#### **SOMATOM go.Top**

## Clinical Cases

siemens-healthineers.com/somatom-go-top







## **SOMATOM go.Top**

#### Stand out in advanced CT procedures

In a market characterized by intense competition, more selective patients, and reimbursement cuts, healthcare providers must find ways to leverage technological advancements and secure income and referrals. To keep the business running, it is crucial for CT departments to differentiate themselves and deliver excellent patient-centered care. We want to help you succeed day after day. This is why we developed the SOMATOM® go. platform. As a member of this family, SOMATOM go.Top supports all users to provide the best possible scan for every type of patient – no matter the clinical demands and challenges. The scanner features a unique tablet-based mobile workflow, user guidance with our GO technologies, and exclusive innovations such as Tin Filter low-dose technology.

SOMATOM go. Top is built for personalization of processes and care, allowing every operator to optimally adapt to the individual patient and indication while interacting with patients in a more personalized way than ever before. Produce excellent results for the full clinical spectrum including Dual Energy imaging, and offer what others cannot – for a successful CT business.





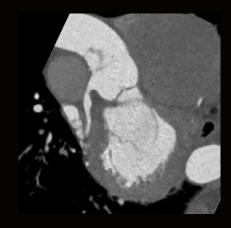
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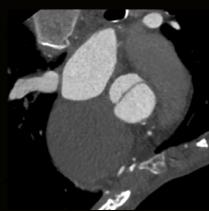
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Scan time	1 s / 6 s
Scan length	147 mm
	110 kV
CTDI <sub>vol</sub>	10.3 mGy
DLP	140 mGy cm
Heart rate	61 bpm

- Adaptive Cardio Sequence for dose-effective ECG-synchronized scanning
- Outstanding image quality due to CARE kV and the 10 kV steps
- Automated, zero-click reconstruction of CPRs with Recon&GO









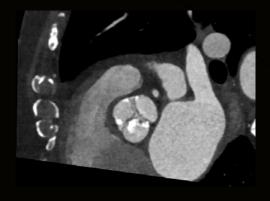
0.8 mm MPRs

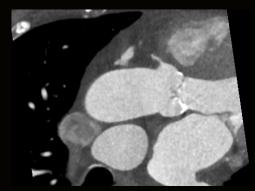
Scan time	6.8 s
Scan length	173 mm
	70 kV
CTDI <sub>vol</sub>	3.71 mGy
DLP	62 mGy cm

- Sharp visualization of aneurysm and coronary ostia with 165 ms temporal resolution
- Minimal exposure thanks to low-kV imaging with 70 kV
- Differential diagnosis of ascending aortic aneurysm

Scan time	4.5 s
Scan length	123 mm
	80 kV
CTDI <sub>vol</sub>	6.02 mGy
DLP	74 mGy cm

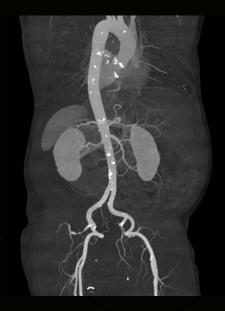
- Clear visualization of aortic valve and coronary ostia in systole thanks to high temporal resolution
- Pre-procedural planning for TAVI







0.8 mm MPRs



Angio view



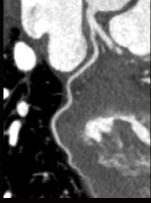
**Cinematic VRT** 

Scan time	4.7 s
Scan length	623 mm
	80 kV
CTDI <sub>vol</sub>	1.88 mGy
DLP	118 mGy cm

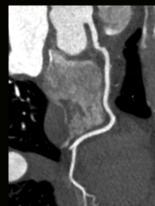
- Low dose scan of heart, aorta and vascular system with 80 kV
- Contrast media reduction potential with low-kV imaging which is especially beneficial for elderly patients

Scan time	1.4 s / 5.5 s
Scan length	144 mm
	70 kV
CTDI <sub>vol</sub>	2.77 mGy
DLP	38 mGy cm
Heart rate	65 bpm

- Adaptive Cardio Sequence in combination with 70 kV for sub-mSv dose
- Inline CPRs of main coronaries to facilitate communication with cardiologist and referring physician



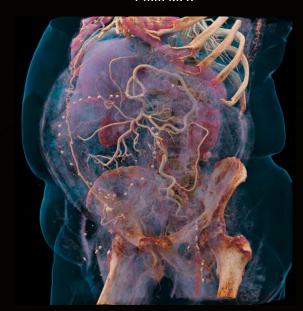




**Curved MPRs** 



1 mm MPR



**Cinematic VRT** 

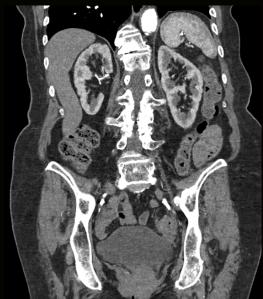
Scan time	9 s
Scan length	540 mm
	90 kV
CTDI <sub>vol</sub>	15.21 mGy
DLP	830 mGy cm

