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CT Pediatric Benefits – SOMATOM Definition Flash

www.siemens.com/somatom-definition-flash

Multiply Your Potential in CT Pediatric Generation Flash

Unique Innovations

- Heart-rate independent temporal resolution of 75 ms
- Focal spot size: Small: 0.7 x 0.7 mm / Large: 0.9 x 1.1 mm
- kV settings: 70/80/100/120/140 kV
- 3D voxel size: 0.24 mm / 0.33 mm
- Bore size: 78 cm
- Reconstruction performance: Up to 50 ips (1 oncology staging exam with 1000 images in up to 20 sec.)
- SAFIRE*
- Adaptive Dose Shield for any spiral CT examination
- X-CARE
- Pediatric CT protocols
- Adaptive ECG-Pulsing including MinDose
- Selective Photon Shield
- Flash Spiral with 458 mm/s scan speed
- 1 kW Scan room heat dissipation
- Tube Guard
- Siemens Remote Services
- FAST Planning
- FAST Spine
- FAST Cardio Wizard
- FAST Scan Assistant
- FAST Adjust
- CARE kV
- CARE Child
- CARE Configurator
- CARE Contrast III
- CARE Profile
- CARE Dashboard

*The information about this product is being provided for planning purposes. The product is pending 510(k) review, and is not yet commercially available in the U.S.

The SOMATOM Definition Flash, Siemens' latest high-end scanner, was especially designed to make CT exams much healthier for your patients.

Its core innovation – the revolutionary Flash Spiral – can be summarized in four words: Flash speed. Lowest dose.

Answers for life.

Lowest Dose



Courtesy of Minneapolis Heart Institute, MN USA

The world's fastest scanning speed of 458 mm/s (Flash Spiral), combined with iterative reconstruction (SAFIRE*) and the widest tube voltage range starting at 70 kV (CARE kv), clearly sets new standards in low dose pediatric imaging. In addition, with a set of dedicated pediatric scan protocols (CARE Child), the SOMATOM® Definition Flash provides even healthier scanning for your youngest patients.

collimation: 128 x 0.6mm
rotation time: 0.285
80 kV, 64 mAs
DLP: 4 mGycm
eff. dose: 0.15 mSv

*The information about this product is being provided for planning purposes. The product is pending 510(k) review, and is not yet commercially available in the U.S.

“Our study demonstrates that technological improvements in CT allow the acquisition of high-quality images with very low radiation doses in paediatric patients [...]”

Paul JF et al. Radiation dose for thoracic and coronary step-and-shoot CT using a 128-slice dual-source machine in infants and small children with congenital heart disease. *Pediatr Radiol.* 2011 Feb;41(2):244-9.

