

Appendix 1 Estimation of radiation dose reduction

The N value was modeled as a function of radiation dose level (D) and reconstruction level (R) of the form as follows:

$$N = \mu + \alpha D + \beta R,$$

where N is the Image noise, μ is an intercept coefficient, α is a radiation dose coefficient, and β is a reconstruction level coefficient.

A value of $P=0.05$ was considered significant.

The purpose of this model was to determine whether the radiation dose or reconstruction method had a significant impact on image noise. In addition, the model can be used to estimate the reduced dose. Suppose that, at this dose, the N of DLIR was equal to that of ASiR-V under the reference dose. The formula and operation process were as follows:

$$\mu + \alpha D_1 + \beta R_1 = \mu + \alpha D_2 + \beta R_2$$

$$\alpha D_1 + \beta R_1 = \alpha D_2 + \beta R_2$$

$$\alpha D_1 = \alpha D_2 + \beta$$

$$\alpha(D_2 - D_1) = -\beta$$

$$D_2 - D_1 = -\beta/\alpha$$

$$DR = 100\% \frac{-\beta/\alpha}{D_1}$$

Table S1 Subjective evaluation criteria for image quality

Score	Criteria
5	The anatomical structure has clear details, high resolution, and good sharpness
4	The details of the anatomical structure are clear, and the resolution and sharpness are reduced
3	Most of the anatomical structure is clear, the details are not clear, and the resolution is low but acceptable
2	The anatomical details are not enough to find, and the resolution is low
1	The anatomical structure is indistinguishable, and the sharpness is poor

Table S2 Comparison of CT value, N, and SNR at different dose levels in abdominal scans

