



Ryan Hales, RT (R)
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Product View: Ziehm Vision RFD 3D Product Enhancements

Purpose: The purpose of this communication is to share the good news about improvements Ziehm’s R&D team has just released with software revision 7.10 for the Vision RFD 3D. This new revision of software will be seen from now going forward on new demo units in the United States and any new Vision RFD 3D orders.

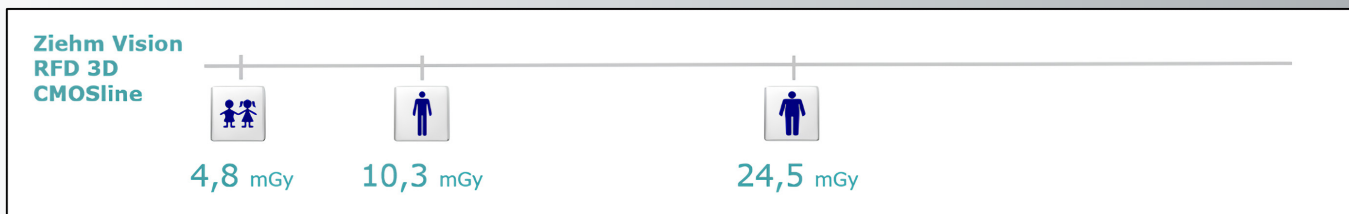
All 3 enhancements will improve image quality from the Vision RFD 3D:

1. New “boosted” High Quality mA output scan option
2. Automatic brightness & contrast (“auto-windowing”) adjustment with enhanced edge detail
3. Enhanced 3D Surface Rendering.

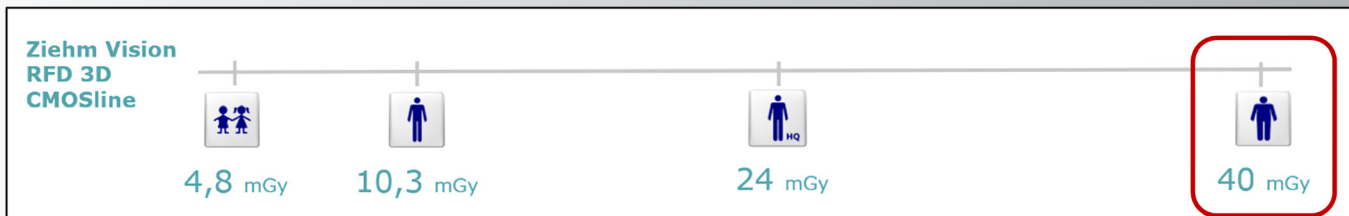
High Quality mA Output Scan Option

This is a new option designed for imaging 3D scans of heavier, larger in body mass patients. We’ve heard for a short time that while surgeons see the value of using 3D scans for confirming results in spine, trauma, interventional bronchoscopy and maxillofacial imaging prior to closing the patient, some physicians would like to have a “boosted” 3D imaging option where they could choose to increase the power output for especially heavy patients.

Until now, the Ziehm Vision RFD 3D has had 3 selections available in its setup menu for imaging (1) pediatric patients, (2) average size patients and (3) larger, heavier patients.