No Motion Artifacts



Courtesy of Johns Hopkins Hospital Baltimore / Maryland, USA

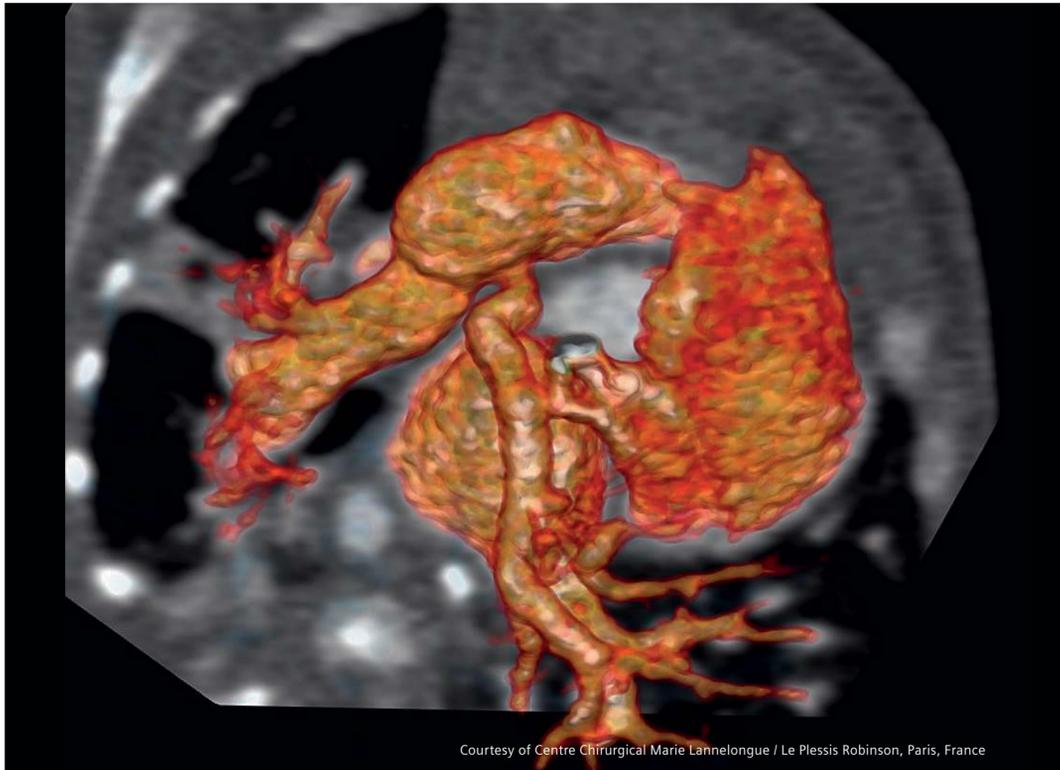
One of the main concerns in pediatric imaging besides radiation dose are motion artifacts. With Flash Spiral scanning, breath-holding and motion are no longer significant, making the SOMATOM Definition Flash the optimal child-friendly CT. Clear images without motion artifacts have now become reality with the industry's highest temporal resolution of 75 ms and the fastest Flash Spiral scanning speed of 458 mm/s.

“[...] because of the very rapid scan speed, all examinations were fully diagnostic, although all of the children were awake and some of them agitated during the examination.”

Lell MM et al. High-pitch spiral computed tomography: effect on image quality and radiation dose in pediatric chest computed tomography. *Invest Radiol.* 2011 Feb;46(2):116-23.

collimation: 128 x 0.6 mm
spatial resolution: 0.33 mm
scan time: 0.86 s
scan length: 242 mm
rotation time: 0.28 s
120/120 kV
140 effective mAs
DLP: 89.54 mGycm
CTDIvol: 3.7 mGy
eff. dose: 0.51 mSv

Finest Details



Courtesy of Centre Chirurgial Marie Lannelongue / Le Plessis Robinson, Paris, France

Especially in pediatrics, it can be a challenge to accurately visualize the finest details over the entire field of view. The SOMATOM Definition Flash, with the z-UHR option offers the industry's highest 0.24 mm isotropic resolution while z-Sharp™ Technology routinely enables unprecedented image quality at 0.33mm isotropic resolution.

“[...] prospective ECG-gated DSCT [Dual Source CT] with end-systolic reconstruction provided good or excellent images of the thorax and coronary arteries in neonates, infants and young children [...]”

Paul JF et al. Radiation dose for thoracic and coronary step-and-shoot CT using a 128-slice dual-source machine in infants and small children with congenital heart disease. *Pediatr Radiol.* 2011 Feb;41(2):244-9.

collimation: 128 x 0.6 mm
spatial resolution: 0.33 mm
scan time: 1.0 s
scan length: 33 mm
rotation time: 0.28 s
80 kV, 22 mAs
eff. dose: 0.07mSv

No Sedation



Courtesy of Brainard Lakes Health / Brainard MN, USA

Bringing the scan speed of 458 mm per second to pediatric imaging makes sedating children a thing of the past. Now Flash Spiral scans are consistently fast enough to produce sharp pediatric images without sedation. This shortens preparation time, eliminates repeated scans due to motion, and helps reduce risk as well as anxiety.

Scanning in high-pitch mode [...] “resulted in a scan time of a fraction of a second for the complete chest, and we could show that there is no longer a need for any means of sedation [...]”

Lell MM et al. High-pitch spiral computed tomography: effect on image quality and radiation dose in pediatric chest computed tomography. *Invest Radiol.* 2011 Feb;46(2):116-230.

collimation: 128 x 0.6 mm
spatial resolution: 0.33 mm
scan time: 0.72 s
scan length: 433 mm
rotation time: 0.28 s
100/100 kV, 122 effective mAs
DLP: 161 mGycm
CTDIvol: 4.07 mGy
eff. dose: 3.2 mSv