		Liver				Kidney				Fat Tissue		
		CT Value	N	SNR	CNR	CT Value	N	SNR	CNR	CT Value	N	SNR
CTDI _{vol} = 3.89 mGy (NI = 5)	ASiR-V30%	81.35 ± 1.85	18.29 ± 1.12	4.46 ± 0.22	4.69 ± 0.79	8.76 ± 2.5	19.13 ± 1.59	0.46 ± 0.15	0.82 ± 0.6	-22.89 ± 3.12	18.63 ± 1.22	1.23 ± 0.16
	ASiR-V70%	81.38 ± 2.64	12.61 ± 1.66	6.54 ± 0.82	6.74 ± 1.6	8.37 ± 2.55	12.78 ± 1.31	0.66 ± 0.22	1.22 ± 1.11	-23.5 ± 5.1	12.68 ± 0.89	1.87 ± 0.45
	DLIR-M	81.43 ± 1.23	12.89 ± 0.66	6.33 ± 0.33	6.6 ± 1.37	8.5 ± 2.23	12.98 ± 0.61	0.66 ± 0.2	1.22 ± 1.25	-24.73 ± 3.56	14.32 ± 1.16	1.74 ± 0.3
	DLIR-H	84.82 ± 2.69	10.05 ± 0.72	8.46 ± 0.46	8.8 ± 1.84	9.09 ± 2.49	10.54 ± 0.67	0.87 ± 0.27	1.72 ± 1.84	-29.45 ± 2.76	10.18 ± 0.3	2.9 ± 0.34
	P-value	0.290	0.008 *	< 0.001*	< 0.001*	0.939	0.005 *	0.064	0.417	0.001 *	0.003 *	< 0.001*
CTDI _{vol} = 1.95 mGy (NI = 8)	ASiR-V30%	79.05 ± 3.11	24.82 ± 2.02	3.2 ± 0.23	3.43 ± 0.64	8.04 ± 1.16	24.46 ± 3.05	0.33 ± 0.03	0.61 ± 0.51	-23.74 ± 5.98	23.52 ± 1.65	1.01 ± 0.23
	ASiR-V70%	78.82 ± 2.04	16.01 ± 1.01	4.94 ± 0.28	5.2 ± 0.96	8.63 ± 1.01	16.64 ± 1.53	0.52 ± 0.04	1 ± 0.84	-23.78 ± 4.82	15.92 ± 2.77	1.5 ± 0.23
	DLIR-M	79.72 ± 3.26	18.05 ± 2	4.45 ± 0.34	4.68 ± 0.98	9.94 ± 1.93	17.53 ± 1.05	0.57 ± 0.13	0.95 ± 0.72	-22.33 ± 5.74	18.15 ± 1.2	1.23 ± 0.31
	DLIR-H	81.54 ± 1.59	10.26 ± 0.93	7.99 ± 0.65	8.26 ± 1.79	8.27 ± 1.82	11.1 ± 1.32	0.76 ± 0.2	1.42 ± 1.35	-26.27 ± 3.01	10.78 ± 0.68	2.43 ± 0.2
	P-value	0.279	< 0.001*	0.003 *	0.003*	0.365	0.000 *	0.044 *	0.687	0.176	0.003 *	< 0.001*
CTDI _{vol} = 1.01 mGy (NI = 11)	ASiR-V30%	82.85 ± 3.11	28.4 ± 1.34	2.92 ± 0.13	3.22 ± 0.64	7.79 ± 3.08	31.53 ± 2.15	0.25 ± 0.09	0.56 ± 0.46	-30.25 ± 1.59	31.51 ± 0.9	0.96 ± 0.05
	ASiR-V70%	83.46 ± 2.64	20.5 ± 1.05	4.08 ± 0.22	4.36 ± 0.89	9.53 ± 1.82	20.2 ± 2.02	0.48 ± 0.15	0.85 ± 0.63	-24.73 ± 3.54	19.33 ± 1.64	1.29 ± 0.2
	DLIR-M	82.86 ± 3.09	23.31 ± 2.71	3.58 ± 0.31	3.88 ± 0.74	9.07 ± 1.14	22.76 ± 1.77	0.4 ± 0.07	0.78 ± 0.62	-29.08 ± 4.78	24.52 ± 1.31	1.19 ± 0.24
	DLIR-H	78.88 ± 1.69	14.55 ± 1.38	5.46 ± 0.43	5.74 ± 1.25	9.27 ± 2.25	13.52 ± 1.14	0.69 ± 0.2	1.18 ± 1.01	-23.98 ± 6	15.76 ± 1.49	1.52 ± 0.34
	P-value	0.065	0.000*	< 0.001*	< 0.001*	0.252	< 0.001*	0.004*	0.197	0.165	< 0.001*	0.034*
