

# Dual Source CT Perfusion Defect Visualization with Spiral Dual Energy scanning

## SOMATOM Definition Dual Energy scanning

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### HISTORY

A 76 year-old male presented with sudden onset of dyspnea to the Emergency Department. Pulmonary embolism was suspected and the patient was referred to our Department for CT pulmonary angiography. A Dual Source CT scan of the thorax was performed on the SOMATOM Definition using spiral Dual Energy evaluation.

### DIAGNOSIS

After the Dual Energy scan, massive pulmonary embolism and consequent peripheral perfusion defects were visualized. The patient was transferred to ICU and treated with anticoagulation and supportive therapy.

### COMMENTS

In the Dual Energy mode two x-ray sources are operated simultaneously at different kV levels of 80 kV and 140 kV. The resulting two spiral data sets acquired in a single scan provide diverse information, which allows differentiating, characterizing, isolating and distinguishing the imaged tissue and material. In the thorax, Dual Energy mode allows investigating lung perfusion after iodinated contrast medium injection. In patients with pulmonary embolism, the Dual Energy mode provides new areas of research, as both morphologic and functional information on the effect of intravascular clots on lung perfusion are obtained using a single modality.

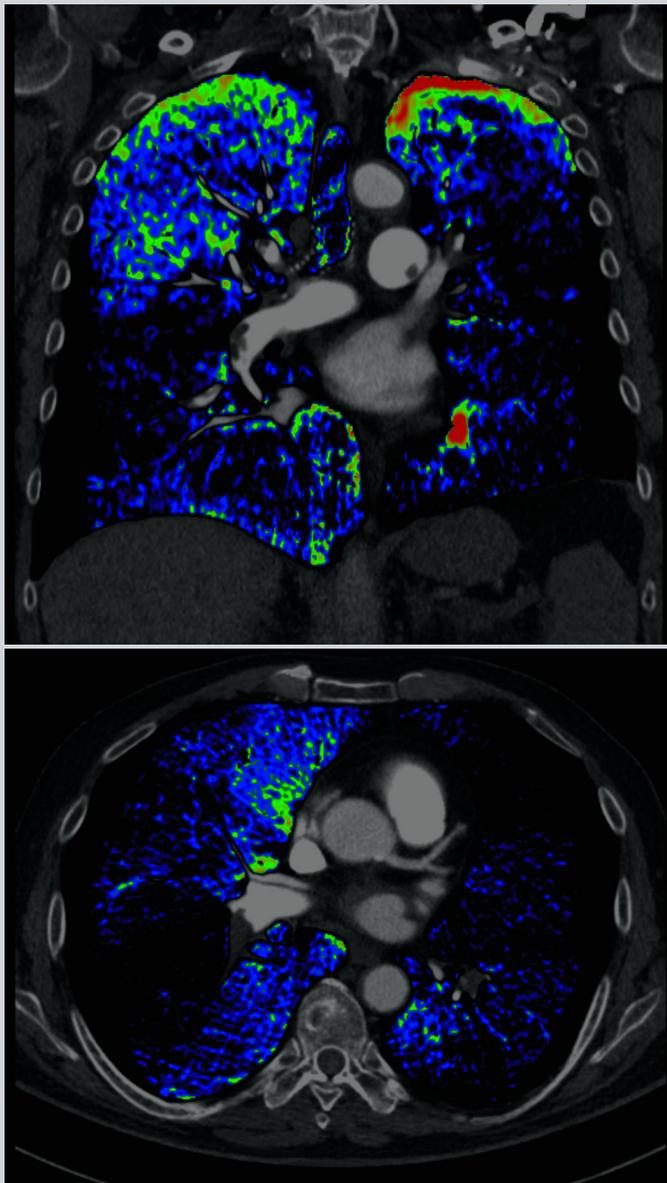


Fig 1+2: Excellent visualization of perfusion defects – made possible by spiral Dual Energy scanning.

## EXAMINATION PROTOCOL

<b>Scanner</b>	<b>SOMATOM Definition</b>
<b>Scan area</b>	<i>Thorax</i>
<b>Scan length</b>	<i>342 mm</i>
<b>Scan time</b>	<i>8 s</i>
<b>Scan direction</b>	<i>Caudo-cranial</i>
<b>kV</b>	<i>140 kV and 80 kV</i>
<b>Effective mAs</b>	<i>51 eff. mAs / 213 eff. mAs</i>
<b>Rotation time</b>	<i>0.5 s</i>
<b>Slice collimation</b>	<i>0.6 mm</i>
<b>Reconstructed slice thickness</b>	<i>1.5 mm</i>
<b>Spatial Resolution</b>	<i>0.33 mm</i>
<b>Increment</b>	<i>0.5 mm</i>
<b>CTDIvol</b>	<i>6.96 mGy</i>
<b>Kernel</b>	<i>B30f</i>
<b>Contrast Amount</b>	<i>100 ml Enhance / 50ml NaCl</i>
<b>Contrast Flow rate</b>	<i>5 ml/sec</i>
<b>Start Delay</b>	<i>CARE Bolus</i>

The information presented in this case study is for illustration only and is not intended to be relied upon by the reader for instruction as to the practice of medicine. Any health care practitioner reading

this information is reminded that they must use their own learning, training and expertise in dealing with their individual patients. This material does not substitute for that duty and is not intended by Siemens Medical Systems to be used for any purpose in that regard.

The drugs and doses mentioned herein are consistent with the approval labelling for uses and/or indications of the drug. The treating physician bears the sole responsibility for the diagnosis and treatment of patients, including drugs and doses prescribed in connection with such use. The Operating Instructions must always be strictly followed when operating the CT System. The source for the technical data is the corresponding data sheet. Results may vary.