- Excellent image quality with low-kV imaging even in obese patients
- Occlusion of abdominal aorta

Scan time	3.7 s
Scan length	488 mm
	100 kV
CTDI <sub>vol</sub>	4.85 mGy
DLP	240 mGy cm

- Less dose and high contrast resolution by using unique 10 kV Steps in clinical routine
- Rule-out of endoleak after endovascular aortic repair





3 mm MPRs

# Cinematic VRT **Curved MPR** MIP

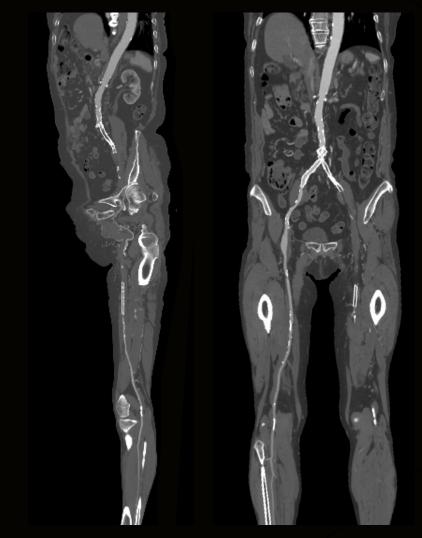
#### Cardiovascular Imaging

Scan time	9.9 s
Scan length	1347 mm
	80 kV
CTDI <sub>vol</sub>	1.94 mGy
DLP	263 mGy cm

• Low radiation dose and high contrast resolution with low-kV imaging

Scan time	24.7 s
Scan length	1146 mm
	90 kV
CTDI <sub>vol</sub>	7.56 mGy
DLP	880 mGy cm

 Combine the Stellar detector with 10 kV Steps and CARE kV for detailed visualization of complex vascular diseases



1 mm sagittal and coronal oblique MPRs



Cinematic VRTs

## **Spectral Imaging** with Dual Energy

Scan time	38 s
Scan length	1354 mm
	AuSn120 kV
CTDI <sub>vol</sub>	6.2 mGy
DLP	818 mGy cm

- TwinBeam Dual Energy
- Zero-click reconstructions in Recon&GO
- Improved opacification of smaller vessels with Monoenergetic Plus
- 70 keV image equivalent to 120 kV image impression
- Improved visualization with Dual Energy bone removal
- Evaluation of severity of stenosis after bypass



70 keV



40 keV

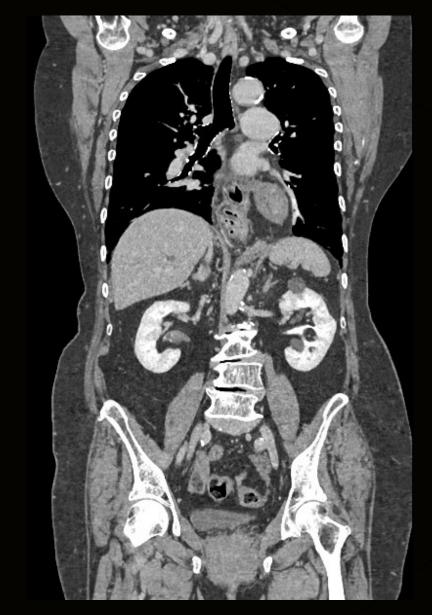


DE bone removal

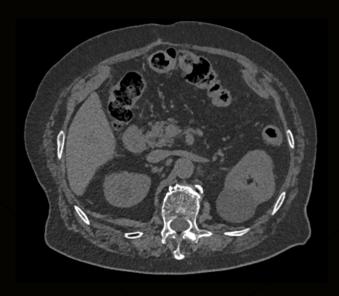
Cinematic VRT with bone removal

Scan time	8.95 / 4.6 / 4.6 / 8.95 s
Scan length	654 / 320 / 320 / 654 mm
	120 / 90 / 90 / 90 kV
CTDI <sub>vol</sub>	10.5 / 10.6 / 10.6 / 10.6 mGy
DLP	685 / 341 / 342 / 698 mGy cm

- Excellent contrast to noise ratio with powerful and fast low-kV imaging
- Contrast media saving potential using 90 kV



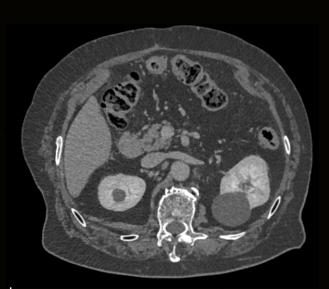
1 mm MPR



Non-contrast







Late phase

Scan time	5.9 s
Scan length	368 mm
	90 kV
CTDI <sub>vol</sub>	9.61 mGy
DLP	365 mGy cm