CTDI _{vol} = 0.75 mGy (NI = 13)	ASiR-V30%	80.78 ± 3.16	30.63 ± 1.16	2.63 ± 0.71	2.95 ± 0.09	7.98 ± 3.01	32.52 ± 2.25	0.24 ± 0.52	0.50 ± 0.88	-26.45 ± 1.83	32.76 ± 0.9	0.80 ± 0.76
	ASiR-V70%	79.21 ± 2.33	22.74 ± 1.33	3.81 ± 0.84	4.05 ± 0.34	9.85 ± 1.12	21.2 ± 2.25	0.46 ± 0.64	0.79 ± 0.62	-25.73 ± 3.92	20.33 ± 1.6	1.26 ± 0.1
	DLIR-M	79.05 ± 1.53	24.6 ± 2.60	3.21 ± 0.33	3.34 ± 0.8	8.39 ± 1.34	22.4 ± 1.33	0.34 ± 0.36	0.68 ± 0.42	-27.93 ± 4.83	25.22 ± 1.83	1.11 ± 0.82
	DLIR-H	79.13 ± 1.26	15.94 ± 1.49	4.96 ± 0.65	5.68 ± 1.12	8.56 ± 1.15	14.68 ± 1.16	0.63 ± 0.32	1.12 ± 0.21	-24.14 ± 4.14	22.22 ± 1.49	1.49 ± 0.84
	P-value	0.346	0.000*	0.001*	< 0.001*	0.235	< 0.001*	0.011*	0.093	0.112	< 0.001*	0.042*
CTDI _{vol} = 0.53 mGy (NI = 15)	ASiR-V30%	80.81 ± 3.63	33.94 ± 1.49	2.38 ± 0.15	2.54 ± 0.33	8.27 ± 1.89	34.31 ± 1.23	0.24 ± 0.05	0.43 ± 0.31	-20.49 ± 7.98	33.33 ± 4.07	0.65 ± 0.35
	ASiR-V70%	81.07 ± 2.19	24.35 ± 1.11	3.33 ± 0.17	3.58 ± 0.54	10.34 ± 3.04	24.28 ± 1.91	0.43 ± 0.13	0.75 ± 0.54	-26.25 ± 5.74	21.64 ± 1.09	1.22 ± 0.32
	DLIR-M	83.11 ± 2.59	28.03 ± 1	2.97 ± 0.12	3.19 ± 0.59	9.29 ± 2.4	28.61 ± 1.11	0.32 ± 0.08	0.62 ± 0.46	-25.82 ± 3.98	28.41 ± 5.4	0.96 ± 0.34
	DLIR-H	83.16 ± 3.09	17.7 ± 1.56	4.72 ± 0.39	5.06 ± 1.3	9.7 ± 1.4	16.68 ± 2.14	0.59 ± 0.14	1.09 ± 0.84	-27.39 ± 1.46	19.07 ± 1.99	1.45 ± 0.18
	P-value	0.372	0.000*	0.003*	0.008*	0.891	0.000*	0.004*	0.223	0.041*	0.003*	0.004*
CTDI _{vol} = 0.36 mGy (NI = 18)	ASiR-V30%	80.47 ± 4.54	37.06 ± 1.88	2.17 ± 0.07	2.3 ± 0.3	7.62 ± 2.02	36.22 ± 1.86	0.21 ± 0.05	0.37 ± 0.28	-18.46 ± 6.81	36.1 ± 3.62	0.52 ± 0.22
	ASiR-V70%	79.5 ± 3.1	26.79 ± 1.53	2.97 ± 0.2	3.13 ± 0.46	8.73 ± 2.7	26.44 ± 0.89	0.33 ± 0.1	0.55 ± 0.41	-19.01 ± 7.02	27.39 ± 2.75	0.7 ± 0.24
	DLIR-M	79.72 ± 2.74	30.2 ± 2.04	2.65 ± 0.21	2.81 ± 0.45	9.8 ± 2.92	31.18 ± 1.02	0.32 ± 0.1	0.52 ± 0.38	-20.5 ± 5.52	34.84 ± 2.8	0.59 ± 0.14
	DLIR-H	82.45 ± 2.23	21.71 ± 1.54	3.81 ± 0.29	4.06 ± 0.75	7.92 ± 3.35	23.47 ± 1.9	0.34 ± 0.14	0.64 ± 0.63	-24.14 ± 3.14	22.23 ± 3.49	1.11 ± 0.2
	P-value	0.583	< 0.001*	< 0.001*	< 0.001*	0.741	< 0.001*	0.435	1.000	0.009*	< 0.001*	< 0.001*

