C30s	abdomen	3	front/back
SAG SOFT	2.0	2.0	Hr40 / C30s	abdomen	3	left/right

CT Peds Sinuses

GE PARAMETERS & RECONS

For patients **0-15 years** of age:

	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	head	120	100-190	6.00	on	2.5	10	0.562	11.25	0.5	NA	NA	5.3
Opt 540	helical	head	120	100-190	6.00	on	2.5	10	0.562	11.25	0.5	NA	NA	5.3
LS VCT 64	helical	small head	120	100-200	8.49	on	2.5	20	0.531	10.62	0.5	0	0	5.6
Disc VCT 64	helical	small head	120	100-200	8.49	on	2.5	20	0.531	10.62	0.5	NA	NA	5.6

For patients **15-18 years** of age:

LS 16	helical	head	120	100-220	11.31	on	2.5	10	0.562	11.25	0.5	NA	NA	5.3
Opt 540	helical	head	120	100-220	11.31	on	2.5	10	0.562	11.25	0.5	NA	NA	5.3
LS VCT 64	helical	small head	120	100-220	11.31	on	2.5	20	0.531	10.62	0.5	0	0	5.6
Disc VCT 64	helical	small head	120	100-220	11.31	on	2.5	20	0.531	10.62	0.5	NA	NA	5.6

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**2.5**	**2.5**	**std full**	**400/40**	**feet/head**
AX BONE	2.5	2.5	bone full	2500/480	feet/head
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right

Must be first recon.

Add the following recons if the indication is **soft tissue** related.

COR SOFT	2.5	2.5	std full	400/40	front/back
SAG SOFT	2.5	2.5	std full	400/40	left/right

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	208	35	on	0.40	64	0.625	0.5	3.8

RECONS

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	2.0	2.0	UB	brain	1	feet/head
AX BONE	2.0	2.0	YB	bone	1	feet/head
COR BONE	2.0	2.0	YB	bone	1	front/back
SAG BONE	2.0	2.0	YB	bone	1	left/right

Add the following recons if the indication is **soft tissue** related.

COR SOFT	2.0	2.0	UB	brain	1	front/back
SAG SOFT	2.0	2.0	UB	brain	1	left/right

CT Peds Neck

Updated 05/04/24
Reviewed 05/15/25

Indications - mass, lymphadenopathy, swelling, sore throat, difficulty swallowing, foreign body.
NEVER perform a multiphase or without and with exam on a pediatric patient unless approved by a rad.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.
Use non metallic markers for palpable areas. Do not use metallic skin markers areas due to streak artifact.
Topogram - orbital floor through inferior aspect of main pulmonary artery.
Craniocaudal scan coverage - orbital floor through inferior aspect of main pulmonary artery.
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast: Weight-based Omnipaque-300, inject at 2 mL/sec, 22-gauge or larger, 90 secs scan delay.
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	60	on	NA	0.80	16	1.5	0.75	7.8
Go Up 32	spiral	110	143	on	on 155	1.20	32	0.7	1.0	7.4
Sensation 64	spiral	120	60	on	NA	0.90	24	1.2	1.0	7.7
Definition 64	spiral	100	117	on	on	0.80	16	1.2	1.0	13.0
Go Top 64	spiral	100	182	on	on 155	1.20	64	0.6	1.0	4.3
Drive 128	spiral	100	84	on	on	0.80	32	1.2	1.0	6.5
Force 192	spiral	100	82	on	on	0.80	192	0.6	1.0	4.3

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	3.0	3.0	Br40 / B30s	abdomen	3	head/feet
COR SOFT	3.0	3.0	Br40 / B30s	abdomen	3	front/back
SAG SOFT	3.0	3.0	Br40 / B30s	abdomen	3	left/right
AX BONE	3.0	3.0	Br59 / B60s	bone/osteo	3	head/feet

CT Peds Neck

GE PARAMETERS & RECONS

For **LightSpeed 16** and **Optima 540** scanners:

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Scan Time
0-20 lbs (0-9 kgs)	helical	small	80	65-130	7.07	on	2.5	20	0.938	18.75	0.5	8.2
21-60 lbs (9-27.2 kgs)	helical	small	100	80-160	9.90	on	2.5	20	0.938	18.75	0.5	8.2
61-100 lbs (27.3-45.4 kgs)	helical	large	120	95-190	14.14	on	2.5	20	0.938	18.75	0.5	8.2
101-200 lbs (45.5-90.7 kgs)	helical	large	120	110-220	16.97	on	2.5	20	0.938	18.75	0.5	8.2
>200 lbs (>90.8 kgs)	helical	large	120	125-300	21.21	on	2.5	20	0.938	18.75	0.5	8.2

