DVT_kp

Test Phantom for Quality Assurance & Critical Examination of Dental 3D & Cone Beam CT X-Ray Equipment

The DVT_kp phantom is designed to be used as a universal tool for QA/QC routine testing in Dental 3D, Digital Volume Tomography (DVT) and Cone Beam CT (CBCT) applications.

Only one exposure is required to collect all necessary parameters to determine the imaging quality for the x-ray equipment. After the exposure, the image is automatically evaluated through the unique QA/QC software. The test results can be saved or printed out for documentation purposes.
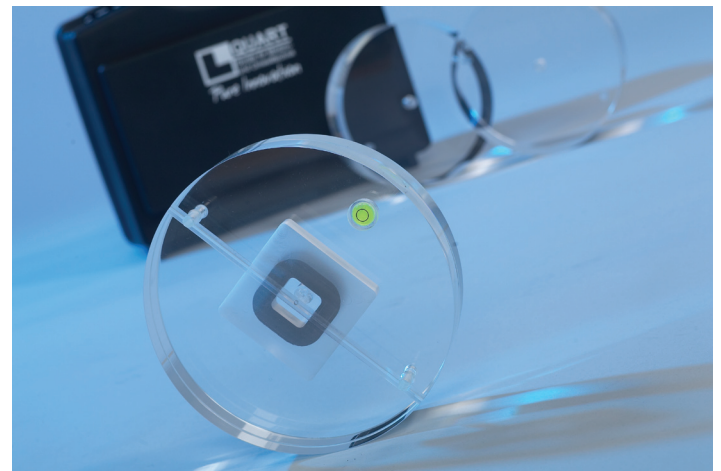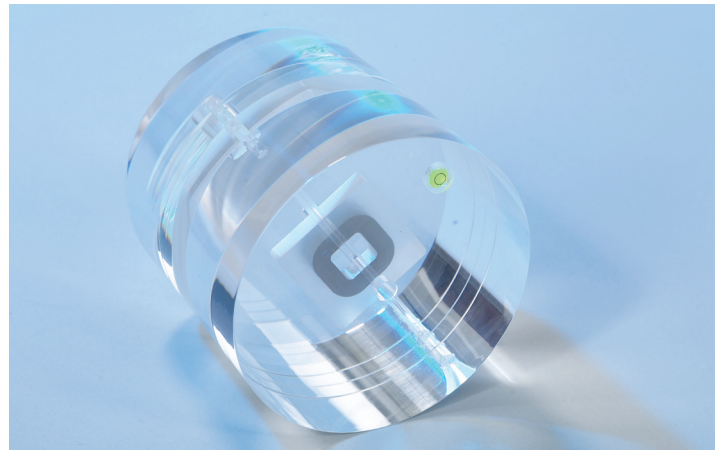
The DVT_kp phantom can be used as QA/QC tool for a wide range of 3D imaging equipment with field sizes from about 4 x 4 cm field-of-view (FOV) and wider.

Customised phantom holders for easy and reproducible positioning are available.

Test Phantom

The phantom design is comparable with the design of a standard CT Head Phantom. However, the DVT_kp has additional test objects which simulate structures and materials which are found in the specific anatomical region where the 3D x-ray imaging is applied.

The phantom body consists of 2 discs. Both discs are solidly combined to ensure easy handling when used for QA/QC procedures. It has a modular set up and can easily be modified in case a future Standard, or a new National Standard, should require additional test objects.

Test Procedure

The QA/QC procedure is very easy and straight forward. It can be carried out by service experts as well as less experienced users.

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After the phantom has been positioned in the scan centre, the exposure is initiated. After the exposure, 2 DICOM slice images are loaded into the DVT_pro QA software. The software will guide the user step-by-step through the evaluation process, collect all data from the test images and create a test protocol. The whole procedure, from positioning the phantom, to the software assisted evaluation and creation of the test protocol, takes only about 5 minutes. Essential test parameters are displayed for evaluation(*), others are merely collected in the software's backend.

Test Parameters

- Nyquist Frequency* (NF)
- Voxel Values
- Contrast
- Noise
- Contrast-to-Noise Ratio* (CNR)
- Homogeneity*
- Modulation Transfer Function* (MTF) at 10% & 50%
- Artefacts, Image Flaws, etc.
- Patient / Phantom Positioning

Complex QA/QC Technology Simplified for Ease of Use

3D imaging has become increasingly more important in Dental X-ray Technology. It provides high-resolution images created through digital image reconstruction and volumetric image rendering technology. 3D provides sharper images with more information than the traditional dental x-ray unit. It can be used by both dentists and specialists performing implant procedures.

The complexity of the new technology, however, creates new challenges for the x-ray QA/QC. Less experienced users must be able to handle the appropriate tools as well as trained service staff. This is precisely the objective of combination of our phantom and auto-evaluation software. Its ease of use makes it the perfect tool for regular QA/QC performance.

DVT_pro

The unique QA/QC software automatically evaluates all parameters which are essential for the assessment of imaging quality of CBCT/DVT equipment.

The software is easy to use. It provides a walkthrough function which helps users to carry out the QA/QC procedure. The DVT_pro stores the result of each single test in its internal data bank. In addition, a Protocol Print-Out function is provided for matters of documentation (hard copy) or general reference.

Phantom Description

- Size: Ø16 cm
- 2 disc setup (2 cm each - 4 cm total)
- Test Object Equivalents: Free Air, Soft Tissue, Bone
- NB: Additional Material Equivalents can be added on request!
- Positioning Tools: linear and/or selective markers, bubble level
- Customised Holders for varying manufacturers available

Delivery includes

- ✔ DVT_kp Test Phantom
- ✔ DVT_pro Auto-Evaluation Software / License
- ✔ Manuals
- ✔ Transport Case with Foam Insert

Also available

	Variety of Customised Holders
DVT_AP	Phantom for Acceptance Testing/Critical Exam
DVT_tec	Software Tool for Acceptance Testing
DENT/DIGITEST	2D Phantoms for Routine Dental QA/QC
DENT/DIGITEST M2	2D Phantom for Manufacturer QA/QC
DIDO/EASY	Constancy Test Dosemeter

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