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## Fetal Examinations Assured with Samsung's 5D Technology

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### The Future of Ultrasound

□ Ultrasound examinations during pregnancy have taken on a new dimension with Samsung's 5D technology enhancements for its WS80A with Elite ultrasound system.

Samsung's crystal clear 2D and 3D images, user-friendliness and ergonomic design are the foundations for Samsung's proprietary 5D technology, which uses volume data from the 2D images and guided intelligent navigation.

### Advanced Technology

#### ***Realistic Vue™***

Realistic Vue™ displays high-resolution 3D anatomy with exceptional detail and realistic depth perception.

#### ***Crystal Vue***

Crystal Vue is an advanced volume rendering technology that preserves context and surface information of 3D ultrasound. Crystal Vue easily differentiates between the boundaries of soft tissue and anatomical structures with automated settings to obtain the optimal image. Crystal Vue visualizes interior and exterior structures and provides additional information for detailed anatomic evaluation to ascertain fetal risk and diagnose abnormalities.

*"Our experience with Crystal Vue over the past few months, specifically imaging of the bone and soft tissue interface, leads us to believe that it may offer new opportunities for prenatal imaging, particularly for the skeletal system, but also in facial and brain imaging... we were able to obtain highly detailed images that give particular information on the contour of the ribs and allow inference on mineralization" – Dr. A. Dall'Asta, Dr. G Paramasivam & Dr. Christoph Lees, Centre for Fetal Care, Imperial College Healthcare NHS Trust, London, UK\**

#### ***3D Extended View***

Samsung's 3D extended view system can handle volume in detail, including multislice view, oblique view and oblique view extended, among others.

*"The use of 3D Extended allows very detailed handling of volumes, which makes it a very useful tool for understanding fetal anatomy during the whole gestation period. It also allows better understanding of anomalies obtained by conventional ultrasonography" - Daniel Cafici, MD, President, Argentine Society of Ultrasound in Medicine and Biology*

## 5D Technology

### 5D Heart Color

This automatically displays nine standard fetal echocardiography views with blood flow dynamics simultaneously in a single template. The intuitive workflow can simplify examination of the fetal heart and reduce operator dependency.

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### 5D CNS+

This provides nine planes (axial, coronal, sagittal planes) of the fetal brain with anatomical landmarks and biometric measurements. 5D CNS+ combines clinical knowledge-based cues with pattern classification algorithms to determine the best standardized planes that are clinically significant. It complies with the [International Society of Ultrasound in Obstetrics and Gynecology \(ISUOG\) guideline for the fetal brain](#). A success rate of over 90% was obtained under clinical evaluation. The number of operations is significantly reduced to about 85% (from 13 to 2). The examination time is shortened from 5 minutes to 20 seconds.

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*"5D CNS+ has the potential to provide to the sonographers accurate and reproducible measurements of the fetal CNS and to automatically retrieve the diagnostic planes of the fetal brain" - Prof. Giuseppe Rizzo, professor of obstetrics and gynecology, University of Rome Tor Vergata, Rome, Italy; President, Italian Society of Ultrasound Obstetrics and Gynecology*

### 5D Limb Vol

5D Limb Vol technology provides an efficient way to rapidly measure fractional limb volume. This soft tissue parameter can be added to conventional 2D ultrasound measurements of the fetal head (BPD) and abdomen (AC) to improve the precision of estimated fetal weight (EFW) and nutritional status. This computer-assisted technology has clinical potential to detect and monitor malnourished fetuses with growth abnormalities. Exam time is reduced with only 3 seed points.

*"5D Limb Vol technology of WS80A with Elite improves the efficiency for measuring fractional limb volume in*

*a busy clinical practice. This practical advancement improves the precision of estimated fetal weight by adding a soft tissue parameter to 2D anatomic measurements” - Prof. Wesley Lee, Department of Obstetrics & Gynecology, Baylor College of Medicine Houston, Texas, USA & Co-Director, Texas Children’s Fetal Center, Texas Children’s Hospital Pavilion for Women*

#### **5D NT**

Offers nuchal translucency measurement solutions for first trimester fetal nuchal translucency measurements.

