



COVID-19 Low-dose Thoracic CT Scan Protocol

Scanogram: PA and LAT dual Scanogram; scan from top of shoulder through mid-liver.

CANON	Aq RXL	Aq Lightning (18 Rows)	Aq Lightning (80 Rows)	Aq PRIME (40 Rows)	Aq PRIME (80 Rows)
Scan Type	Helical	Helical	Helical	Helical	Helical
Rotation Time (s)	0.5	0.75	0.75	0.35	0.35
Detector Configuration	16 x 0.5 mm	16 x 1.0 mm	80 x 0.5 (mm)	40 x 0.5 mm	80 x 0.5 mm
Pitch	Fast (1.434)	Fast (1.438)	Standard (0.813)	Standard (0.825)	Standard (0.813)
kV	120	120	120	120	120
Minimum & Maximum mA	Min mA = 20 / Max mA = 110	Min mA = 10 / Max mA = 300	Min mA = 10 / Max mA = 300	Min mA = 20 / Max mA = 120	Min mA = 20 / Max mA = 120
^{SURE} IQ Setting	Body Std Axial (5 mm Target Slice)	Body Std Axial (5 mm Target Slice)	Body Std Axial (5 mm Target Slice)	Body Std Axial (5 mm Target Slice)	Body Std Axial (5 mm Target Slice)
^{SURE} Exposure	ON	ON	ON	ON	ON
*SD	25"	20"	20"	25"	25"
**CTDIvol	1.8			1.8	1.8

* Create a new SureExp setting using Body Std Axial SureIQ with 5 mm Target Slice and the given SD, min and max mA values.

** For standard sized patient, defined as 5'7", 155 pounds. Do not adjust the SD as patient size varies. SureExposure modulates mA automatically based on patient size.

Recon 1 – Axial Soft Tissue

Type	Axial	Axial	Axial	Axial	Axial
^{SURE} IQ setting	Body Std Axial	Body Std Axial	Body Std Axial	Body Std Axial	Body Std Axial
AIDR 3D	AIDR 3D STD	AIDR 3D STD	AIDR 3D STD	AIDR 3D STD	AIDR 3D STD
Thickness (mm)	1	1	1	1	1
Interval (mm)	1	1	1	1	1

Recon 2 – Axial Lung

Type	Axial	Axial	Axial	Axial	Axial
^{SURE} IQ setting	Lung Std Axial	Lung Std Axial	Lung Std Axial	Lung Std Axial	Lung Std Axial
AIDR 3D	AIDR 3D STD	AIDR 3D STD	AIDR 3D STD	AIDR 3D STD	AIDR 3D STD
Thickness (mm)	1	1	1	1	1
Interval (mm)	1	1	1	1	1

Selected Cannon Scanners

Scanogram: PA and LAT dual Scanogram; scan from top of shoulder through mid-liver.

CANON	Aq ONE/Premium	Aq ONE Vision	Aq ONE Genesis (160 row)	Aq ONE Genesis (320 row)
Scan Type	Helical	Helical	Helical	Helical
Rotation Time (s)	0.35	0.275	0.35	0.275
Detector Configuration	80 x 0.5 mm	80 x 0.5 mm	80 x 0.5 mm	80 x 0.5 mm
Pitch	Standard (0.813)	Standard (0.813)	Standard (0.813)	Standard (0.813)
kV	120	120	120	120
Minimum & Maximum mA	Min mA = 20 / Max mA = 120	Min mA = 20 / Max mA = 150	Min mA = 20 / Max mA = 600	Min mA = 20 / Max mA = 700
^{SURE} IQ Setting	Body Std Axial (5 mm Target Slice)	Body Std Axial (5 mm Target Slice)	Body Std Axial (5 mm Target Slice)	Body Std Axial (5 mm Target Slice)
^{SURE} Exposure	ON	ON	ON	ON
*SD	25"	25"	20"	20"
**CTDIvol	1.7	1.5		

* Create a new SureExp setting using Body Std Axial SureIQ with 5 mm Target Slice and the given SD, min and max mA values.

** For standard sized patient, defined as 5'7", 155 pounds. Do not adjust the SD as patient size varies. SureExposure modulates mA automatically based on patient size.

