

# UNDERSTANDING ORTHOSCAN FD PULSE

## Pulsed Fluoroscopy

Fluoroscopy is the use of X-ray to obtain real-time motion images. Moving from continuous fluoroscopy to a pulsed fluoroscopy of 30 pulses per second (PPS), OrthoScan is able to reduce the dose during live imaging without loss of image quality or detail. Selectable pulses per second, between 30, 15, and 7.5 pps, allow the user to reduce the dose depending upon their imaging needs.

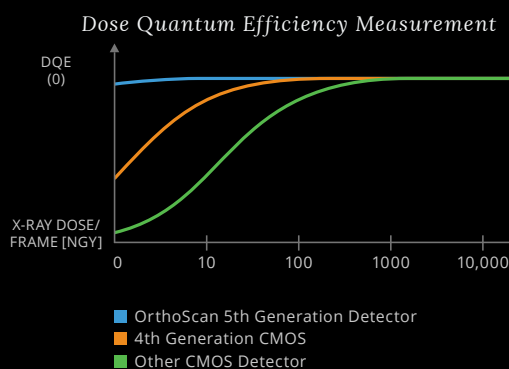
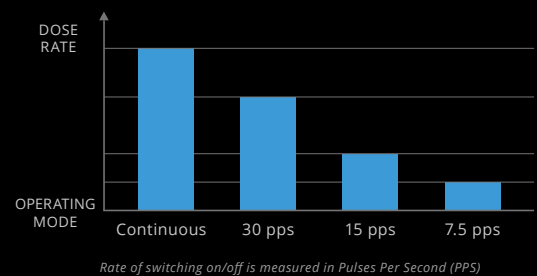
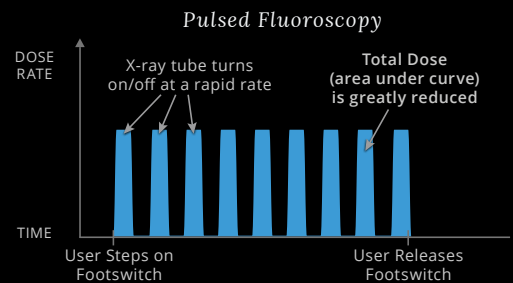
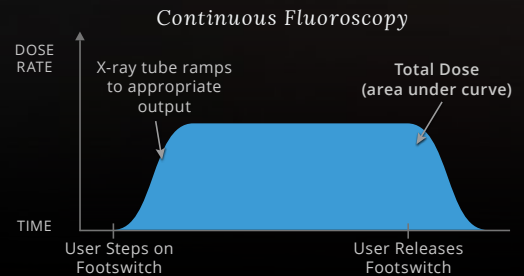
### HOW PULSED FLUOROSCOPY WORKS

Pulsed Fluoroscopy emits an x-ray beam as a series of short pulses rather than a continuous flow of x-rays. By reducing the amount of time x-rays are emitted, the system will produce less dose than a continuous stream of x-rays during live imaging. In addition to the reduced dose of Pulsed Fluoroscopy, this technology also allows for a more fluid motion display.

### PULSE PER SECOND (PPS) VS FRAME PER SECOND (FPS)

Pulses per second (PPS) represents the rate at which the radiation beam is discharged. Older technology used in analog mini c-arm systems, employ a radiation beam that is continuous and not pulsed. For the OrthoScan FD Pulse, this radiation beam can be delivered between 30, 15, and 7.5 pulses per second (PPS).

Frame per second (FPS) refers to the frame rate of the video recording system. Standard video recording systems and movies, operate at a frame rate of 30 frames per second. This is most evident during cine loop playback or video fluoroscopy. *FPS has no effect on radiation dose.*



## Generation 5 CMOS Detector

### BETTER DQE OR DETECTIVE QUANTUM EFFICIENCY

The efficiency of Gen 5 detectors is not dependent on photon energy. Because of this, the detector provides low-noise images even in very low dose situations.

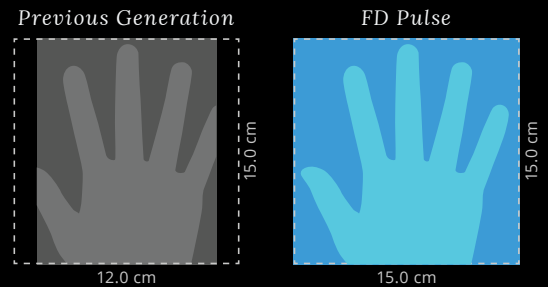
- Provides more brightness
- Provides a faster ramp time
- Allows the user to use less dose

The previous generations use a higher dose to put more photons in the image for more brightness. The competition uses the previous generation detectors.

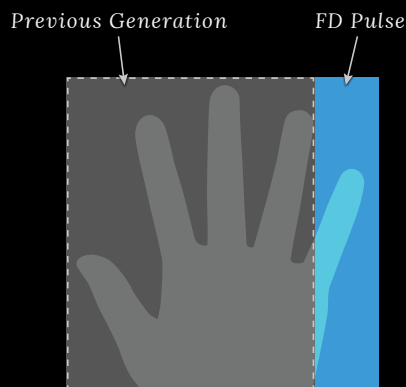
## Largest Image on the Market

The older rectangular shape of the 15.0 cm x 12.0 cm detector requires masking on each side of the image in order to maximize the area left empty due to the smaller detector. This reduces the amount of visible anatomy.

The square shape of the 15.0 cm x 15.0 cm detector does not require masking and allows the entire image to be viewed. This larger image enables the user to see the full picture.



## Largest Square-Shape Detector on a Mini



DETECTOR	DETECTOR SIZE	AREA	USEFUL ARRAY
Previous Generation	15.0 cm x 12.0 cm	180 cm <sup>2</sup>	15.0 cm x 12.0 cm
FD Pulse	15.0 cm x 15.0 cm	225 cm <sup>2</sup>	15.0 cm x 15.0 cm

### SQUARE-SHAPED VS. RECTANGULAR

Rotating detectors were designed to take advantage of the larger dimension of the rectangular detector. The square shape of the FD Pulse detector negates the need for a rotating detector, provides the greatest field of view, and enables the user to see more anatomy. Better reliability - no rotating parts.

## Smallest Focal Spot – 42.5 microns

Penumbra describes the shadowing effect similar to shining a flashlight on a wall. A tighter focal spot will produce a crisper edge on the shadow. A lower number of microns provides a smaller focal spot, improving image quality.

FD Pulse:	42.5 microns
FD-OR:	50 microns
Previous Generation:	45 microns