The level of statistical significance was set at P<0.05. CT, computed tomography; ASiR-V, adaptive statistical iterative reconstruction-V; DLIR, deep learning image reconstruction; DLIR-M, deep learning image reconstruction medium; DLIR-H, deep learning image reconstruction high; CTDI_{vol}, computed tomography dose index volume; NI, noise index; N, image noise; SNR, signal-to-noise ratio; CNR, contrast-to-noise ratio.

Table S3 Comparison of CT value, N and SNR at different dose level in chest scans

		Lung			Mediastinum			Spine		
		CT Value	N	SNR	CT Value	N	SNR	CT Value	N	SNR
CTDI _{vol} = 1.46 mGy (NI = 5)	ASiR-V30%	-999.97 ± 6.05	13.97 ± 2.07	-72.99 ± 11.48	-57.32 ± 1.68	15.86 ± 0.93	3.62 ± 0.16	651.38 ± 3.2	21.57 ± 2.45	30.52 ± 3.45
	ASiR-V70%	-1000.05 ± 6.01	12.03 ± 2.18	-85.57 ± 16.08	-58.33 ± 1.48	11.49 ± 0.94	5.1 ± 0.42	650.9 ± 3.83	17.53 ± 1.81	37.47 ± 3.89
	DLIR-M	-999 ± 5.03	7.26 ± 0.87	-139.08 ± 15.55	-57.68 ± 0.92	11.00 ± 0.7	5.26 ± 0.33	651.29 ± 3.38	16.15 ± 1.84	43.19 ± 4.44
	DLIR-H	-1000.39 ± 5.91	5.32 ± 0.97	-193.58 ± 37.94	-56.82 ± 1.84	8.49 ± 0.37	6.7 ± 0.38	648.01 ± 6.28	15.15 ± 1.78	48.20 ± 2.65
	P-value	0.978	< 0.001*	< 0.001*	0.395	< 0.001*	< 0.001*	0.241	0.003*	< 0.001*
CTDI _{vol} = 1.41 mGy (NI = 8)	ASiR-V30%	-998.98 ± 7.18	14.1 ± 2.66	-73.06 ± 14.09	-56.84 ± 1.32	16.48 ± 0.73	4.95 ± 0.34	654.09 ± 5.44	21.68 ± 2.93	30.61 ± 3.95
	ASiR-V70%	-999.83 ± 7.49	12.4 ± 1.45	-81.6 ± 10.16	-57.36 ± 0.99	11.63 ± 0.9	4.95 ± 0.34	648.86 ± 3.26	17.88 ± 1.97	36.67 ± 4.25
	DLIR-M	-1000.82 ± 6.91	7.85 ± 1.58	-132.18 ± 28.59	-56.77 ± 1.39	11.27 ± 0.31	5.04 ± 0.21	646.56 ± 6.76	16.7 ± 0.41	38.74 ± 0.88
	DLIR-H	-1000.80 ± 6.32	5.66 ± 0.28	-177.11 ± 9.46	-56.69 ± 0.85	8.76 ± 0.35	6.48 ± 0.28	648.81 ± 4.34	15.78 ± 0.83	41.21 ± 2.27
	P-value	0.972	< 0.001*	< 0.001*	0.750	< 0.001*	< 0.001*	0.105	0.002*	< 0.001*
CTDI _{vol} = 0.87 mGy (NI = 11)	ASiR-V30%	-999.36 ± 7.44	16.98 ± 1.82	-59.43 ± 6.4	-55.98 ± 2.62	20.48 ± 1.43	2.75 ± 0.26	650.93 ± 7.59	25.09 ± 1.6	26.03 ± 1.6
	ASiR-V70%	-998.03 ± 8.6	14.76 ± 1.7	-68.41 ± 8.39	-56.18 ± 2.01	14.52 ± 1.77	3.91 ± 0.43	652.28 ± 7.57	21.49 ± 1.38	30.44 ± 1.69