Recon 1 – Axial Soft Tissue

Type	Axial	Axial	Axial	Axial
^{SURE} IQ Setting	Body Std Axial	Body Std Axial	Body Std Axial	Body Std Axial
AIDR 3D	AIDR 3D STD	AIDR 3D STD	AIDR 3D STD	AIDR 3D STD
Thickness (mm)	1	1	1	1
Interval (mm)	1	1	1	1

Recon 2 – Axial Lung

Type	Axial	Axial	Axial	Axial
^{SURE} IQ Setting	Lung Std Axial	Lung Std Axial	Lung Std Axial	Lung Std Axial
AIDR 3D	AIDR 3D STD	AIDR 3D STD	AIDR 3D STD	AIDR 3D STD
Thickness (mm)	1	1	1	1
Interval (mm)	1	1	1	1

Selected GE Scanners

SCOUT: AP S80-I400; from top of shoulder through mid-liver, if automatic exposure control is used. PA scout if manual mA is used.

	LightSpeed 16	BrighSpeed 16	LightSpeed VCT	Optima 660
Scan Type	Helical	Helical	Helical	Helical
Rotation Time (s)	0.5	0.5	0.5	0.5
Beam Collimation (mm)	43758	20	40	40
Detector Configuration	16x0.625 / 16x1.25	16x1.25	64x0.625	64x0.625
Pitch	1.375	1.375	0.984	0.984
Speed (mm/rot)	13.75 / 27.50	27.5	39.36	39.36
kV	120	120	120	120
min mA	40	40	30	30
max mA	130	130	110	110
Noise Index (smart mA) ¹	32	32	32	32
sFOV	Large Body	Large Body	Large Body	Large Body
CTDIvol	2.6 / 2.4 mGy	2.4 mGy	2.2 mGy	2.2 mGy

RECON 1

	Axial	Axial	Axial	Axial
Plane	Axial	Axial	Axial	Axial
Algorithm	Lung or Bone	Lung or Bone	Lung or Bone	Lung or Bone
Recon Mode	Full or Plus	Full or Plus	Full or Plus	Full or Plus
Thickness (mm)	2.5	2.5	2.5	2.5
Interval (mm)	1.25	1.25	1.25	1.25
ASIR/ASIR-V (if used)			70	70

RECON 2

	Axial	Axial	Axial	Axial
Plane	Axial	Axial	Axial	Axial
Algorithm	Lung or Bone	Lung or Bone	Lung or Bone	Lung or Bone
Thickness (mm)	0.625 / 1.25	1.25	0.625	0.625
Interval (mm)	0.4 / 0.625	0.625	0.4	0.4
ASIR/ASIR-V (if used)			70	70
Recon Option				

Selected GE Scanners

SCOUT: AP S80-I400; from top of shoulder through mid-liver, if automatic exposure control is used. PA scout if manual mA is used.

	Revolution HD / Discovery CT 750	Revolution EVO	Revolution Frontier	Revolution CT
Scan Type	Helical	Helical	Helical	Helical
Rotation Time (s)	0.5	0.5	0.5	0.35
Beam Collimation (mm)	40	40	40	40
Detector Configuration	64x0.625	64x0.625	64x0.625	128x0.625
Pitch	1.375	1.375	1.375	0.992
Speed (mm/rot)	55	55	55	79.4
kV	120	120	120	120
min mA	20	20	20	20
max mA	290	290	290	290
Noise Index (smart mA) ¹	34	29.5	34	20
SFOV	Large Body	Large Body	Large Body	Large Body
CTDIvol	2.2 mGy	2.2 mGy	2.2 mGy	2.3mGy

RECON 1

Plane	Axial	Axial	Axial	Axial
Algorithm	Lung or Bone	Lung or Bone	Lung or Bone	Lung or Bone
Recon Mode	Full or Plus	Full or Plus	Full or Plus	Full or Plus
Thickness (mm)	5	5	5	5
Interval (mm)	3	3	3	3
ASIR/ASIR-V (if used)	30	30	30	10

RECON 2

Plane	Axial	Axial	Axial	Axial
Algorithm	Lung or Bone	Lung or Bone	Lung or Bone	Lung or Bone
Thickness (mm)	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625
ASIR/ASIR-V (if used)	10	30	10	10
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance

Selected GE Scanners

SCOUT: AP S80-I400; scan from top of shoulder through mid-liver, if automatic exposure control is used.
PA scout if manual mA is used.