- Provide staging even in most challenging patients
- Reduce metal artifacts using iMAR
- Low-kV imaging even in obese patient without compromises on image quality



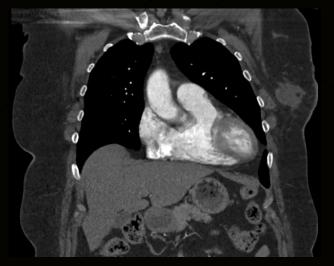








Without iMAR With iMAR Tin Filter topogram

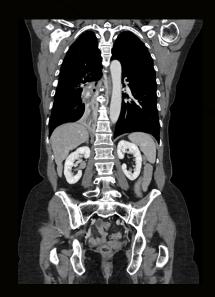




Scan time	16 s
Scan length	654 mm
	70 kV
CTDI <sub>vol</sub>	6.37 mGy
DLP	389 mGy cm

- Outstanding contrast media enhancement due to 70 kV imaging
- Automated results with Recon&GO and inline rib unfolding

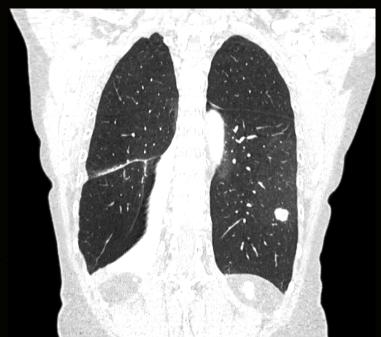




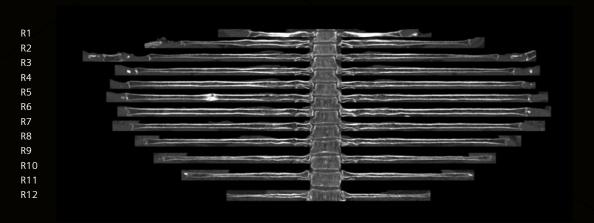
1 mm MPRs







1 mm MPRs



Automated results with Recon&GO

L10

## Oncological Imaging

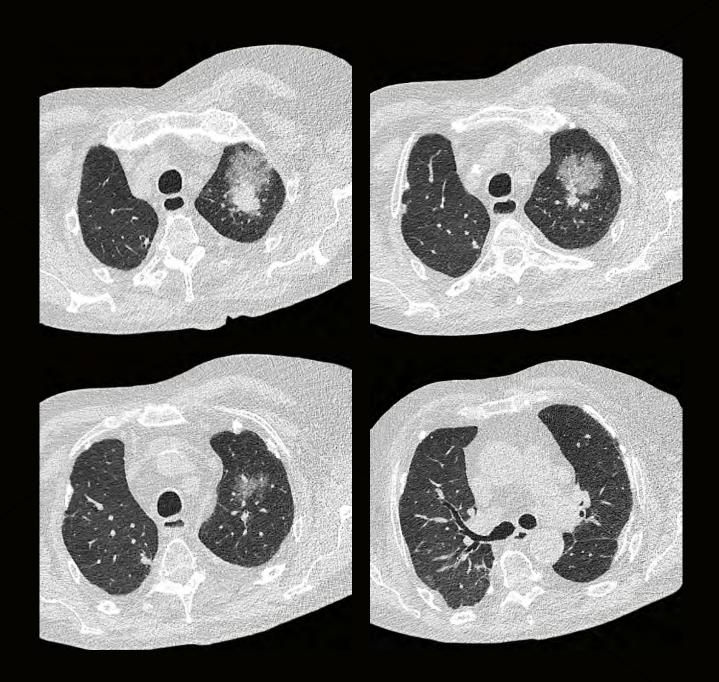
Scan time	2 s
Scan length	389 mm
	Sn110 kV
CTDI <sub>vol</sub>	0.45 mGy
DLP	15 mGy cm

- Ultra low-dose lung scan with Tin Filter, available at many kV levels
- Tin Filter Topogram for further dose savings (DLP 0.07 mGy cm)





Tin Filter Topogram

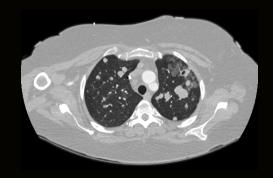


Scan time	2 s
Scan length	325 mm
	90 kV
CTDI <sub>vol</sub>	5.6 mGy
DLP	185 mGy cm

- Excellent image quality and fast scanning even in challenging positioning
- Obese patient with right arm down