For **LightSpeed & Discovery VCT 64** scanners:

0-20 lbs (0-9 kgs)	helical	ped body	80	65-130	7.07	on	2.5	40	0.938	39.37	0.5	4.1
21-60 lbs (9-27.2 kgs)	helical	ped body	100	80-160	9.90	on	2.5	40	0.938	39.37	0.5	4.1
61-100 lbs (27.3-45.4 kgs)	helical	med body	120	95-190	14.14	on	2.5	40	0.938	39.37	0.5	4.1
101-200 lbs (45.5-90.7 kgs)	helical	large body	120	110-220	16.97	on	2.5	40	0.938	39.37	0.5	4.1
>200 lbs (>90.8 kgs)	helical	large body	120	125-300	21.21	on	2.5	40	0.938	39.37	0.5	4.1

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
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
AX BONE	2.5	2.5	bone full	2500/480	head/feet

Must be first recon.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	100	137	22	on	0.80	64	0.625	0.50	3.1

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	3.0	3.0	B	soft tissue neck	3	head/feet
COR SOFT	3.0	3.0	B	soft tissue neck	3	front/back
SAG SOFT	3.0	3.0	B	soft tissue neck	3	left/right
AX BONE	3.0	3.0	YC	bone	3	head/feet

CT Peds Abdomen/Pelvis

Updated 05/04/24
Reviewed 05/15/25

Indications - abdominal pain, nausea, vomiting, constipation, diarrhea, weight loss, fever.
NEVER perform a multiphase or without and with exam on a pediatric patient unless approved by a rad.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.
Topogram - lung bases through pubic symphysis (obtained during end inspiration).
Craniocaudal scan coverage - lung bases through pubic symphysis (obtained during end inspiration).
Adjust FOV (field of view) on topogram to smallest without cropping anatomy.
IV Contrast: Weight-based Omnipaque-300, inject at 2 mL/sec, 22-gauge or larger, 70 secs scan delay.
Oral Contrast: per 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	85	on	NA	1.15	16	1.5	0.5	9.1
Go Up 32	spiral	110	140	on	on 145	1.20	32	0.7	0.8	14.9
Sensation 64	spiral	120	85	on	NA	1.40	24	1.2	0.5	6.2
Definition 64	spiral	100	149	on	on	0.60	16	1.2	0.5	21.7
Go Top 64	spiral	100	188	on	on 145	1.20	64	0.6	0.5	5.4
Drive 128	spiral	100	104	on	on	1.40	32	1.2	0.5	4.7
Force 192	spiral	100	104	on	on	1.40	192	0.6	0.5	3.1

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	3.0	3.0	Br40 / B30f	mediastinum	3	head/feet
COR SOFT	3.0	3.0	Br40 / B30f	mediastinum	3	front/back
SAG SOFT	3.0	3.0	Br40 / B30f	mediastinum	3	left/right
AX BONE	3.0	3.0	Br59 / B60s	bone/osteo	3	head/feet

CT Peds Abdomen/Pelvis

GE PARAMETERS & RECONS

For **LightSpeed 16** and **Optima 540** scanners:

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Scan Time
0-20 lbs (0-9 kgs)	helical	small	80	65-130	7.07	on	2.5	20	0.938	18.75	0.5	23.5
21-60 lbs (9-27.2 kgs)	helical	large	100	80-160	9.90	on	2.5	20	0.938	18.75	0.5	23.5
61-100 lbs (27.3-45.4 kgs)	helical	large	120	95-190	14.14	on	2.5	20	0.938	18.75	0.5	23.5
101-200 lbs (45.5-90.7 kgs)	helical	large	120	110-220	16.97	on	2.5	20	0.938	18.75	0.5	23.5
>200 lbs (>90.8 kgs)	helical	large	120	125-300	21.21	on	2.5	20	0.938	18.75	0.5	23.5

For **LightSpeed & Discovery VCT 64** scanners:

0-20 lbs (0-9 kgs)	helical	ped body	80	65-130	7.07	on	2.5	40	0.938	39.37	0.5	11.7
21-60 lbs (9-27.2 kgs)	helical	small body	100	80-160	9.90	on	2.5	40	0.938	39.37	0.5	11.7
61-100 lbs (27.3-45.4 kgs)	helical	large body	120	95-190	14.14	on	2.5	40	0.938	39.37	0.5	11.7
101-200 lbs (45.5-90.7 kgs)	helical	large body	120	110-220	16.97	on	2.5	40	0.938	39.37	0.5	11.7
>200 lbs (>90.8 kgs)	helical	large body	120	125-300	21.21	on	2.5	40	0.938	39.37	0.5	11.7

Name of Series	Thickness	Interval	Recon Algorithm/Mode	Window Width/Level	Recon Direction
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
AX BONE	2.5	2.5	bone full	2500/480	head/feet

Must be first recon.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	100	81	19	on	1.00	64	0.625	0.50	6.3

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
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
AX BONE	3.0	3.0	YC	bone	3	head/feet

CT Peds Chest/Abdomen/Pelvis

Updated 05/04/24
Reviewed 05/15/25

Indications - pain, weight loss, fever, abscess, cancer staging or follow-up, trauma, etc.

NEVER perform a multiphase or without and with exam on a pediatric patient unless approved by a rad.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

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

Craniocaudal scan coverage - lung apices through pubic symphysis (obtained during end inspiration).

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

For **16 slice scanners** or if the patient has **difficulty holding his/her breath**, scan the chest by itself then scan the abdomen/pelvis as a separate acquisition.

IV Contrast: Weight-based Omnipaque-300, inject at 2 mL/sec, 22-gauge or larger, 70 secs scan dely.

Oral Contrast: per 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

SIEMENS PARAMETERS & RECONS

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time	Scan Time
Sensation 16	spiral	120	85	on	NA	1.15	16	1.5	0.5	14.5
Go Up 32	spiral	110	140	on	on 145	1.20	32	0.7	0.8	23.8
Sensation 64	spiral	120	85	on	NA	1.40	24	1.2	0.5	9.9
Definition 64	spiral	100	149	on	on	0.60	16	1.2	0.5	34.7
Go Top 64	spiral	100	188	on	on 145	1.20	64	0.6	0.5	8.7
Drive 128	spiral	100	104	on	on	1.40	32	1.2	0.5	7.4
Force 192	spiral	100	104	on	on	1.40	192	0.6	0.5	5.0

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Anatomy	Recon Direction
AX SOFT CAP	3.0	3.0	Br40 / B41f	mediastinum	3	CAP	head/feet
AX LUNG	3.0	3.0	Bl57 / B60f	lung	3	chest	head/feet
COR SOFT CHEST	3.0	3.0	Br40 / B41f	mediastinum	3	chest	front/back
SAG SOFT CHEST	3.0	3.0	Br40 / B41f	mediastinum	3	chest	left/right
COR SOFT ABD/PEL	3.0	3.0	Br40 / B41f	mediastinum	3	abd/pel	front/back
SAG SOFT ABD/PEL	3.0	3.0	Br40 / B41f	mediastinum	3	abd/pel	left/right
AX BONE	3.0	3.0	Br59 / B60s	bone/osteo	3	CAP	head/feet

CT Peds Chest/Abdomen/Pelvis

GE PARAMETERS & RECONS

For **LightSpeed 16** and **Optima 540** scanners:

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Scan Time
0-20 lbs (0-9 kgs)	helical	small	80	65-130	7.07	on	2.5	20	0.938	18.75	0.5	23.5
21-60 lbs (9-27.2 kgs)	helical	large	100	80-160	9.90	on	2.5	20	0.938	18.75	0.5	23.5
61-100 lbs (27.3-45.4 kgs)	helical	large	120	95-190	14.14	on	2.5	20	0.938	18.75	0.5	23.5
101-200 lbs (45.5-90.7 kgs)	helical	large	120	110-220	16.97	on	2.5	20	0.938	18.75	0.5	23.5
>200 lbs (>90.8 kgs)	helical	large	120	125-300	21.21	on	2.5	20	0.938	18.75	0.5	23.5

For **LightSpeed & Discovery VCT 64** scanners:

0-20 lbs (0-9 kgs)	helical	ped body	80	65-130	7.07	on	2.5	40	0.938	39.37	0.5	11.7
21-60 lbs (9-27.2 kgs)	helical	small body	100	80-160	9.90	on	2.5	40	0.938	39.37	0.5	11.7
61-100 lbs (27.3-45.4 kgs)	helical	large body	120	95-190	14.14	on	2.5	40	0.938	39.37	0.5	11.7
101-200 lbs (45.5-90.7 kgs)	helical	large body	120	110-220	16.97	on	2.5	40	0.938	39.37	0.5	11.7
>200 lbs (>90.8 kgs)	helical	large body	120	125-300	21.21	on	2.5	40	0.938	39.37	0.5	11.7

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Anatomy	Recon Direction
AX SOFT CAP	**2.5**	**2.5**	**std full**	**400/40**	**CAP**	**head/feet**

This must be the first recon for the prescribed Noise Index to be valid.