	LightSpeed 16 Brightspeed 16	Optima 660	LightSpeed VCT	Revolution HD Discovery 750 HD	Revolution EV O	Revolution Frontier	Revolution CT Revolution CT/ES
Scan Type	Helical	Helical	Helical	Helical	Helical	Helical	Helical
Rotation Time (s)	0.5	0.6	0.5	0.5	0.5	0.5	0.35
Beam Collimation (mm)	20-Oct	40	40	40	40	40	40
Detector Configuration	16x0.625/ 16x1.25	64x0.625	64x0.625	64x0.625	64x0.625	64x0.625	64x0.625
Pitch	1.375	1.375	0.984	0.984	0.984	0.984	0.984
Speed (mm/rot)	13.75/ 27.50	55	39.37	39.37	39.37	39.37	39.375
kV ²	120	120	120	120	120	120	120
mA ²	60	50	50	50	50	50	80
SFOV	Large Body	Large Body	Large Body	Large Body	Large Body	Large Body	Large Body
CTDIvol ²	2.6/ 2.4 mGy	1.8 mGy	1.9 mGy	1.9 mGy	1.9 mGy	1.9 mGy	1.94 mGy

RECON 1

Plane	Axial	Axial	Axial	Axial	Axial	Axial	Axial
Algorithm	Bone or Lung	Bone or Lung	Bone or Lung	Bone or Lung	Bone or Lung	Bone or Lung	Bone or Lung
Recon Mode	Full	Full	Full	Full	Full	Full	Full
Thickness (mm)	1.25 or 2.5	1.25 or 2.5	1.25 or 2.5	1.25 or 2.5	1.25 or 2.5	1.25 or 2.5	1.25 or 2.5
Interval (mm) ≤ slice width	1.25 or 2.5	1.25 or 2.5	1.25 or 2.5	1.25 or 2.5	1.25 or 2.5	1.25 or 2.5	1.25 or 2.5
ASIR/ ASIR-V (if used)	50	50	50	50	50	50	50

Selected HITACHI Scanner

SCANOGRAM: PA; scan from top of shoulder through mid-liver.

HITACHI	ECLOS 16	SCENARIO 64	SCENARIO 128
Scan Type	Volume	Volume	Volume
Rotation Time (s)	0.8	0.5	0.5
Detector Collimation- T	1.25 mm	0.625 mm	0.625 mm
Number of Active Channels	16	64	64
Detector Configuration	1.25 x 16	0.625 x 64	0.625 x 64
Mode (thick/ pitch/ speed)	1.25/ 1.3125/ 28.25	0.625/ 0.8281/ 33.13	0.625/ 0.8281/ 33.13
Pitch	1.3125	0.8281	0.8281
Speed (mm/rot)	28.25	33.13	33.13
kV*	120	120	120
mA*	50	50	50
Adaptive mA/IntelliEC	No	No	No
SFOV	500	500	500
CTDIvol*	2.6	2.7	2.7

RECON 1

Series Description	Lung	Lung	Lung
Type	Axial	Axial	Axial
Filter	21 Lung	21 Lung	21 Lung
Thickness (mm)	1.25	1	1
Interval (mm)	0.625	0.5	0.5

RECON 2

Series Description	Soft Tissue	Soft Tissue	Soft Tissue
Type	Axial	Axial	Axial
Filter	31 Soft tissue	31 Soft tissue	31 Soft Tissue
Thickness (mm)	1.25	1	1
Interval (mm)	0.625	0.5	0.5

* For standard sized patient, defined as 5'7", 155 pounds. For small patients, mA may be reduced by as much as 50%; for large patients, mA may be increased by 50-100%.

Selected NEUSOFT Scanners

SCOUT: PA, scan from top of shoulder through mid-liver. Adjust Displayed FOV to 1 cm beyond the rib cage.

