

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.

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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

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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
COR LATE ART	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.

DELAY PHASE (5 mins)

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

Must be first recon.

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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