AX LUNG	2.5	2.5	lung	1600/-600	chest	head/feet
COR SOFT CHEST	2.5	2.5	std full	400/40	chest	front/back
SAG SOFT CHEST	2.5	2.5	std full	400/40	chest	left/right
COR SOFT ABD/PEL	2.5	2.5	std full	400/40	abd/pel	front/back
SAG SOFT ABD/PEL	2.5	2.5	std full	400/40	abd/pel	left/right
AX BONE	2.5	2.5	bone full	2500/480	CAP	head/feet

CT Peds Chest/Abdomen/Pelvis

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	100	81	19	on	1.00	64	0.625	0.50	6.3

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Anatomy	Recon Direction
AX SOFT CAP	3.0	3.0	B	mediastinum	3	CAP	head/feet
AX LUNG	3.0	3.0	YA	lung	3	chest	head/feet
COR SOFT CHEST	3.0	3.0	B	mediastinum	3	chest	front/back
SAG SOFT CHEST	3.0	3.0	B	mediastinum	3	chest	left/right
COR SOFT ABD/PEL	3.0	3.0	B	mediastinum	3	abd/pel	front/back
SAG SOFT ABD/PEL	3.0	3.0	B	mediastinum	3	abd/pel	left/right
AX BONE	3.0	3.0	YC	bone	3	CAP	head/feet

CT Peds Cervical Spine

Updated 05/04/24
Reviewed 05/15/25

Indications - pain, trauma, fracture, extremity weakness, mass, infection.

NEVER perform a multiphase or without and with exam on a pediatric patient unless approved by a rad.

GENERAL SCAN NOTES

Keep patient's arms by his/her side if possible. Remove any metal from the imaging field of view.

Topogram - skull base through T1.

Craniocaudal scan coverage - skull base through T1.

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

IV Contrast: Weight-based Omnipaque-300, inject at 2 mL/sec, 22-gauge or larger, 60 secs scan delay.

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	90	on	NA	0.80	16	1.5	0.75	6.8
Go Up 32	spiral	110	174	on	on 195	1.50	32	0.7	1.0	5.2
Sensation 64	spiral	120	40	on	NA	0.90	64	0.6	1.0	10.1
Definition 64	spiral	120	165	on	on	0.80	64	0.6	1.0	11.4
Go Top 64	spiral	100	229	on	on 195	1.50	64	0.6	1.0	3.0
Drive 128	spiral	120	116	on	on	0.80	128	0.6	1.0	5.7
Force 192	spiral	120	116	on	on	0.80	192	0.6	1.0	3.8

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	2.0	2.0	Br40 / B30s	abdomen	3	head/feet
AX BONE	2.0	2.0	Br59 / B60s	bone/osteo	3	head/feet
COR BONE	2.0	2.0	Br59 / B60s	bone/osteo	3	front/back
SAG BONE	2.0	2.0	Br59 / B60s	bone/osteo	3	left/right

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

CT Peds Cervical Spine

GE PARAMETERS & RECONS

For **LightSpeed 16** and **Optima 540** scanners:

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Scan Time
0-20 lbs (0-9 kgs)	helical	small	80	65-130	7.07	on	2.5	20	0.938	18.75	0.5	8.2
21-60 lbs (9-27.2 kgs)	helical	small	100	80-160	9.90	on	2.5	20	0.938	18.75	0.5	8.2
61-100 lbs (27.3-45.4 kgs)	helical	large	120	95-190	14.14	on	2.5	20	0.938	18.75	0.5	8.2
101-200 lbs (45.5-90.7 kgs)	helical	large	120	110-220	16.97	on	2.5	20	0.938	18.75	0.5	8.2
>200 lbs (>90.8 kgs)	helical	large	120	125-300	21.21	on	2.5	20	0.938	18.75	0.5	8.2

For **LightSpeed & Discovery VCT 64** scanners:

0-20 lbs (0-9 kgs)	helical	ped body	80	65-130	7.07	on	2.5	40	0.938	39.37	0.5	4.1
21-60 lbs (9-27.2 kgs)	helical	ped body	100	80-160	9.90	on	2.5	40	0.938	39.37	0.5	4.1
61-100 lbs (27.3-45.4 kgs)	helical	med body	120	95-190	14.14	on	2.5	40	0.938	39.37	0.5	4.1
101-200 lbs (45.5-90.7 kgs)	helical	large body	120	110-220	16.97	on	2.5	40	0.938	39.37	0.5	4.1
>200 lbs (>90.8 kgs)	helical	large body	120	125-300	21.21	on	2.5	40	0.938	39.37	0.5	4.1

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
AX BONE	2.5	2.5	bone full	2500/480	head/feet
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right

Must be first recon.

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	112	23	on	0.80	64	0.625	0.75	4.1

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	2.0	2.0	B	abdomen	2	head/feet
AX BONE	2.0	2.0	YC	bone	2	head/feet
COR BONE	2.0	2.0	YC	bone	2	front/back
SAG BONE	2.0	2.0	YC	bone	2	left/right

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

CT Peds Thoracic Spine

Updated 05/04/24
Reviewed 05/15/25

Indications - pain, trauma, fracture, extremity weakness, mass, infection.

NEVER perform a multiphase or without and with exam on a pediatric patient unless approved by a rad.

GENERAL SCAN NOTES

Move patient's arms over head if possible. Remove any metal from the imaging field of view.

Topogram - C7 through L1.

Craniocaudal scan coverage - C7 through L1.

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

IV Contrast: Weight-based Omnipaque-300, inject at 2 mL/sec, 22-gauge or larger, 60 secs scan delay.

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	90	on	NA	0.80	16	1.5	0.75	11.7
Go Up 32	spiral	110	174	on	on 285	1.50	32	0.7	1.0	8.9
Sensation 64	spiral	120	40	on	NA	0.90	64	0.6	1.0	17.4
Definition 64	spiral	120	165	on	on	0.80	64	0.6	1.0	19.5
Go Top 64	spiral	100	366	on	on 285	1.50	64	0.6	1.0	5.2
Drive 128	spiral	120	116	on	on	0.80	128	0.6	1.0	9.8
Force 192	spiral	120	116	on	on	0.80	192	0.6	1.0	6.5

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	3.0	3.0	Br40 / B30s	abdomen	3	head/feet
AX BONE	3.0	3.0	Br59 / B60s	bone/osteo	3	head/feet
COR BONE	3.0	3.0	Br59 / B60s	bone/osteo	3	front/back
SAG BONE	3.0	3.0	Br59 / B60s	bone/osteo	3	left/right

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

CT Peds Thoracic Spine

GE PARAMETERS & RECONS

For **LightSpeed 16** and **Optima 540** scanners:

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Scan Time
0-20 lbs (0-9 kgs)	helical	small	80	65-130	7.07	on	2.5	20	0.938	18.75	0.5	14.1
21-60 lbs (9-27.2 kgs)	helical	small	100	80-160	9.90	on	2.5	20	0.938	18.75	0.5	14.1
61-100 lbs (27.3-45.4 kgs)	helical	large	120	95-190	14.14	on	2.5	20	0.938	18.75	0.5	14.1
101-200 lbs (45.5-90.7 kgs)	helical	large	120	110-220	16.97	on	2.5	20	0.938	18.75	0.5	14.1
>200 lbs (>90.8 kgs)	helical	large	120	125-300	21.21	on	2.5	20	0.938	18.75	0.5	14.1

For **LightSpeed & Discovery VCT 64** scanners:

0-20 lbs (0-9 kgs)	helical	ped body	80	65-130	7.07	on	2.5	40	0.938	39.37	0.5	7.0
21-60 lbs (9-27.2 kgs)	helical	ped body	100	80-160	9.90	on	2.5	40	0.938	39.37	0.5	7.0
61-100 lbs (27.3-45.4 kgs)	helical	med body	120	95-190	14.14	on	2.5	40	0.938	39.37	0.5	7.0
101-200 lbs (45.5-90.7 kgs)	helical	large body	120	110-220	16.97	on	2.5	40	0.938	39.37	0.5	7.0
>200 lbs (>90.8 kgs)	helical	large body	120	125-300	21.21	on	2.5	40	0.938	39.37	0.5	7.0

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
AX BONE	2.5	2.5	bone full	2500/480	head/feet
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right

Must be first recon.