NEUSOFT	NeuViz 16	NeuViz 16	NeuViz64I NeuViz64IN NeuViz64E NeuViz 64EN	NeuViz64I NeuViz64IN NeuViz64E NeuViz 64EN	NeuViz128	NeuViz128
Scan Type	Helical	Helical	Helical	Helical	Helical	Helical
Patient size	AVERAGE	LARGE	AVERAGE	Large	AVERAGE	Large
Rotation Time (s)	0.6	0.6	0.5	0.5	0.5	0.5
Collimation	16 x 1.5	16 x 1.5	64 x 0.625*	64 x 0.625*	128*0.625*	128*0.625*
kVp	120	140	120	120	120	120
Reference mAs	35	35	45	85	45	85
Pitch	1.2	1.2	1.2	1.2	1.2	1.2
Displayed FOV(mm)	300	350	300	350	300	350
Resolution	Standard	Standard	Standard	Standard	Standard	Standard
Dose Modulation	ACS & DOM	ACS & DOM	O-DOSE	O-DOSE	O-DOSE	O-DOSE
ClearView	N/A	N/A	20%	30%	20%	30%
SNR Level	N/A	N/A	1	1	1	1
Reference Phantom Size	33cm	40cm	33cm	40cm	33cm	40cm
CTDIvol*	2.8*mGy	4.3**mGy	3.0*mGy	5.6**mGy	3.0	**5.6

RECON 1 Thin Lung

Type	Axial	Axial	Axial	Axial	Axial	Axial
Filter	Lung B	Lung B	Lung20	Lung20	Lung20	Lung20
Thickness (mm)	1.5	1.5	1	1	1	1
Increment (mm)	0.75	0.75	0.5	0.5	0.5	0.5
ClearView	N/A	N/A	20%	30%	20%	30%

RECON 2 Thin Mediastinum

Type	Axial	Axial	Axial	Axial	Axial	Axial
Filter	SB	SB	F20	F20	F20	F20
Thickness (mm)	1.5	1.5	1	1	1	1
Increment (mm)	0.75	0.75	0.5	0.5	0.5	0.5
ClearView	N/A	N/A	20%	30%	20%	30%

Selected PHILIPS Scanners

SURVIEW: PA; scan from top of shoulder through mid-liver.

PHILIPS	Brilliance 16 slice	Brilliance 64 slice	Ingenuity CT	Ingenuity CT w/iPatient
Scan Type	Helical	Helical	Helical	Helical
Rotation Time (s)	0.5	0.5	0.4	0.4
Collimation	16 × 1.5 mm	64 × 0.625 mm	64 × 0.625 mm	64 × 0.625 mm
Coverage (mm)	24	40	40	40
kV	120	120	120	120
DRI / (mAs/slice)*	DoseRight 26 mAs/slice	DoseRight 26 mAs/slice	DoseRight 26 mAs/slice	DoseRight DRI = 6
Tube current modulation	ZDOM	ZDOM	ZDOM	3D Modulation
Pitch	1.0	1.0	1.1	1.1
CTDIvol**	1.8 mGy	1.7 mGy	1.7 mGy	1.7 mGy

RECON 1 – Lung

Type	Axial	Axial	Axial	Axial
Filter	YA	YA	YA	YA
Thickness (mm)	2	1	1	1
Increment (mm)	1	0.5	0.5	0.5
Matrix	768 ²	768 ²	768 ²	768 ²
iDose ⁴ Level	5	5	5	5

RECON 2 – Soft tissue

Type	Axial	Axial	Axial	Axial
Filter	A	A	A	A
Thickness (mm)	3	3	3	3
Increment (mm)	1.5	1.5	1.5	1.5
Matrix	512 ²	512 ²	512 ²	512 ²
iDose ⁴ Level	5	5	5	5

*Dose Right Index (DRI) is available on scanner models with the iPatient interface.

** For standard sized patient, defined as 5'7", 155 pounds.

Selected PHILIPS Scanners

SURVIEW: PA; scan from top of shoulder through mid-liver.