	DLIR-M	-1002.2 ± 8.35	9.54 ± 1.07	-106.33 ± 13.06	-56.32 ± 1.37	13.91 ± 0.9	4.07 ± 0.33	649.75 ± 7.61	19.6 ± 1.44	33.31 ± 2.47
	DLIR-H	-1001.04 ± 8.23	6.32 ± 1.53	-166.28 ± 39.32	-55.61 ± 2.25	10.02 ± 0.66	5.56 ± 0.25	648.66 ± 5.25	18.22 ± 0.64	35.63 ± 1.26
	P-value	0.740	< 0.001*	< 0.001*	0.941	< 0.001*	< 0.001*	0.832	< 0.001*	< 0.001*
CTDI _{vol} = 0.71 mGy (NI = 13)	ASiR-V30%	-1000.2 ± 7.66	18.6 ± 1.33	-53.67 ± 7.8	-56.29 ± 2.6	22.35 ± 1.83	2.51 ± 0.76	667.41 ± 7.14	26.91 ± 1.66	24.79 ± 1.56
	ASiR-V70%	-997.61 ± 6.6	15.14 ± 1.5	-63.87 ± 8.71	-55.48 ± 2.66	15.48 ± 1.33	3.58 ± 0.36	678.27 ± 7.75	22.42 ± 1.33	19.24 ± 1.36
	DLIR-M	-1000.45 ± 8.45	10.21 ± 1.15	-99.2 ± 13.68	-56.65 ± 1.33	15.44 ± 1.6	3.56 ± 0.91	670.29 ± 7.83	22.56 ± 1.33	29.7 ± 2.74
	DLIR-H	-999.74 ± 8.66	7.32 ± 1.25	-136.48 ± 19.41	-55.19 ± 2.66	12.43 ± 1.66	4.44 ± 0.05	668.22 ± 5.22	19.84 ± 1.64	33.67 ± 1.76
	P-value	0.975	< 0.001*	< 0.001*	0.754	< 0.001*	< 0.001*	0.654	< 0.001*	< 0.001*
CTDI _{vol} = 0.46 mGy (NI = 15)	ASiR-V30%	-998.31 ± 5.78	21.13 ± 3.02	-48.04 ± 6.67	-57.24 ± 1.1	25.67 ± 1.7	2.24 ± 0.19	648.94 ± 6.73	29.57 ± 1.44	21.99 ± 1.15
	ASiR-V70%	-998.99 ± 7.12	17.59 ± 2.69	-57.88 ± 8.52	-56.05 ± 2.19	18.66 ± 0.69	3.01 ± 0.2	648.07 ± 4.33	23.7 ± 1.5	27.44 ± 1.69
	DLIR-M	-1000.45 ± 6.44	11.21 ± 1.28	-90.23 ± 10.8	-56.65 ± 1.71	18.67 ± 0.74	3.04 ± 0.1	644.34 ± 5.64	25.9 ± 1.83	24.99 ± 1.89
	DLIR-H	-1000.65 ± 5.89	8.09 ± 1.04	-125.68 ± 19.13	-55.29 ± 2.37	14.68 ± 0.59	3.77 ± 0.19	648.27 ± 5.69	26.11 ± 2	24.95 ± 1.86
	P-value	0.899	< 0.001*	< 0.001*	0.241	0.001*	< 0.001*	0.504	< 0.001*	< 0.001*
CTDI _{vol} = 0.31 mGy (NI = 18)	ASiR-V30%	-995.35 ± 7.87	23.75 ± 2.37	-42.27 ± 4.23	-56.59 ± 1.66	28.25 ± 1.72	2.01 ± 0.08	645.24 ± 8.17	33.9 ± 2.58	19.13 ± 1.56
	ASiR-V70%	-1000.1 ± 6.51	19.4 ± 3.13	-52.56 ± 7.54	-57.24 ± 1.51	20.45 ± 1.86	2.82 ± 0.26	644.64 ± 5.94	28.61 ± 2.53	22.69 ± 2.11
	DLIR-M	-999.26 ± 8.8	13.53 ± 1.39	-74.59 ± 8.43	-56.91 ± 2.27	21.46 ± 1.55	2.66 ± 0.13	645.75 ± 6.23	32.02 ± 1.41	20.2 ± 0.84
	DLIR-H	-999.62 ± 7.37	8.79 ± 0.95	-114.97 ± 13.34	-55.56 ± 1.62	15.98 ± 1.96	3.51 ± 0.38	648.52 ± 7.14	28.76 ± 3.86	22.9 ± 3.2
	P-value	0.477	< 0.001*	< 0.001*	0.415	< 0.001*	< 0.001*	0.776	0.007*	0.006*