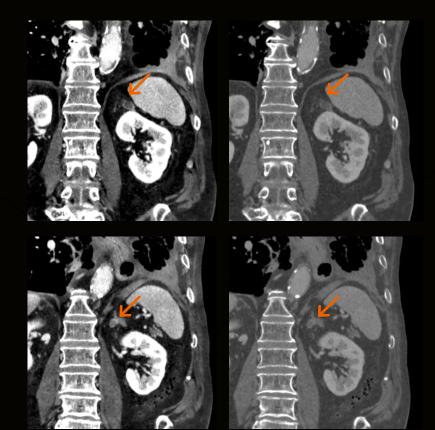


Tin Filter topogram

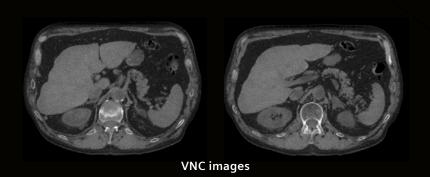




3 mm MPRs



Monoenergetic Plus
40 keV vs. 70 keV at same windowing level



## Spectral Imaging with Dual Energy

Scan time	21 s
Scan length	759 mm
	AuSn120 kV
CTDI <sub>vol</sub>	10.2 mGy
DLP	728 mGy cm

- TwinBeam Dual Energy enables high-contrast and Virtual Non Contrast applications for advanced diagnostic image quality
- Zero-click postprocessing with Recon&GO

Scan time	3 / 2 s
Scan length	265 / 232 mm
	110 / 130
CTDI <sub>vol</sub>	6.7 / 7 mGy
DLP	181 / 165 mGy cm

- Advanced diagnostic image quality enabled by high-contrast applications
- Non-contrast and arterial phase



Non-contrast CT



Arterial phase (1 mm)



Cinematic VRT from arterial phase



p.v. contrast media enhanced TBDE CT (mixed)



VNC (TBDE CT)



Monoenergetic 40 keV

## Spectral Imaging with Dual Energy

Scan time	14 s
Scan length	518 mm
	AuSn120 kV
CTDI <sub>vol</sub>	6.1 mGy
DLP	292 mGy cm

- Dose neutral acquisition with TwinBeam Dual Energy in portal venous phase
- Zero-click postprocessing with inline results in Recon&GO

## Spectral Imaging with Dual Energy

Scan time	11.4 s
Scan length	507 mm
	AuSn120 kV
CTDI <sub>vol</sub>	9.28 mGy
DLP	430 mGy cm

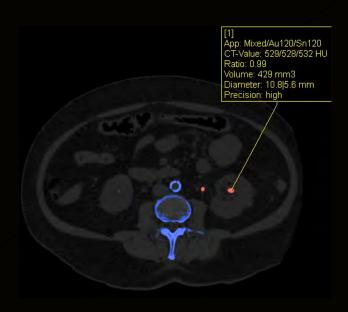
- TwinBeam Dual Energy
- Visualization and stone characterization in one examination
- Automatic Recon&GO inline results
- Or dedicated evaluation with syngo.CT DE Calculi Characterization directly at the scanner





1 mm MPRs





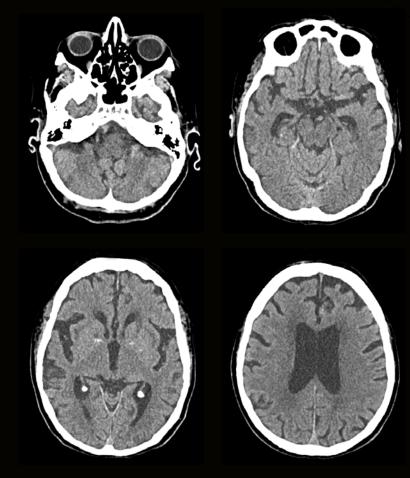


1 mm MPRs

syngo.CT DE Calculi Characterization

Scan time	11.9 s
Scan length	176 mm
	120 kV
CTDI <sub>vol</sub>	43.9 mGy
DLP	830 mGy cm

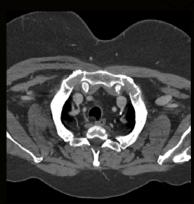
- Excellent grey-white matter differentiation thanks to Stellar detector
- Perfectly oriented MPRs directly from the scanner thanks to Recon&GO landmark detection with ALPHA¹



1 mm MPRs









Scan time	10 s
Scan length	287 mm
	80 kV
CTDI <sub>vol</sub>	10.4 mGy
DLP	297 mGy cm

- Outstanding image quality even in shoulder regions thanks to High Power 80
- Obese patient

Scan time	5.9 s
Scan length	169 mm
	Sn110 kV
CTDI <sub>vol</sub>	15.1 mGy
DLP	190 mGy cm

- Great level of detail with 0.6 mm MPRs thanks to Stellar detector
- Optimized dose levels thanks to Tin Filter





Axial and coronal 0.6 mm MPRs





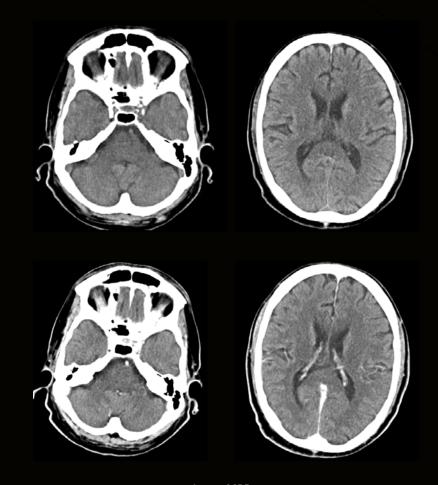
Axial 0.6 mm MPRs

Scan time	3.94 s
Scan length	93 mm
	Sn100 kV
CTDI <sub>vol</sub>	6.3 mGy
DLP	81 mGy cm