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	112	23	on	1.00	64	0.625	0.75	5.6

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	3.0	3.0	B	abdomen	2	head/feet
AX BONE	3.0	3.0	YC	bone	2	head/feet
COR BONE	3.0	3.0	YC	bone	2	front/back
SAG BONE	3.0	3.0	YC	bone	2	left/right

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

CT Peds Lumbar Spine

Updated 05/04/24
Reviewed 05/15/25

Indications - pain, trauma, fracture, extremity weakness, mass, infection.

NEVER perform a multiphase or without and with exam on a pediatric patient unless approved by a rad.

GENERAL SCAN NOTES

Move patient's arms over head if possible. Remove any metal from the imaging field of view.

Topogram - T12 through bottom of SI joints.

Craniocaudal scan coverage - T12 through bottom of SI joints.

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

IV Contrast: Weight-based Omnipaque-300, inject at 2 mL/sec, 22-gauge or larger, 60 secs scan delay.

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	90	on	NA	0.80	16	1.5	0.75	11.7
Go Up 32	spiral	110	174	on	on 285	1.50	32	0.7	1.0	8.9
Sensation 64	spiral	120	40	on	NA	0.90	64	0.6	1.0	17.4
Definition 64	spiral	120	165	on	on	0.80	64	0.6	1.0	19.5
Go Top 64	spiral	100	366	on	on 285	1.50	64	0.6	1.0	5.2
Drive 128	spiral	120	116	on	on	0.80	128	0.6	1.0	9.8
Force 192	spiral	120	116	on	on	0.80	192	0.6	1.0	6.5

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX SOFT	3.0	3.0	Br40 / B30s	abdomen	3	head/feet
AX BONE	3.0	3.0	Br59 / B60s	bone/osteo	3	head/feet
COR BONE	3.0	3.0	Br59 / B60s	bone/osteo	3	front/back
SAG BONE	3.0	3.0	Br59 / B60s	bone/osteo	3	left/right

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

CT Peds Lumbar Spine

GE PARAMETERS & RECONS

For **LightSpeed 16** and **Optima 540** scanners:

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Scan Time
0-20 lbs (0-9 kgs)	helical	small	80	65-130	7.07	on	2.5	20	0.938	18.75	0.5	14.1
21-60 lbs (9-27.2 kgs)	helical	small	100	80-160	9.90	on	2.5	20	0.938	18.75	0.5	14.1
61-100 lbs (27.3-45.4 kgs)	helical	large	120	95-190	14.14	on	2.5	20	0.938	18.75	0.5	14.1
101-200 lbs (45.5-90.7 kgs)	helical	large	120	110-220	16.97	on	2.5	20	0.938	18.75	0.5	14.1
>200 lbs (>90.8 kgs)	helical	large	120	125-300	21.21	on	2.5	20	0.938	18.75	0.5	14.1

For **LightSpeed & Discovery VCT 64** scanners:

0-20 lbs (0-9 kgs)	helical	ped body	80	65-130	7.07	on	2.5	40	0.938	39.37	0.5	7.0
21-60 lbs (9-27.2 kgs)	helical	ped body	100	80-160	9.90	on	2.5	40	0.938	39.37	0.5	7.0
61-100 lbs (27.3-45.4 kgs)	helical	med body	120	95-190	14.14	on	2.5	40	0.938	39.37	0.5	7.0
101-200 lbs (45.5-90.7 kgs)	helical	large body	120	110-220	16.97	on	2.5	40	0.938	39.37	0.5	7.0
>200 lbs (>90.8 kgs)	helical	large body	120	125-300	21.21	on	2.5	40	0.938	39.37	0.5	7.0

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX SOFT	**2.5**	**2.5**	**std full**	**400/40**	**head/feet**
AX BONE	2.5	2.5	bone full	2500/480	head/feet
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right

Must be first recon.

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	120	94	23	on	1.00	64	0.625	0.75	5.6

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX SOFT	3.0	3.0	B	abdomen	2	head/feet
AX BONE	3.0	3.0	YC	bone	2	head/feet
COR BONE	3.0	3.0	YC	bone	2	front/back
SAG BONE	3.0	3.0	YC	bone	2	left/right

The axial, coronal and sagittal recons are relative to the plane of the spine and may not necessarily be true axial, coronal and sagittal planes.