*“5D NT is a new technology that offers reliable NT measurement with improved visualization by FRV™ and auto zooming for improved Herman score”*

*- Joon SunWoo, MD*

#### **5D LB**

Offers intuitive detection and measurement of fetal long bones.

*“5D LB can provide the medical team with convenience in fetal long bone measurement through accuracy, efficiency and operator independence”*

*- Ja-Young Kwon, MD, Yonsei University College of Medicine, Seoul, Korea*

### **Fetal Assessment in Clinical Practice**

- Biometrics to measure biparietal diameter and crown-rump length and determine gestational age.
- Nuchal translucency – manual measurement; semi-automatic; 5D - recognizes the correct mid-sagittal plane and provides improved Herman score.
- Morphological assessment – 3D and 4D enhancements offer more capabilities for accurate assessment to aid diagnosis of visible anomalies, invisible anomalies and anomalies requiring analysis: cardiac, face and limbs, spina bifida.
- Diagnosis of chorionicity and amnionicity in twin pregnancies
- Fetal risk assessment – characterizes risks that include aneuploidies, congenital heart defects, and spina bifida.

### **Key Features**

#### **Hybrid imaging engine evo**

Optimal 2D and color image quality together with a fast frame rate enable powerful processing and reduced noise.

#### **S-Harmonic**

This new harmonic technology improves image clarity, near to far.

Reducing signal noise, S-Harmonic provides more uniform ultrasound images.

### **ClearVision™**

Provides speckle reduction, edge and contrast enhancement.

### **Reduction in Operator Variability**

Semi-automatic and automatic features reduce inter-observer variability

### **S-Vue Transducers**

Four S-Vue transducers provide broader bandwidth and higher sensitivity, and enable best resolution and great penetration. They are lightweight and ergonomically designed for user comfort.