PHILIPS	Brilliance iCT SP	Brilliance iCT SP w/ iPatient	Brilliance iCT	Brilliance iCT w/ iPatient	IQon Spectral CT
Scan Type	Helical	Helical	Helical	Helical	Helical
Rotation Time (s)	0.4	0.4	0.4	0.4	0.4
Collimation	64 × 0.625 mm	64 × 0.625 mm	128 × 0.625 mm	128 × 0.625 mm	64 × 0.625 mm
Coverage (mm)	40	40	80	80	40
kV	120	120	120	120	120
DRI / (mAs/slice)*	DoseRight 23 mAs/slice	DoseRight DRI = 5	DoseRight 23 mAs/slice	DoseRight DRI = 5	DoseRight DRI = 5
Tube current modulation	ZDOM	3D Modulation	ZDOM	3D Modulation	3D Modulation
Pitch	1.0	1.0	0.9	0.9	1.0
CTDIvol**	1.7 mGy	1.7 mGy	1.6 mGy	1.6 mGy	1.7 mGy

RECON 1 - Lung

Type	Axial	Axial	Axial	Axial	Axial
Filter	YA	YA	YA	YA	YA
Thickness (mm)	1	1	1	1	1
Increment (mm)	0.5	0.5	0.5	0.5	0.5
Matrix	768 ²	768 ²	768 ²	768 ²	768 ²
iDose ⁴ Level	5	5	5	5	5

RECON 2 – Soft tissue

Type	Axial	Axial	Axial	Axial	Axial
Filter	A	A	A	A	A
Thickness (mm)	3	3	3	3	3
Increment (mm)	1.5	1.5	1.5	1.5	1.5
Matrix	512 ²	512 ²	512 ²	512 ²	512 ²
iDose ⁴ Level	5	5	5	5	5

*Dose Right Index (DRI) is available on scanner models with the iPatient interface.

Selected SIEMENS Scanners

TOPOGRAM: PA; scan from top of shoulder through mid-liver.

SIEMENS	Emotion 16	Perspective 64	Sensation 64
Software version	VC30	VC40	VB42
Scan Mode	Spiral	Spiral	Spiral
Rotation Time (s)	0.6	0.6	0.5
Detector Configuration	16 x 0.6 mm	*64 x 0.6 mm (32x0.6 mm = 19.2 mm)	*64 x 0.6 mm (32x0.6 mm = 19.2 mm)
Pitch	1.5	1.5	1.4
kV	110	110	120
Quality ref. mAs	20	20	20
CARE Dose4D	ON	ON	OFF
CARE kV	NA	NA	OFF
CTDIvol***	1.5 mGy	1.5 mGy	1.5 mGy

RECON 1

Type	Axial	Axial	Axial
Kernel	B41s	B41s I41, strength = 2**	B31f
Slice (mm)	5.0	5.0	5.0
Increment (mm)	5.0	5.0	5.0

RECON 2

Type	Axial	Axial	Axial MIP
Kernel	B90s	B90s I80, strength = 2**	B80f
Slice (mm)	5.0	5.0	5.0
Increment (mm)	5.0	5.0	5.0

RECON 3

Type	Axial	Axial	Axial
Kernel	B41s	B41s I41, strength = 2**	B31f
Slice (mm)	1.0	1.0	1.0
Increment (mm)	0.7	0.7	0.7

RECON 4

Type	Axial	Axial	Axial MIP
Kernel	B70s	B70s I80, strength = 2**	B70f
Slice (mm)	1.0	1.0	1.0
Increment (mm)	0.7	0.7	0.7

* Indicates that a z-axis "flying focal spot" technique is used to obtain twice as many projections per rotation as detector rows. This is referred to as IVR (Interleaved Volume Reconstruction) on the Perspective system.

** With Iterative Reconstruction (SAFIRE or ADMIRE)

Selected SIEMENS Scanners

TOPOGRAM: PA; scan from top of shoulder through mid-liver.