CT Peds Bony Pelvis

Updated 05/04/24
Reviewed 05/15/25

Indications - trauma, fracture, dislocation, pain, bone tumor, soft tissue mass, infection, abscess, soft tissue gas, osteomyelitis.

NEVER perform a multiphase or without and with exam on a pediatric patient unless approved by a rad.

GENERAL SCAN NOTES

Move the patient's arms over his/her head if possible. Remove any metal from the imaging field of view.

Topogram - iliac crests through lesser trochanters.

Craniocaudal scan coverage - iliac crests through lesser trochanters.

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

IV Contrast: Weight-based Omnipaque-300, inject at 2 mL/sec, 22-gauge or larger, 60 secs scan delay.

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	90	on	NA	0.80	16	1.50	0.75	7.8
Go Up 32	spiral	110	165	on	on 170	1.50	32	0.7	1.00	6.0
Sensation 64	spiral	120	40	on	NA	0.90	64	0.6	1.00	11.6
Definition 64	spiral	100	149	on	on	0.80	16	1.2	0.50	6.5
Go Top 64	spiral	100	224	on	on 170	1.50	64	0.6	1.00	3.5
Drive 128	spiral	100	104	on	on	0.80	32	1.2	0.50	3.3
Force 192	spiral	100	104	on	on	0.80	192	0.6	0.50	2.2

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX BONE	2.0	2.0	Br59 / B60s	bone/osteo	3	head/feet
COR BONE	2.0	2.0	Br59 / B60s	bone/osteo	3	front/back
SAG BONE	2.0	2.0	Br59 / B60s	bone/osteo	3	left/right
AX SOFT	2.0	2.0	Br40 / B30s	abdomen	3	head/feet

Add the following recons if the indication is **soft tissue** related.

COR SOFT	2.0	2.0	Br40 / B30s	abdomen	3	front/back
SAG SOFT	2.0	2.0	Br40 / B30s	abdomen	3	left/right

CT Peds Bony Pelvis

GE PARAMETERS & RECONS

For **LightSpeed 16** and **Optima 540** scanners:

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time
0-20 lbs (0-9 kgs)	helical	small	80	50-100	11.31	on	2.5	20	1.375	27.50	0.5
21-60 lbs (9-27.2 kgs)	helical	large	100	50-100	14.14	on	2.5	20	1.375	27.50	0.5
61-100 lbs (27.3-45.4 kgs)	helical	large	100	50-100	16.97	on	2.5	20	1.375	27.50	0.5
101-200 lbs (45.5-90.7 kgs)	helical	large	120	50-100	19.80	on	2.5	20	1.375	27.50	0.5
>200 lbs (>90.8 kgs)	helical	large	120	50-150	25.46	on	2.5	20	1.375	27.50	0.5

For **LightSpeed & Discovery VCT 64** scanners:

0-20 lbs (0-9 kgs)	helical	ped body	80	50-100	11.31	on	2.5	40	1.375	55.00	0.5
21-60 lbs (9-27.2 kgs)	helical	small body	100	50-100	14.14	on	2.5	40	1.375	55.00	0.5
61-100 lbs (27.3-45.4 kgs)	helical	large body	100	50-100	16.97	on	2.5	40	1.375	55.00	0.5
101-200 lbs (45.5-90.7 kgs)	helical	large body	120	50-100	19.80	on	2.5	40	1.375	55.00	0.5
>200 lbs (>90.8 kgs)	helical	large body	120	50-150	25.46	on	2.5	40	1.375	55.00	0.5

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right
AX SOFT	2.5	2.5	std full	400/40	head/feet

Must be first recon.

Add the following recons if the indication is **soft tissue** related.

COR SOFT	2.5	2.5	std full	400/40	front/back
SAG SOFT	2.5	2.5	std full	400/40	left/right

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time	Scan Time
Incisive 128	helical	100	81	19	on	1.00	64	0.625	0.50	2.5

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX BONE	3.0	3.0	YC	bone	2	head/feet
COR BONE	3.0	3.0	YC	bone	2	front/back
SAG BONE	3.0	3.0	YC	bone	2	left/right
AX SOFT	3.0	3.0	B	abdomen	2	head/feet

Add the following recons if the indication is **soft tissue** related.

COR SOFT	3.0	3.0	B	abdomen	2	front/back
SAG SOFT	3.0	3.0	B	abdomen	2	left/right

CT Peds Extremity

Updated 05/04/24
Reviewed 05/15/25

Indications - pain, trauma, fracture, extremity weakness, mass, infection.