The level of statistical significance was set at P<0.05. CT, computed tomography; ASiR-V, adaptive statistical iterative reconstruction-V; DLIR, deep learning image reconstruction; DLIR-M, deep learning image reconstruction medium; DLIR-H, deep learning image reconstruction high; CTDI_{vol}, computed tomography dose index volume; NI, noise index; N, image noise; SNR, signal-to-noise ratio.

Table S4 Subjective evaluation of image quality in different reconstruction methods in abdomen of the pediatric phantom

Abdomen		Comparison					
		DLIR-H vs. ASiR-V70%	DLIR-H vs. ASiR-V30%	DLIR-H vs. DLIR-M	ASiR-V70% vs. ASiR-V30%	ASiR-V70% vs. DLIR-M	ASiR-V30% vs. DLIR-M
CTDI _{vol} = 3.89 mGy (NI = 5)	score	4.33 ± 0.47 vs. 4.07 ± 0.15	4.33 ± 0.47 vs. 3.33 ± 0.41	4.33 ± 0.47 vs. 4.2 ± 0.3	4.07 ± 0.15 vs. 3.33 ± 0.41	4.07 ± 0.15 vs. 4.2 ± 0.3	3.33 ± 0.41 vs. 4.2 ± 0.3
	P-value	< 0.010*	< 0.001*	0.327	< 0.050*	0.245	< 0.001*
CTDI _{vol} = 1.95 mGy (NI = 8)	score	4.13 ± 0.3 vs. 3.73 ± 0.28	4.13 ± 0.3 vs. 3.13 ± 0.3	4.13 ± 0.3 vs. 3.4 ± 0.51	3.73 ± 0.28 vs. 3.13 ± 0.3	3.73 ± 0.28 vs. 3.47 ± 0.51	3.13 ± 0.3 vs. 3.47 ± 0.51
	P-value	< 0.010*	< 0.001*	< 0.010*	< 0.050*	0.451	0.522
CTDI _{vol} = 1.01 mGy (NI = 11)	score	3.8 ± 0.45 vs. 3.4 ± 0.43	3.8 ± 0.45 vs. 2.6 ± 0.43	3.8 ± 0.45 vs. 3.2 ± 0.84	3.4 ± 0.43 vs. 2.6 ± 0.43	3.4 ± 0.43 vs. 3.2 ± 0.84	2.6 ± 0.43 vs. 3.2 ± 0.84
	P-value	0.375	< 0.001*	< 0.010*	< 0.010*	0.652	< 0.010*
CTDI _{vol} = 0.75 mGy (NI = 13)	score	3.47 ± 0.53 vs. 3.2 ± 0.56	3.47 ± 0.53 vs. 2.53 ± 0.55	3.47 ± 0.53 vs. 3.27 ± 0.78	3.2 ± 0.56 vs. 2.53 ± 0.55	3.2 ± 0.563 vs. 3.27 ± 0.78	2.53 ± 0.55 vs. 3.27 ± 0.78
	P-value	0.389	< 0.001*	0.324	< 0.010*	0.675	< 0.010*
CTDI _{vol} = 0.53 mGy (NI = 15)	score	3.2 ± 0.3 vs. 3.0 ± 0.15	3.2 ± 0.3 vs. 2.47 ± 0.15	3.2 ± 0.3 vs. 3.07 ± 0.15	3.0 ± 0.15 vs. 2.47 ± 0.15	3.0 ± 0.15 vs. 3.07 ± 0.15	2.47 ± 0.15 vs. 3.07 ± 0.15
	P-value	0.534	< 0.010*	0.664	< 0.050*	1.000	< 0.010*
CTDI _{vol} = 0.36 mGy (NI = 18)	score	3.07 ± 0.15 vs. 2.67 ± 0.3	3.07 ± 0.15 vs. 2.13 ± 0.3	3.07 ± 0.15 vs. 2.8 ± 0.3	2.67 ± 0.3 vs. 2.13 ± 0.3	2.67 ± 0.3 vs. 2.8 ± 0.3	2.13 ± 0.3 vs. 2.8 ± 0.3
	P-value	0.066	< 0.010*	0.596	< 0.050*	1.000	< 0.010*

