

EOS PLATFORM FACT SHEET

ABOUT EOS IMAGING

- EOS imaging is a med-tech company that develops and markets the EOS system and associated orthopaedic solutions.
- The Company is the pioneer in orthopaedic imaging, dedicated to promoting a more holistic approach to musculoskeletal care with a lower imaging dose.
- EOS imaging is based in Paris and has five subsidiaries in Besançon (France), Cambridge (Massachusetts), Montreal (Canada), Frankfurt (Germany) and Singapore.
- EOS imaging is authorized to market in 51 countries.
- In 2013, EOS imaging acquired OneFit Medical. Onefit develops surgery planning software and offers a service for patient-specific cutting guides for orthopaedic surgeries.
- EOS imaging is a publicly-traded company listed on the Euronext stock exchange under the ticker symbol “EOSI”.

OVERVIEW

- The EOS Platform is a unique combination of low-dose 2D/3D x-ray imaging technology, software and services used throughout the course of treatment for skeletal conditions, particularly those affecting the spine, hip and knee.
- EOS exams may be prescribed to diagnose patients, to plan their treatment, to assess their condition post-operatively and to continue to monitor them in follow-up care.

COMPONENTS

- The EOS Slot Scanner takes simultaneous frontal and lateral x-ray images of patients in a standing or seated position.
 - The high-energy particle detector combined with the vertical slot scan technology creates images at a lower dose than traditional x-ray or CT scanner technologies.
 - The images have high image quality and high contrast with 65,000 grey scale values.
 - EOS images are true to size and do not have vertical distortion which may occur with long length films or some other digital imaging systems.
- The sterEOS workstation creates full-length, 3D modeling of skeletal anatomy and calculates more than 100 clinical parameters for spine, pelvis and lower limb orientation for pre-operative planning and post-operative analysis.
 - The workstation creates patient-specific reports, which include images, 3D models and clinical parameters.
 - The user-friendly interface and step-by-step guidance makes the 3D modeling workflows fast and easy.
 - EOS 3D Services* allow hospitals to outsource their 3D modeling needs based on EOS stereoradiographic images.
- EOS apps are online 3D surgical planning software solutions based on EOS bi-planar stereo-radiographic images and 3D datasets.
 - hipEOS* allows surgeons to select (type and size) and position implants on the patient’s preoperative 3D model.
 - spineEOS* allows a surgeon to create an optimized treatment plan to achieve improved sagittal alignment by simulating cage design and placement as well as osteotomies. The intended use is for pediatric patients with Adolescent Idiopathic Scoliosis, as well as adults suffering from degenerative or deformative spine conditions.

BENEFITS

Low Dose Imaging

- Radiation exposure from medical imaging may result in long-term risks. A study in the New England Journal of Medicine suggests that as many as 2% of cancer cases in the US may be connected to the increasing use of CT scans¹.
- Children, in particular, encounter potential side effects linked to excessive medical radiation, such as an increased risk of developing radiation-induced cancer later in life².
- A retrospective study on women with scoliosis who were frequently imaged, revealed that the incidence of breast cancer was nearly doubled³.
- Two studies demonstrated that the use of a low dose EOS exam reduced the radiation dose by 50% to 85% as compared to Digital and Computed Radiography (standard x-ray technologies), without compromising image quality^{4,5}.
- EOS imaging’s Micro Dose* option further reduces radiation exposure so that a pediatric follow-up spine exam has a radiation dose equivalent to only a week’s worth of natural radiation on earth (63µSv)⁶.

Unique Full Body Imaging

- EOS captures full body images in a single scan without stitching or vertical distortion, providing true size images on a 1:1 scale for accurate measurement and surgical planning.
- The full skeletal view provides a global assessment of the patient's skeletal system for a better understanding of the patient's joint conditions, alignments and posture.

3D Weight-bearing images

- Because many orthopedic conditions occur across multiple planes of the body, 3D reconstructions of the patient's anatomy provide clinicians with views and clinical parameters that are not available with 2D xray, such as torsion, anteversion and rotation.
- Sagittal alignment has gained importance in spine evaluation and can be only assessed with a full-body, weight bearing image.
- In total hip arthroplasty, it is important to optimize cup and stem positioning. Despite the value of a CT to assess 3D positioning of these components, it has been shown that acetabular component orientation between supine and standing position are not identical⁷.

High Patient and Provider Satisfaction

- An EOS full body exam takes less than 20 seconds for an adult and less than 15 seconds for a child.
- Total exam time (preparing, positioning and capturing images of a patient) for a full spine, including frontal and lateral views, takes about 4 minutes⁵.
- Physicians may also collimate to improve the image quality of the examined area.
- Full body captures with EOS eliminate the need to stitch together several localized images.

CLINICAL APPLICATIONS

Spine

- Research shows that spinal alignment is impacted by the pelvic and lower limb positions. Full body imaging enables physicians to consider the global musculoskeletal alignment for a more accurate diagnosis and surgical plan⁸.
- Complex spinal deformities, such as scoliosis, are three dimensional and require correction across three planes of the body. EOS 3D models provide a more complete picture of the deformity to help plan complicated surgical treatments⁹.

Lower Limbs (Hip/Knee)

- Planning for hip, knee and other lower limb surgeries involves careful assessment of musculoskeletal alignment. If the orientation of the joint prosthesis is not ideal, it could lead to a greater risk of complications or even implant failure.
- Research shows 3D modeling with the EOS system can provide more accurate measurements of several key parameters used to evaluate lower limb alignment, such as tibial and femoral length or frontal and lateral knee angulations^{10,11}.

1 Computed tomography – an increasing source of radiation exposure. D.J. Brenner & al. New England Journal of Medicine. 2007

2 Radiation exposure from CT scans in childhood and subsequent risk of leukaemia and brain tumours: a retrospective cohort study. B de Gonzalez & al, Lancet. 2012

3 Breast Cancer in Women With Scoliosis Exposed to Multiple Diagnostic X Rays. Daniel A. Hoffman & al. Journal National Cancer Institute. 1989

4 Diagnostic imaging of spinal deformities: reducing patients' radiation dose with a new slot-scanning X-ray imager. S. Deschenes & al. Spine. 2010

5 Comparison of radiation dose, workflow, patient comfort and financial break-even of standard digital radiography and a novel biplanar low dose X-ray system for upright full-length lower limb and whole spine radiography. T.J. Dietrich & al. Skeletal Radiol. 2013

6 EOS Micro Dose protocol for the radiological follow-up of adolescent idiopathic scoliosis. Ilharreborde B. et al. Eur Spine J. 2015

7 What is the Fate of THA Acetabular Component Orientation When Evaluated in the Standing Position ? J. V. Tiberi III & al. J. Arthroplasty. 2015

8 Thoracolumbar imbalance analysis for osteotomy planification using a new method : FBI technique. JC Le Huec & al. Eur Spine. 2011

9 Scoliosis treated with posteromedial translation : radiologic evaluation with a 3D low dose system. B Ilharreborde & al. Eur Spine. 2013

10 Eos low dose radiography : a reliable and accurate upright assessment of lower limb lengths. B. G. Escott. Journal of Bone and Joint Surgery. 2013

11 Evaluation of a new low dose biplanar system to assess lower limb alignment in 3D : a phantom study. P. Thelen & al. Skeletal Radiol. 2012

For USA - Caution: Federal law restricts these devices to sale by or on the order of a physician

*Not commercially available in all countries. Due to regulatory reasons its future availability cannot be guaranteed. Please contact your local EOS imaging representative for further details