 Optimal image quality of sinuses in 0.6 mm slices and minimal dose using Tin Filter

Scan time	8 / 8 s
Scan length	204 / 202 mm
	120 kV
CTDI <sub>vol</sub>	45 / 42 mGy
DLP	733 / 669 mGy cm

- Excellent low-contrast performance for differentiation of gray/white matter
- Restaging after lung cancer resection



1 mm MPRs



70 keV

40 keV



**TBDE** bone removal

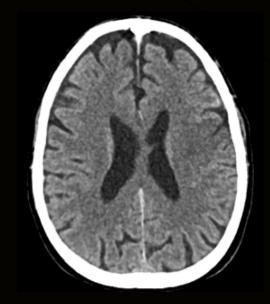
# Spectral Imaging with Dual Energy

Scan time	9 s
Scan length	358 mm
	AuSn120 kV
CTDI <sub>vol</sub>	9.29 mGy
DLP	293 mGy cm

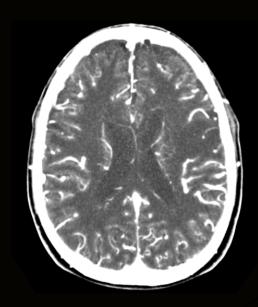
- TwinBeam Dual Energy
- Zero-click reconstructions in Recon&GO
- Improved visualization with Dual Energy bone removal
- Improved opacification of smaller vessels with Monoenergetic Plus

Scan time	10 / 15 s
Scan length	197 / 43 mm
	120 / 70 kV
CTDI <sub>vol</sub>	37 / 162 mGy
DLP	738 / 624 mGy cm

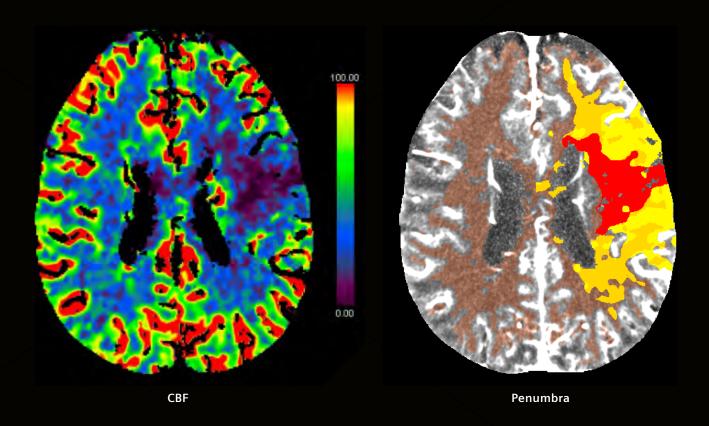
- Boost your stroke assessment by adding functional information to morphology with 4D imaging
- Experience a routine-ready workflow with neuro perfusion tools directly at the scanner
- Penumbra calculation based on mismatch between CBV and CBF, Tmax and rCBF or any other pair of parameters



2 mm MPR



MIP



#### **Pediatrics**

Scan time	2.7 s
Scan length	249 mm
	70 kV
CTDI <sub>vol</sub>	0.76 mGy
DLP	21 mGy cm

- 17 week old child
- Fast acquisiton for high quality pediatric scanning



3.0 mm MPR



Follow-up after surgery 3.0 mm MPR

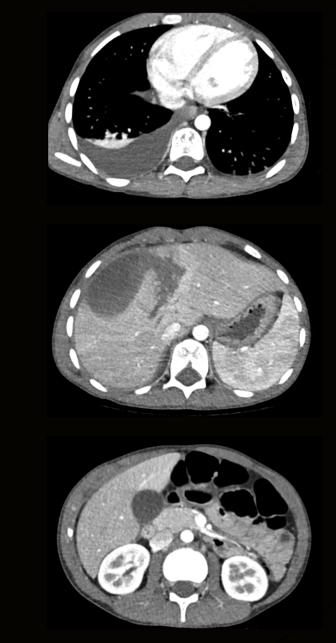
#### **Pediatrics**

Scan time	5.9 s
Scan length	177 mm
	70 kV
CTDI <sub>vol</sub>	0.95 mGy
DLP	18 mGy cm

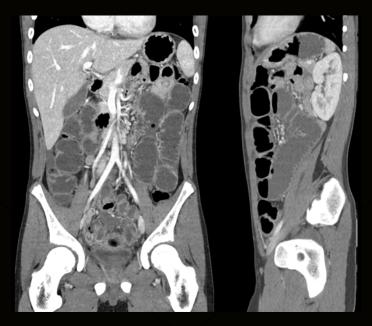
- CARE Child protocols with 70 kV for low dose in pediatrics
- Follow-up scan after splenectomy