* represents statistically significant difference. The level of statistical significance was set at P<0.05. ASiR-V, adaptive statistical iterative reconstruction-V; DLIR, deep learning image reconstruction; DLIR-M, deep learning image reconstruction medium; DLIR-H, deep learning image reconstruction high; CTDI_{vol}, computed tomography dose index volume; NI, noise index.

Table S5 Subjective evaluation of image quality in different reconstruction methods in chest of the pediatric phantom

Chest		Comparison					
		DLIR-H vs. ASiR-V70%	DLIR-H vs. ASiR-V30%	DLIR-H vs. DLIR-M	ASiR-V70% vs. ASiR-V30%	ASiR-V70% vs. DLIR-M	ASiR-V30% vs. DLIR-M
CTDI _{vol} = 1.46 mGy (NI = 5)	score	4.04 ± 0.29 vs. 3.55 ± 0.44	4.04 ± 0.29 vs. 2.80 ± 0.30	4.04 ± 0.29 vs. 3.64 ± 0.41	3.55 ± 0.44 vs. 2.80 ± 0.30	3.55 ± 0.44 vs. 3.64 ± 0.41	2.80 ± 0.30 vs. 3.64 ± 0.41
	P-value	0.016*	0.013*	0.023*	0.023*	0.814	0.002*
CTDI _{vol} = 1.41 mGy (NI = 8)	score	3.71 ± 0.44 vs. 3.37 ± 0.14	3.71 ± 0.44 vs. 2.56 ± 0.44	3.71 ± 0.44 vs. 3.37 ± 0.60	3.37 ± 0.14 vs. 2.56 ± 0.44	3.37 ± 0.14 vs. 3.37 ± 0.60	2.56 ± 0.44 vs. 3.37 ± 0.6
	P-value	0.205	0.003*	0.205	0.003*	1.000	0.003*
CTDI _{vol} = 0.87 mGy (NI = 11)	score	3.12 ± 0.39 vs. 2.80 ± 0.51	3.12 ± 0.39 vs. 2.40 ± 0.43	3.12 ± 0.39 vs. 3.04 ± 0.39	2.80 ± 0.51 vs. 2.4 ± 0.43	2.80 ± 0.51 vs. 3.04 ± 0.73	2.40 ± 0.43 vs. 3.04 ± 0.73
	P-value	0.596	0.347	0.839	0.423	0.753	0.154
CTDI _{vol} = 0.71 mGy (NI = 13)	score	2.80 ± 0.33 vs. 2.60 ± 0.34	2.80 ± 0.33 vs. 2.20 ± 0.44	2.80 ± 0.66 vs. 2.60 ± 0.34	2.60 ± 0.11 vs. 2.20 ± 0.36	2.60 ± 0.37 vs. 2.60 ± 0.94	2.20 ± 0.36 vs. 2.60 ± 0.34
	P-value	0.475	0.743	0.357	0.467	1.000	0.267
CTDI _{vol} = 0.46 mGy (NI = 15)	score	2.80 ± 0.30 vs. 2.71 ± 0.44	2.80 ± 0.30 vs. 2.20 ± 0.30	2.80 ± 0.30 vs. 2.56 ± 0.44	2.71 ± 0.44 vs. 2.20 ± 0.30	2.71 ± 0.44 vs. 2.56 ± 0.44	2.20 ± 0.30 vs. 2.56 ± 0.44
	P-value	1.000	0.341	0.751	0.231	0.764	0.178
CTDI _{vol} = 0.31 mGy (NI = 18)	score	2.47 ± 0.51 vs. 2.20 ± 0.84	2.47 ± 0.51 vs. 1.72 ± 0.44	2.47 ± 0.51 vs. 2.45 ± 0.11	2.20 ± 0.84 vs. 1.72 ± 0.44	2.20 ± 0.84 vs. 2.45 ± 0.11	1.72 ± 0.44 vs. 2.45 ± 0.11
	P-value	0.896	0.534	1.000	0.596	0.778	0.109

