



SMILE *dose-eye* for Pediatrics

Dose control for Pediatric Imaging

Shimadzu takes every step to implement in the ALARA principle (“*As Low as Reasonably Achievable*”), especially in Pediatric Imaging. The FDA states, “All efforts should be made to minimize risk to the Pediatric patient by reducing unnecessary exposure due to ionizing radiation.”

To provide the highest quality image at the lowest dose, Shimadzu combines a unique set of features and image processing algorithms, called **SMILE *dose-eye***.

Personalized settings allow the user to create protocols to match their needs in the pediatric environment.



Pulsed Fluoroscopy

Controlling the dose in 10 levels:
Pulse rate: 30, 15, 10, 7.5, 6, 5, 3.75, 3, 2, 1 pps

Low Pulse Rate Acquisition

DA /Rotational DA:
30, 15, 10, 7.5, 6, 5, 3.75, 3, 2, 1 fps

DSA/Rotational DSA:
15, 7.5, 5, 3.75, 3, 1 fps

RSM DSA:
15, 7.5, 5, 3.75, 3, 1 fps
(Unique to Shimadzu Trinias)

Flex APS for DSA (Active Pixel Shifting)

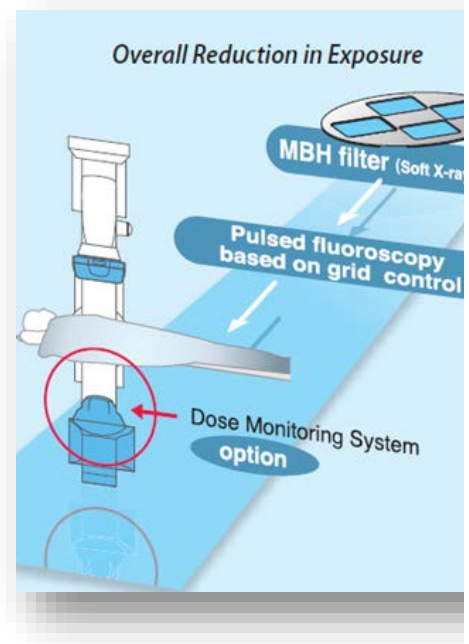
Pixel by pixel motion correction during DSA procedures minimizes registration artifact and allows dose reduction.

MBH Filtration

Eliminate soft X-rays by 4 programmable levels of filtration:

- F1: 2 mm Al +0.1 mm Cu. 5.1mmAl eq. (75kV)
- F2: 1 mm Al + 10 μm Au. 2.6 mmAl eq. (75kV)
- F3: 1.5 mm Al + 0.3 mm Cu. 10.3mmAl eq. (75kV)
- F4: 1.5 mm Al + 0.6 mm Cu 15.7mmAl eq. (75kV)

Compensation filters: 2 filters (left and right)





Trinias series *unity edition*

Grid Controlled Pulsing

Dose can be reduced greater than 50% with improved low contrast detectability and better spatial resolution of moving objects.

Virtual Collimation

Using last image hold image (LIH), the user can adjust the radiation field without exposure, substantially reducing fluoroscopy time.

Fluoro Store/Record

Images during fluoroscopy and replaying after fluoroscopy will be recorded, and cut unnecessary radiographic exposure.

Area Dosimetry

Several kinds of Dose Information are available:

Cumulative Reference Air Kerma, Reference Air Kerma Rate or DAP, can be seen on the display during or after fluoroscopy or radiography.

All dose information will be recorded to the dose report.

Protocols with Removable Grid

Reduced dose for infants with protocols that remove the grid.



SCORE Pro Advance

Image processing: SCORE PRO Advance incorporates multi-frequency processing, dynamic range compression, pattern recognition, motion tracking noise reduction and image enhancement with object detecting to improve image quality while lowering dose.

Pediatric Fluoroscopy Program

With SCORE PRO Advance Option 16-inch and 12-inch system

Classification	Program	Pulse Rate	Fluoro Dose	Use	Reference Air Karma Rate (mGy/min)
Pediatric	7.5pps	7.5pps	-	Normal mode	5.4
	10pps	10pps	-	Normal mode	7.2
	15pps	15pps	-	Normal mode	10.8

Reference Air Kerma Rate is a value at the PATIENT ENTRANCE REFERENCE POINT. This value might be different according to the dose restriction in each

Pediatric Radiography Program

With SCORE PRO Advance Option 16-inch and 12-inch system

Classification	Program	Acquisition Mode	Acquisition Rate	Maximum Exposure Number	Reference Air Karma Rate (uGy/frame)
Pediatric	DA[15f-30s]	DA	15 fps	450	58.9
	DA[30f-30s]	DA	30 fps	900	58.9

Reference Air Kerma Rate is a value at the PATIENT ENTRANCE REFERENCE POINT. This value might be different according to the dose restriction in each