Scan time	3.8 s
Scan length	348 mm
	70 kV
CTDI <sub>vol</sub>	1.58 mGy
DLP	61 mGy cm

- Experience better iodine enhancement and lower dose thanks to dedicated CARE Child protocols
- 11 year old with laceration of the liver



3.0 mm MPRs





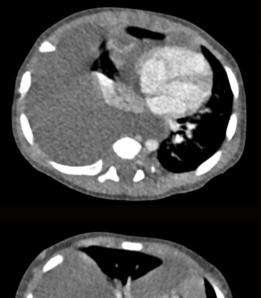
3.0 mm MPRs

Scan time	7.5 s
Scan length	468 mm
	80 kV
CTDI <sub>vol</sub>	3.04 mGy
DLP	149 mGy cm

- Excellent image quality at low dose thanks to High Power 80
- 14 year old adolescent

Scan time	0.9 s
Scan length	162 mm
	70 kV
CTDI <sub>vol</sub>	0.43 mGy
DLP	9 mGy cm

- CARE Child protocols with 70 kV for low dose in pediatrics
- 5 months old with collapsed lung

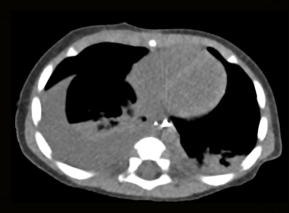






**Tin Filter Topogram** 







Tin Filter Topogram

Scan time	0.8 s
Scan length	138 mm
	70 kV
CTDI <sub>vol</sub>	0.52 mGy
DLP	10 mGy cm

- Fast acquisiton for high quality pediatric scanning
- Follow-up scan after intervention

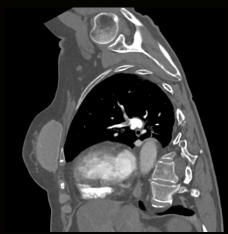
Scan time	5 s
Scan length	335 mm
	90 kV
CTDI <sub>vol</sub>	10.46 mGy
DLP	301 mGy cm

- Lung imaging with 90 kV in case of pulmonary embolism
- Great image quality with 1 mm MPRs
- Low contrast media application of 50 ml / 350 mg/ml



MIP





1 mm MPRs



1 mm MPRs



Scan time	3 s
Scan length	390 mm
	120 kV
CTDI <sub>vol</sub>	8.38 mGy
DLP	292 mGy cm

- High-resolution lung imaging thanks to Stellar detector and high number of projections
- Fast scan speed to adapt to patient's breathhold capabilities

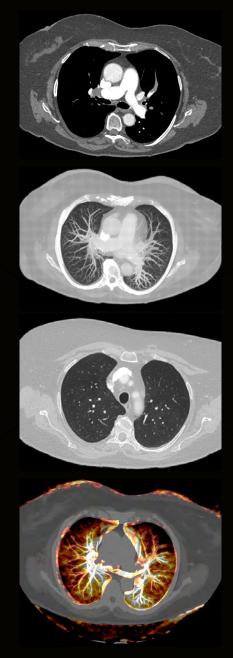




1 mm MPRs



MIP



syngo.CT DE Lung Analysis

# Spectral Imaging with Dual Energy

Scan time	9.7 s
Scan length	382 mm
	AuSn120 kV
CTDI <sub>vol</sub>	4.52 mGy
DLP	153 mGy cm

- TwinBeam Dual Energy
- Global decrease of lung perfusion after pulmonary embolism
- Zero-click spectral imaging reconstructions with Recon&GO

Scan time	11 s
Scan length	1011 mm
	110 kV
CTDI <sub>vol</sub>	10.2 mGy
DLP	1072 mGy cm

• Excellent imaging quality even in challenging positioning with both hands down



1 mm MPR

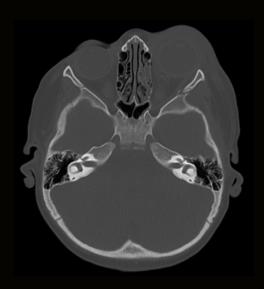


Scan time	7.3 s
Scan length	167 mm
	110 kV
CTDI <sub>vol</sub>	22.53 mGy
DLP	424 mGy cm

- Sharp visualization of fracture thanks to improved resolution with Stellar detector and UFC
- Orbita fracture evaluation of two years old child



0.6 mm MPR



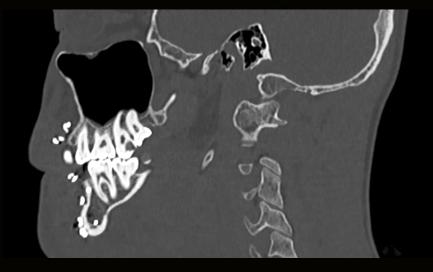
2 mm MPR



Cinematic VRT

Scan time	8 s
Scan length	207 mm
	Sn110 kV
CTDI <sub>vol</sub>	10.3 mGy
DLP	169 mGy cm