* represents statistically significant difference. The level of statistical significance was set at P<0.05. ASiR-V, adaptive statistical iterative reconstruction-V; DLIR, deep learning image reconstruction; DLIR-M, deep learning image reconstruction medium; DLIR-H, deep learning image reconstruction high; CTDI_{vol}, computed tomography dose index volume; NI, noise index.

Appendix 2 Pairwise comparison of the four reconstructions

	Target	Item	Comparison					
			DLIR-H vs. ASiR-V70%	DLIR-H vs. ASiR-V30%	DLIR-H vs. DLIR-M	ASiR-V70% vs. ASiR-V30%	ASiR-V70% vs. DLIR-M	ASiR-V30% vs. DLIR-M
CTDI _{vol} = 3.89 mGy (NI = 5)	Liver	CT	0.190	0.497	1.000	1.000	0.712	0.418
		N	< 0.050*	< 0.001*	< 0.050*	< 0.001*	0.245	< 0.050*
		SNR	< 0.050*	< 0.001*	< 0.050*	< 0.050*	0.099	< 0.050*
		CNR	< 0.050*	< 0.001*	< 0.050*	< 0.050*	0.167	< 0.001*
	Kidney	CT	1.000	0.557	1.000	0.683	1.000	0.429
		N	0.058	< 0.001*	< 0.050*	< 0.010*	0.098	< 0.050*
		SNR	< 0.050*	< 0.010*	< 0.050*	0.072	0.764	0.104
		CNR	< 0.050*	< 0.010*	< 0.050*	< 0.050*	0.875	< 0.050*
	Fat tissue	CT	0.408	0.695	1.000	0.429	0.330	0.557
		N	< 0.050*	< 0.001*	< 0.010*	< 0.010*	0.573	< 0.050*
		SNR	< 0.050*	< 0.010*	< 0.050*	< 0.050*	0.817	0.051
		CNR	< 0.050*	< 0.010*	< 0.050*	< 0.050*		
CTDI _{vol} = 1.95 mGy (NI = 8)	Liver	CT	0.189	1.000	1.000	1.000	1.000	1.000
		N	0.001*	< 0.001*	0.001*	< 0.001*	0.245	0.004*
		SNR	0.002*	< 0.001*	< 0.001*	< 0.001*	0.099	0.009*
		CNR	0.006*	0.001*	0.003*	0.001*	0.125	0.009*
	Kidney	CT	1.000	1.000	1.000	1.000	1.000	1.000
		N	0.007*	< 0.001*	< 0.001*	< 0.001*	0.198	< 0.001*
		SNR	0.294	0.032*	0.067	0.072	0.764	0.104
		CNR	0.375	0.125	0.125	0.125	0.875	0.250
	Fat tissue	CT	1.000	0.296	0.664	0.086	0.455	1.000
		N	0.034*	< 0.001*	< 0.001*	< 0.001*	0.001*	0.001*
		SNR	0.375	0.125	0.375	0.125	1.000	0.375
		CNR	< 0.050*	< 0.010*	< 0.050*	< 0.050*		
CTDI _{vol} = 1.01 mGy (NI = 11)	Liver	CT	0.090	0.189	0.126	1.000	1.000	1.000
		N	0.001*	< 0.001*	0.001*	< 0.001*	0.245	0.004*
		SNR	0.002*	< 0.001*	< 0.001*	< 0.001*	0.099	0.009*
		CNR	0.006*	0.001*	0.003*	0.001*	0.125	0.009*
	Kidney	CT	1.000	1.000	1.000	1.000	1.000	1.000
		N	0.007*	< 0.001*	< 0.001*	< 0.001*	0.198	< 0.001*
		SNR	0.294	0.032*	0.067	0.072	0.764	0.104
		CNR	0.375	0.125	0.125	0.125	0.875	0.250
	Fat tissue	CT	1.000	0.296	0.664	0.086	0.455	1.000
		N	0.034*	< 0.001*	< 0.001*	< 0.001*	0.001*	0.001*
		SNR	0.375	0.125	0.375	0.125	1.000	0.375
		CNR	< 0.050*	< 0.010*	< 0.050*	< 0.050*		
CTDI _{vol} = 0.75 mGy (NI = 13)	Liver	CT	0.125	0.156	0.124	0.974	1.000	1.000
		N	0.001*	< 0.001*	0.001*	< 0.001*	0.463	0.013*
		SNR	0.001*	< 0.001*	< 0.001*	< 0.001*	0.129	0.001*
		CNR	0.001*	0.001*	0.007*	0.001*	0.231	0.004*
	Kidney	CT	1.000	1.000	1.000	1.000	1.000	1.000
		N	0.007*	< 0.001*	< 0.001*	< 0.001*	0.239	< 0.001*
		SNR	0.257	0.014*	0.085	0.094	0.964	0.004*
		CNR	0.543	0.093	0.135	0.175	0.853	0.134
	Fat tissue	CT	1.000	0.355	0.754	0.135	0.356	1.000
		N	0.023*	< 0.001*	< 0.001*	< 0.001*	0.001*	0.001*
		SNR	0.347	0.236	0.468	0.124	1.000	0.335
		CNR	< 0.050*	< 0.010*	< 0.050*	< 0.050*		
CTDI _{vol} = 0.53 mGy (NI = 15)	Liver	CT	0.090	0.189	0.126	1.000	1.000	1.000
		N	0.001*	< 0.001*	0.001*	< 0.001*	0.245	0.004*
		SNR	0.002*	< 0.001*	< 0.001*	< 0.001*	0.099	0.009*
		CNR	0.006*	0.001*	0.003*	0.001*	0.125	0.009*
	Kidney	CT	1.000	1.000	1.000	1.000	1.000	1.000
		N	0.023*	< 0.001*	< 0.001*	< 0.001*	0.239	< 0.001*
		SNR	0.294	0.032*	0.067	0.072	0.764	0.104
		CNR	0.375	0.125	0.125	0.125	0.875	0.250
	Fat tissue	CT	1.000	0.296	0.664	0.086	0.455	1.000
		N	0.034*	< 0.001*	< 0.001*	< 0.001*	0.001*	0.001*
		SNR	0.375	0.125	0.375	0.125	1.000	0.375
		CNR	< 0.050*	< 0.010*	< 0.050*	< 0.050*		
CTDI _{vol} = 0.36 mGy (NI = 18)	Liver	CT	0.090	0.189	0.126	1.000	1.000	1.000
		N	0.001*	< 0.001*	0.001*	< 0.001*	0.245	0.004*
		SNR	0.002*	< 0.001*	< 0.001*	< 0.001*	0.099	0.009*
		CNR	0.006*	0.001*	0.003*	0.001*	0.125	0.009*
	Kidney	CT	1.000	1.000	1.000	1.000	1.000	1.000
		N	0.007*	< 0.001*	< 0.001*	< 0.001*	0.198	< 0.001*
		SNR	0.294	0.032*	0.067	0.072	0.764	0.104
		CNR	0.375	0.125	0.125	0.125	0.875	0.250
	Fat tissue	CT	1.000	0.296	0.664	0.086	0.455	1.000
		N	0.034*	< 0.001*	< 0.001*	< 0.001*	0.001*	0.001*
		SNR	0.375	0.125	0.375	0.125	1.000	0.375
		CNR	< 0.050*	< 0.010*	< 0.050*	< 0.050*		
CTDI _{vol} = 1.46 mGy (NI = 5)	Lung	CT	1.000	1.000	0.289	1.000	1.000	1.000
		N	< 0.001*	< 0.001*	< 0.010*	0.049*	0.004*	< 0.001*
		SNR</						