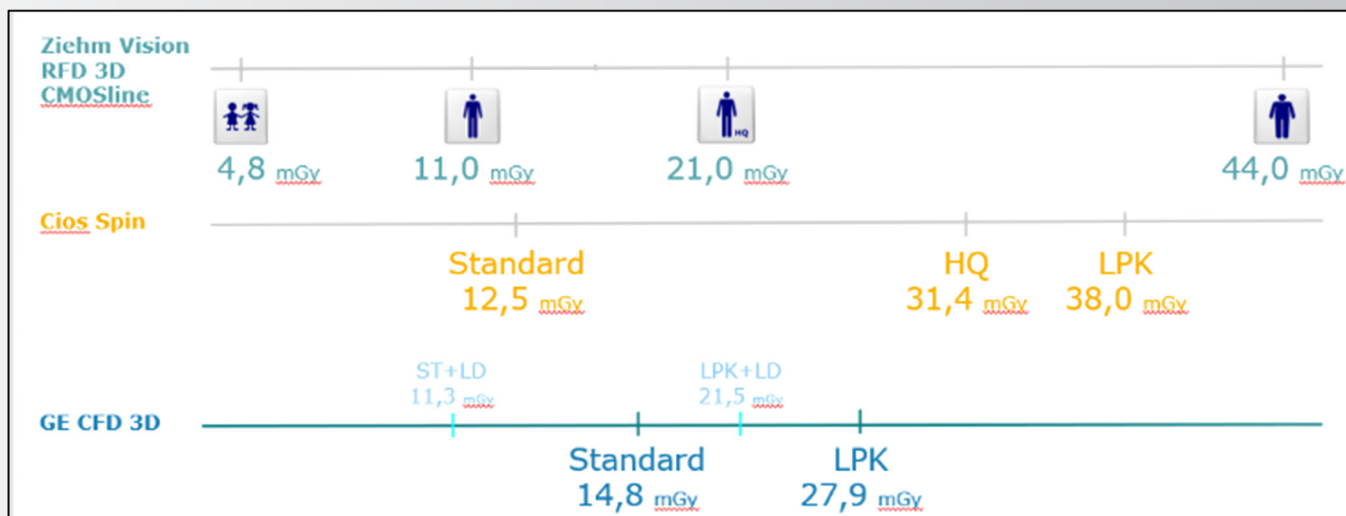


Moving forward, the RFD 3D will offer 4 selections for imaging patients of different sizes.



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This means dose output for 3D imaging will be more in line with competitive dose output from GE OEC and Siemens. The diagram below illustrates comparative doses for 3D scans. Notice how the Ziehm Vision RFD 3D is now able to provide a low dose scan for pediatric patients, 2 scan programs for more average size patients and now an additional program for imaging large patients. This improvement will result in improved 3D imaging quality when scanning especially heavy patient anatomy.



Please be advised that these improvements will be available initially on new orders only, with upgrades available to existing installations at a later date.

Ziehm's exclusive method for dose reduction

Another important competitive advantage to keep in mind when comparing dose output and 3D image quality is how GE, Siemens and Ziehm all accomplish dose reduction during 3D scans.

Firstly, it's important to note that Ziehm always acquires about 400 images every time they take a 3D scan where visualization of 180° of anatomy is acquired. Each time a Ziehm scan is performed, anatomy is imaged at a pulse rate of 8 pulses per second. This fact, along with Ziehm's lower dose anatomical program options, means Ziehm's 3D scan is roughly equivalent to only the dose output of 8 seconds of the competitor's "real time" fluoroscopy.

However, when GE and Siemens users select the option to take a lower dose scan this is done by acquiring only 200 images rather than the full 400 images. This would result in degraded image quality showing less detail and information.

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Auto-windowing (brightness & contrast) Adjustment with Enhanced Edge Detail

Ziehm Imaging has the most 3D Navigation & Robotics partners in the industry. Scans from the RFD 3D can be automatically sent to the following partners' devices at the conclusion of each scan.

Ziehm 3D C-arm SpinePartnerships & Integrations

All Validated:

- Stryker
- Brainlab
- NuVasive
- Globus
 - Software release in 2025 corrected communication issue caused by Globus' hardware change
- Mazor
- Scopis
- Augmedics
- 7D/SeaSpine

Logos: BRAINLAB, SCOPIS medical, GLOBUS MEDICAL, NUVASIVE Creative Spine Technology, Medacta International, SeaSpine, Augmedics, Mazor Robotics, stryker, ziehm imaging, ORTHOSCAN

Each partner takes Ziehm's DICOM format 3D dataset into their computer system to use for surgical navigation. Ziehm's Product Management Team has now improved the 3D DICOM images for these important navigation and robotics partners.