• Tin Filter with 10 kV Steps for excellent image quality



1 mm MPRs



**Cinematic VRT** 

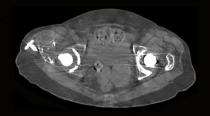


With iMAR





Without iMAR



With iMAR 1 mm slice MPRs

Scan time	15 s
Scan length	487 mm
	120 kV
CTDI <sub>vol</sub>	6.61 mGy
DLP	346 mGy cm

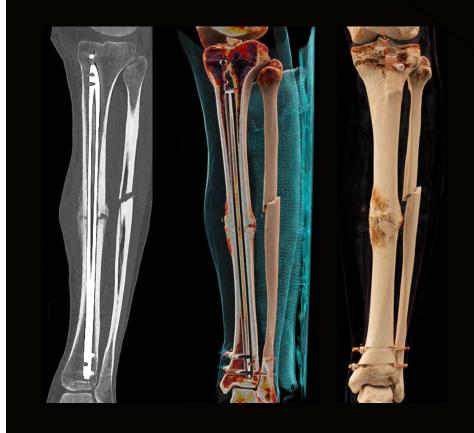
• Adding diagnostic information with iterative Metal Artifact Reduction (iMAR) also in acute care and trauma settings

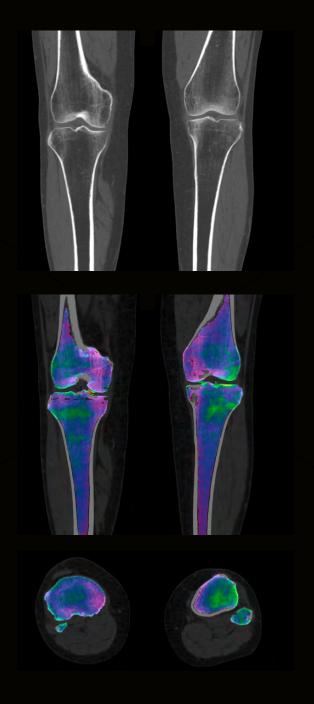
# Musculoskeletal Imaging

#### Musculoskeletal Imaging

Scan time	9.2 s
Scan length	439 mm
	Sn130 kV
CTDI <sub>vol</sub>	8.33 mGy
DLP	393 mGy cm

 Combination of high kV and Tin Filter scanning for powerful metal artefact surpression





# Spectral imaging with Dual Energy

Scan time	8 s
Scan length	294 mm
	100 / Sn140 kV
CTDI <sub>vol</sub>	6.84 mGy
DLP	250 mGy cm

- TwinSpiral Dual Energy
- Excellent spectral separation thanks to Tin Filter enables imaging of the bone marrow
- Zero-click postprocessing with inline results in Recon&GO

#### Musculoskeletal Imaging

Scan time	14 s
Scan length	329 mm
	Sn140 kV
CTDI <sub>vol</sub>	15.75 mGy
DLP	451 mGy cm

- High kV Tin Filter scanning for efficient metal artefact supression
- Obese patient





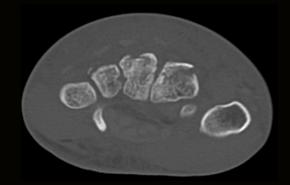




**Cinematic VRT** 



**Cinematic VRT** 



1 mm MPRs

#### Musculoskeletal Imaging

Scan time	7 s
Scan length	316 mm
	Sn110 kV
CTDI <sub>vol</sub>	4.68 mGy
DLP	128 mGy cm

- High resolution for great visualization of fracture
- Tin Filter for low-dose trauma scan at great image quality

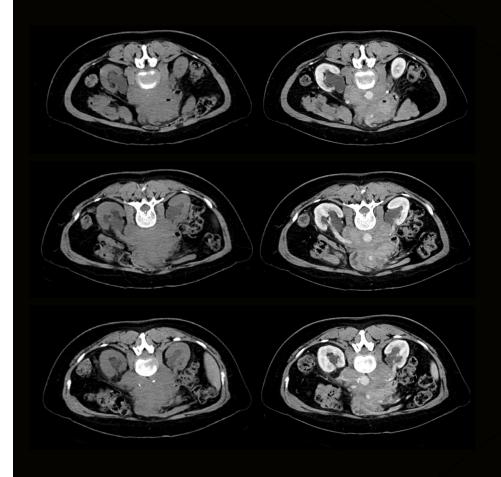
# CT-guided Intervention Guide&GO

### CT-guided Intervention Guide&GO

#### Native and contrast enhanced CT for planning (each):

Scan time	6 s
Scan length	284 mm
	80 kV
CTDI <sub>vol</sub>	13 mGy
DLP	367 mGy cm