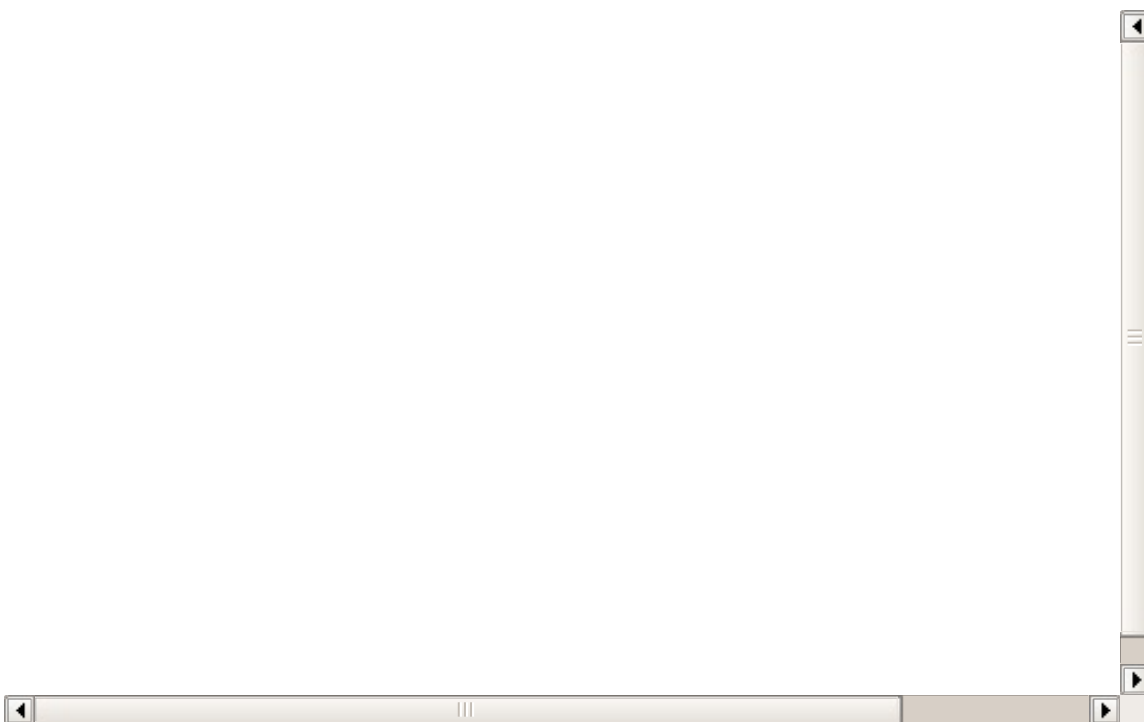
### **Further Information**

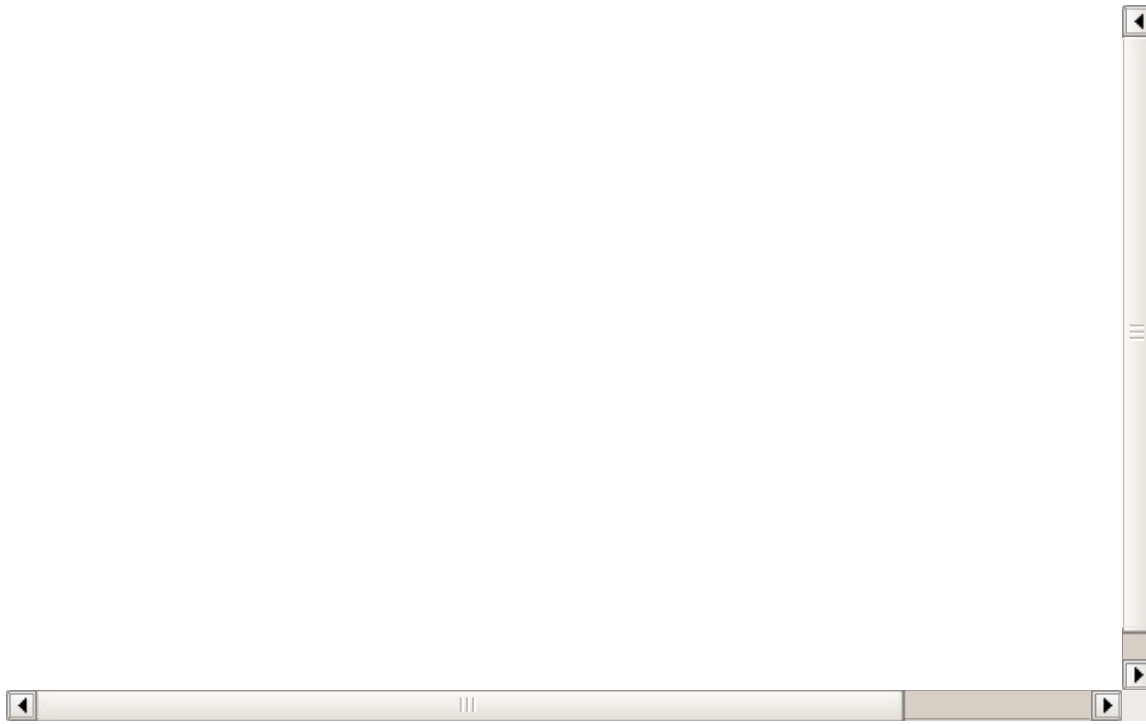
For detailed information on Crystal Vue and WS80A, please [visit the Samsung website](#).

### **\* Reference**

Dall'Asta A, Paramasivam G, Lees CC (2016) [Crystal Vue technique for imaging fetal spine and ribs](#). Ultrasound Obstet Gynecol. 2016 Mar;47(3):383-4. doi: 10.1002/uog.15800.

### **Samsung Crystal Vue Gallery**





Published on : Mon, 18 Jul 2016