

Press Release

M-GB-06002

March 14, 2006

Breakthrough in Flat-Panel Technology

**The world's first direct-conversion FPD "Safire" /
Reliability and advanced technology add value and increase safe
diagnosis**

Shimadzu, world-wide manufacturer of diagnostic imaging equipment, has introduced a new milestone in its X-ray technology program. It is the so-called "Safire" flat-panel detector, the world's first large field FPD with direct-conversion technology. It offers distinct advantages in image quality and dose efficiency in comparison with indirect-conversion flat-panel.

How does the "Safire" flat-panel technology work?

The new direct-conversion technology now creates clearer high-resolution images with less signal deterioration and reduced noise. The top layer of the flat-panel detector, an X-ray conversion film, converts X-rays passing through the patient's body directly into electric signals using amorphous Selenium. A TFT (thin-film transistor) array then collects the signal from each pixel and transfers the data immediately to the processing system.

The direct-conversion flat-panel detector is far more sensitive than conventional X-ray films. It produces still images as well as fluoroscopic images which are qualitatively equal to or better than film, even when the X-ray radiation emitted is reduced from one half to one third of conventional X-ray examination. This dramatically reduces the dosage exposure to the patient.

“Safire” merges economic with diagnostic benefits

Introducing the “Safire direct-conversion FPD” to the medical sector enables digitizing of all X-ray related diagnostic imaging. This allows faster diagnosis, improved diagnostic capabilities and accelerated remote medical diagnostics. In Japan, over 100 “Safire” systems are already in use. The 23 x 23 cm (9-inch-square) or 43 x 43 cm (17-inch-square) “Safire” FPD can be used both for still images and fluoroscopy.

Historically, for medical diagnostics, X-ray film has been used. But recently, with increasing implementation of digital and information technology in the medical field, the need for a high-resolution, high-sensitivity direct-conversion flat-panel detector has been keenly awaited as an appropriate X-ray detector for high-tech medical practices. The current image amplifier technology, inferior in image quality and dose efficiency, will soon become obsolete.

Shimadzu has traditionally invested heavily in research and development. The company has always followed a simple yet vital concept: offering the best diagnostic system possible, combined with high patient- and user-friendliness.

Shimadzu medical systems are being used on every continent. The experience gained all over the world is integrated into the design of new systems. Hence, every single user can benefit from the know-how gathered world-wide.

Caption: Heartspeed with direct-conversion FPD "Safire".

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