SIEMENS	Definition AS+ / EdgePlus (128 slice)	Somatom go.Now / go.Up ^b	Somatom go.All / go.Top ^b
Software version	VB10	VA20	VA20
Scan Mode	Spiral	Spiral	Spiral
Rotation Time (s)	0.5	0.8	0.33
Detector Configuration	^a 128 x 0.6 mm (64 x 0.6 mm = 38.4 mm)	16 x 0.7 mm / 32 x 0.7 mm /	32 x 0.7 mm / 64 x 0.6 mm /
Pitch	1.2	1.5	0.6
kV	100Sn ^a	110Sn ^a	110Sn ^a
Quality ref. mAs	180/244	67	68/123
CARE Dose4D	ON	ON	ON
CARE KV	ON	OFF	ON
CTDIvol ^{***}	0.6 mGy / 0.9 mGy ^b	0.9 mGy / 1.1 mGy	1.0 mGy / 1.0 mGy

RECON 1

Type	Axial	Cor/Sag/Ax. MPR	Cor/Sag/Ax. MPR
Kernel	Bf37, strength = 3 ^{***}	Br40, strength = 3 ^{***}	Br40, strength = 3 ^{***}
Slice (mm)	5.0	5.0	5.0
Increment (mm)	5.0	5.0	5.0

RECON 2

Type	Axial	Cor/Sag/Ax. MIP Thin	Cor/Sag/Ax. MIP Thin
Kernel	BI57, strength = 3 ^{***}	Br60, strength = 3 ^{***}	Br60, strength = 3 ^{***}
Slice (mm)	5.0	5.0	5.0
Increment (mm)	5.0	5.0	5.0

Selected SIEMENS Scanners

TOPOGRAM: PA; scan from top of shoulder through mid-liver.

SIEMENS	Definition DS (Dual source 64-slice)	Somatom Drive (Dual source 128-slice)	Definition Flash (Dual source 128-slice)	Definition Force (Dual source 192-slice)
Software version	VA44	VB10	VB10	VB10
Scan Mode	Spiral	Spiral	Spiral	Spiral
Rotation Time (s)	0.5	0.5	0.5	0.5
Detector Configuration	*64 x 0.6 mm (32 x 0.6 mm = 19.2 mm)	*128 x 0.6 mm (64 x 0.6 mm = 38.4 mm)	*128 x 0.6 mm (64 x 0.6 mm = 38.4 mm)	*192 x 0.6 mm (96 x 0.6 mm = 57.6 mm)
Pitch	1.2	1.2	1.2	1.2
kV	120	100Sn ^a	120	100Sn ^a
Quality ref. mAs	20	81	20	101
CARE Dose4D	ON	ON	ON	ON
CARE kV	ON	ON	ON	ON
CTDIvol ^{***}	1.4 mGy	0.6mGy	1.3 mGy	0.4 mGy

RECON 1

Type	Axial	Axial	Axial	Axial
Kernel	B31f	Bf37, strength = 3**	Bf37, strength = 3**	Br40, strength = 3**
Slice (mm)	5.0	5.0	5.0	5.0
Increment (mm)	5.0	5.0	5.0	5.0

RECON 2

Type	Axial	Axial	Axial	Axial
Kernel	B80f	Br59, strength = 3**	Bl57, strength = 3**	Bl57, strength = 3**
Slice (mm)	5.0	5.0	5.0	5.0
Increment (mm)	5.0	5.0	5.0	5.0

RECON 3

Type	Axial	Axial	Axial	Axial
Kernel	B31f	Bf37, strength = 3**	Bf37, strength = 3**	Br40, strength = 3**
Slice (mm)	1.0	1.0	1.0	1.0
Increment (mm)	0.7	0.7	0.7	0.7

RECON 4

Type	Axial	Axial	Axial	Axial
Kernel	B70f	Br59, strength = 3**	Br59, strength = 3**	Br64, strength = 3**
Slice (mm)	1.0	1.0	1.0	1.0
Increment (mm)	0.7	0.7	0.7	0.7

^a Indicates that a z-axis "flying focal spot" technique is used to obtain twice as many projections per rotation as detector rows. This is referred to as IVR (Interleaved Volume Reconstruction) on the Perspective system.

** With Iterative Reconstruction (SAFIRE or ADMIRE)

*** For standard sized patient, defined as 5'7", 155 pounds. Do not adjust the Quality Reference mAs as patient size varies. CARE Dose4D adjusts for patient size automatically