- CT-guided biopsy with Guide&GO
- Intuitive, tablet-based workflow from planning CT to control scan





# CT-guided Intervention Guide&GO

#### i-Sequence Abdomen (2x) for biopsy:

Scan time	0.7 / 2 s
Scan length	16 mm
	120 kV each
CTDI <sub>vol</sub>	6.8 / 8.1 mGy
DLP	10 / 12 mGy cm

- CT-guided biopsy with Guide&GO
- Safeguard needle placement with FAST i-sequence for instant monitoring of the needle position

# How to get there

#### How to get there



#### myExam Companion

SOMATOM go. platform starts the era of intelligent CT scanning with myExam Companion. With it, AI turns aggregated data into built-in expertise to automatically leverage the full potential of technologies – regardless of where, when, and by whom the results have been produced.

This allows for reliable and reproducible results from day one. myExam Companion means performing all advanced CT examinations as perfectly and quickly as if they were routine, allowing even unexperienced users to find the best combination of parameters for every individual patient and procedure. Personalized imaging for precise dose and contrast media optimization, reduced unwarranted variations, and always consistent results for enhanced diagnostic experience.



#### Inline/offline postprocessing

SOMATOM go.Top comes with two kinds of postprocessing tools: a zero-click "inline" reconstruction toolkit and another one for "offline" diagnosis.

The inline results of Recon&GO save time, reduce workflow steps, and deliver ready-to-read, standardized images. As a standard, Recon&GO includes anatomical ranges, table and bone removal, vascular CPR (Curved Planar Reconstruction), and multi recon (for automated multiple reconstructions in just one step). The High Performance Package adds spine ranges and rib ranges. Additionally it can be complemented with dedicated inline results for more advanced clinical tasks such as cardio, Dual Energy, neuro and pulmonary imaging.

For offline diagnosis, CT View&GO offers dedicated tools for smooth and efficient reading. Its standard version includes anatomical ranges, table and bone removal, vessel extension, spine ranges and endoscopic view among others. Furthermore, it can be extended with options in the field of cardio and Dual Energy.

Additionally, you can purchase syngo.CT Osteo, syngo.CT Neuro DSA and dedicated syngo.CT Dual Energy applications for different clinical questions.



#### Holistic Dual Energy solution

SOMATOM go.Top offers a holistic solution with two Dual Energy modes that makes DE routine ready for all patients and situations – completely neutral in dose and workflow.

TwinSpiral is supported by a new workflow concept of two scans integrated into one single acquisition. It offers the possibility to acquire two spiral data sets in sequence at different energies. Thanks to the spectral properties of the Tin Filter, TwinSpiral DE allows a better spectral separation for non-contrast examinations, whereas TwinBeam Dual Energy is especially useful for characterizing contrast media examinations since it acquires low and high-kV datasets in a single scan. By allowing you to characterize, highlight, and quantify different materials, Dual Energy gives you greater diagnostic confidence with virtually all patients.

And combined with dedicated Spectral Viewing packages it allows for comprehensive assessment. No matter if you would like to do your postprocessing directly at the AWP or rather have it sent automatically to PACS by Recon&GO – it offers a solution for all clinical workflows.



#### Athlon™ tube

High Power 70 allows you to scan at the highest tube current in its class: up to 825 mA at 70 kV. This achieves better iodine contrast for sharper images, even in small distal vessels. As a result, you can considerably reduce contrast media and thus scan more patients, deliver better patient care, and reduce examination costs.

Furthermore, the tube voltage is automatically tailored to each patient and clinical indication by CARE kV. Voltage levels can be adjusted at intervals of 10 kV for less dose and high contrast resolution and are aligned with respective tube currents. This keeps dose low, while image quality stays excellent.



#### Stellar detector

The Stellar detector reduces image noise in every scan, while the advanced iterative reconstruction SAFIRE<sup>2</sup> delivers excellent image quality at very low dose. This provides excellent and homogenous image quality, even in complex areas.

The Stellar detector's high-end technology includes fully integrated components and an advanced 3D antiscatter collimator. It keeps electronic noise low, increases dose efficiency, and improves spatial resolution. The smart configuration of the detector elements simplifies access, eases maintenance, and increases scanner uptime.



#### Tin Filter

Inherited from high-end dual source scanners, the Tin Filter (Sn) cuts out lower energies to reduce dose and optimizes contrast between soft tissue and air. This has direct benefits in lung and colon imaging, for example. Clinical experience also shows that Tin Filter technology reduces beam-hardening artifacts and improves image quality in bony structures, making it extremely useful in orthopedic examinations.



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- <sup>1</sup> Automated Landmarking and Parsing of Human Anatomy
- <sup>2</sup> In clinical practice, the use of SAFIRE may reduce CT patient dose depending on the clinical task, patient size, anatomical location, and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task.