NEVER perform a multiphase or without and with exam on a pediatric patient unless approved by a rad.

GENERAL SCAN NOTES

Remove any metal from the imaging field of view.

Topogram/Coverage - As per adult MSK protocols.

Scan through entire fracture if one is present.

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

IV Contrast: Weight-based Omnipaque-300, inject at 2 mL/sec, 22-gauge or larger, 60 secs scan delay.

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
Sensation 16	spiral	120	60	on	NA	0.80	16	0.75	1.00
Go Up 32	spiral	110	161	on	on 170	1.50	32	0.7	1.00
Sensation 64	spiral	120	60	on	NA	0.90	64	0.6	1.00
Definition 64	spiral	100	77	on	on	0.80	64	0.6	1.00
Go Top 64	spiral	100	224	on	on 170	1.50	64	0.6	1.00
Drive 128	spiral	100	54	on	on	0.80	128	0.6	1.00
Force 192	spiral	100	35	on	**off**	0.80	192	0.6	1.00

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction
AX BONE	2.0	2.0	Br59 / B60s	bone/osteo	3	head/feet
COR BONE	2.0	2.0	Br59 / B60s	bone/osteo	3	front/back
SAG BONE	2.0	2.0	Br59 / B60s	bone/osteo	3	left/right
AX SOFT	2.0	2.0	Br40 / B30s	abdomen	3	head/feet

Add the following recons if the indication is **soft tissue** related.

COR SOFT	2.0	2.0	Br40 / B30s	abdomen	3	front/back
SAG SOFT	2.0	2.0	Br40 / B30s	abdomen	3	left/right

Perform all reconstructions using the planes prescribed on the images in the adult MSK protocols.

CT Peds Extremity

GE PARAMETERS & RECONS

For **LightSpeed 16** and **Optima 540** scanners:

	Scan Type	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time
0-20 lbs (0-9 kgs)	helical	80	50-100	11.31	on	2.5	20	1.375	27.50	0.5
21-60 lbs (9-27.2 kgs)	helical	100	50-100	14.14	on	2.5	20	1.375	27.50	0.5
61-100 lbs (27.3-45.4 kgs)	helical	100	50-100	16.97	on	2.5	20	1.375	27.50	0.5
101-200 lbs (45.5-90.7 kgs)	helical	120	50-100	19.80	on	2.5	20	1.375	27.50	0.5
>200 lbs (>90.8 kgs)	helical	120	50-150	25.46	on	2.5	20	1.375	27.50	0.5

For **LightSpeed & Discovery VCT 64** scanners:

0-20 lbs (0-9 kgs)	helical	80	50-100	11.31	on	2.5	40	1.375	55.00	0.5
21-60 lbs (9-27.2 kgs)	helical	100	50-100	14.14	on	2.5	40	1.375	55.00	0.5
61-100 lbs (27.3-45.4 kgs)	helical	100	50-100	16.97	on	2.5	40	1.375	55.00	0.5
101-200 lbs (45.5-90.7 kgs)	helical	120	50-100	19.80	on	2.5	40	1.375	55.00	0.5
>200 lbs (>90.8 kgs)	helical	120	50-150	25.46	on	2.5	40	1.375	55.00	0.5

Name of Series	Thickness	Interval	Recon Algorithm	Window Width/Level	Recon Direction
AX BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**
COR BONE	2.5	2.5	bone full	2500/480	front/back
SAG BONE	2.5	2.5	bone full	2500/480	left/right
AX SOFT	2.5	2.5	std full	400/40	head/feet

Must be first recon.

Add the following recons if the indication is **soft tissue** related.

COR SOFT	2.5	2.5	std full	400/40	front/back
SAG SOFT	2.5	2.5	std full	400/40	left/right

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time
Incisive 128	helical	120	94	23	on	1.00	64	0.625	0.75

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX BONE	3.0	3.0	YC	bone	2	head/feet
COR BONE	3.0	3.0	YC	bone	2	front/back
SAG BONE	3.0	3.0	YC	bone	2	left/right
AX SOFT	3.0	3.0	B	abdomen	2	head/feet

Add the following recons if the indication is **soft tissue** related.

COR SOFT	3.0	3.0	B	abdomen	2	front/back
SAG SOFT	3.0	3.0	B	abdomen	2	left/right