ADJUSTMENT OF 3D AUTO-WINDOW

NEW

Current version vs **New version**

New optimized auto-window algorithm

- Delivers higher contrast and clearer images
- Bone edges are highlighted

Adapted to the needs of navigation partners

- Avoids need for manual adjustment of contrast/brightness

ziehm imaging

With prior revisions of the software, our partners were required to do a little more work to optimize the brightness & contrast display once they'd received our 3D scan data. Now, with version 7.10 software, this auto-windowing will be done automatically. This also means less work for the X-ray technologist or Surgeon in the OR after a 3D scan to adjust the contrast & brightness display at the Ziehm workstation after a scan.

In addition to auto-windowing, the edges of vertebral bodies and other bony anatomy will be highlighted and enhanced. Spine and orthopedic trauma surgeons are ultimately looking for the edges of bone fragments and intact anatomy. These edges will be digitally enhanced for easier visualization.

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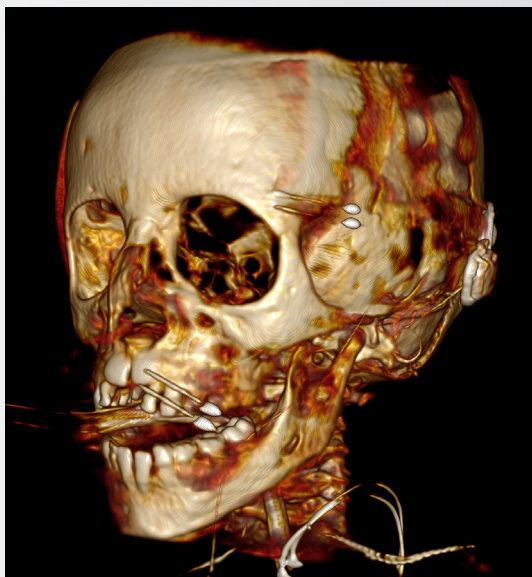
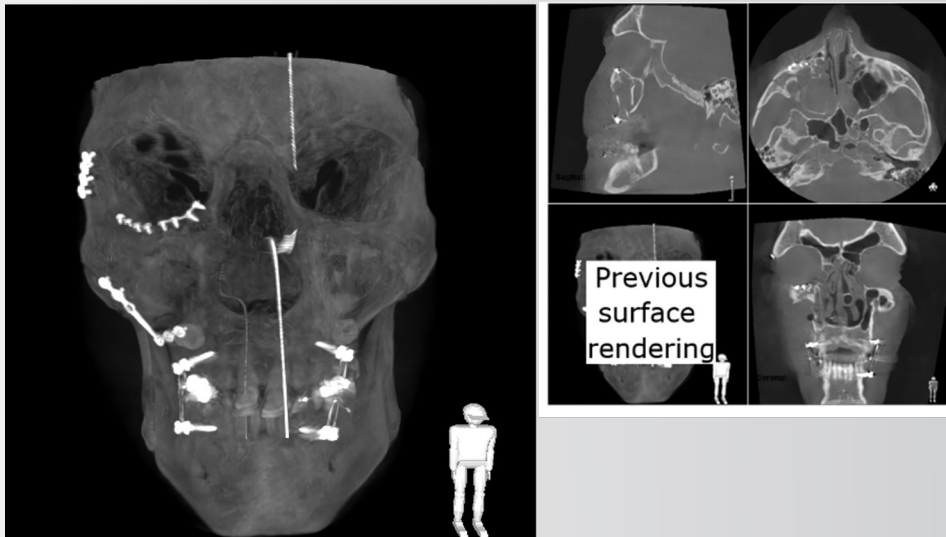
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Enhanced 3D Surface Rendering

Finally, with the 7.10 version of 3D software the surgeon will see an enhanced surface rendering.

Until now, the image in the lower-left corner of the 3D display looked something like this:



Going forward, the outer edges of spine, orthopedic and maxillofacial bone will be enhanced to see more fine detail and even metallic fixation in relation to the bone.

This may potentially result in a more diagnostic quality surface rendered image for the physician.

We believe these three enhancements will greatly improve surgeons' and other end users' experience with the Vision RFD 3D.

Please feel free to contact Ryan Hales with questions or comments regarding this or any related 3D imaging topics at 801.707.1322 or ryan.hales@ziehm-orthoscan.com.