dicomPACS® ***vet*** Module description

Module name: *dicomPACS*® ***vet*** **Prosthesis Documentation Module**

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dicomPACS® vet Prosthesis Documentation Module

Introduction

The ***dicom****PACS*®***vet*** Prosthesis Documentation Module is used for planning surgery and/or documentation.
There are two ways of planning surgery with the help of prosthesis templates.
For planning surgery using existing film prosthesis templates (provided by the manufacturers) a real size display representation of the image on the monitor is needed. Here the image is displayed in the same size as a similar X-ray image on film. You can place the existing film prosthesis templates in the appropriate benchmark of your X-ray unit on the monitor instead of the X-ray film itself. The prosthesis template can then be drawn onto the X-ray image with the help of the ***dicom****PACS*®***vet*** drawing tools, and may be saved and printed.

For planning surgery and/or documentation with the help of digitised prosthesis templates, no real size display of the image is necessary. The prosthesis templates are simply selected from a set of templates and inserted as an annotation into the image. New and/or not yet digitised prosthesis templates can later be transferred to the set of prosthesis templates provided by OR Technology.

Overview of functions

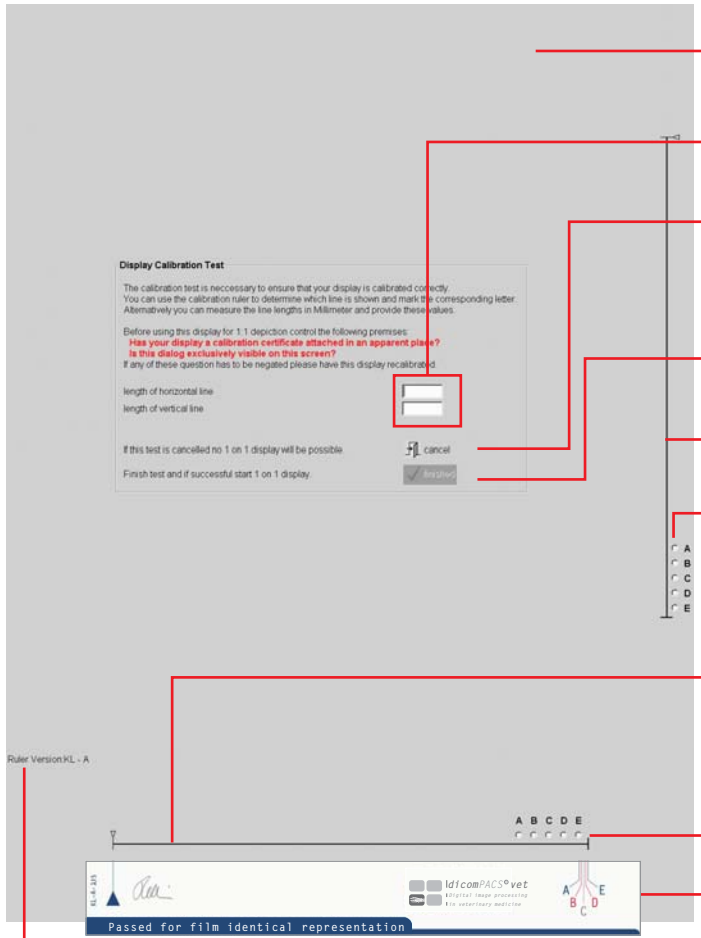
Real size display:

The real size display of images is used for planning surgery with prosthesis templates in the scale of your X-ray machine. Real size display of the images is a critical safety function. Before the first use of real size display and after each ***dicom****PACS*®***vet*** program start, you have to conduct a monitor test. The monitor that was calibrated by an authorised ***dicom****PACS*®***vet*** dealer and which is used for representation displays the quick monitor test dialog at the first activation of the real size display mode.
For the monitor test, you have to give information about the length of a horizontal and a vertical line. You need to measure the length of the reference lines with the help of the provided calibration ruler for real size display. Please put in the length of the reference lines as a letter ("A" - "E"). If the ruler has been misplaced, you can use a normal ruler to measure the length in millimetres. If wrong values have been entered, the quick monitor test can be repeated. The quick monitor test serves as a safety check for your monitors. If however the resolution of your monitor has been changed or the monitor has been exchanged, the real size display can no longer be ensured. In this case, a service technician has to calibrate your monitors again.

Starting point for measuring the
horizontal and vertical reference lines

Please measure the length of the
Reference lines as a letter.

Quick monitor test dialog:



Dialog for the monitor test. This is compulsive before the first use of real size display and after each ***dicom**PACS*®***vet*** program start.

You can measure the values in millimetres with a normal ruler if the control ruler has been misplaced.

Cancel the monitor test

Finish the test after input of all values

Vertical reference line

Please measure the length of the reference lines as a letter ("A" - "E").

Horizontal reference line

Please measure the length of the reference lines as a letter ("A" - "E").

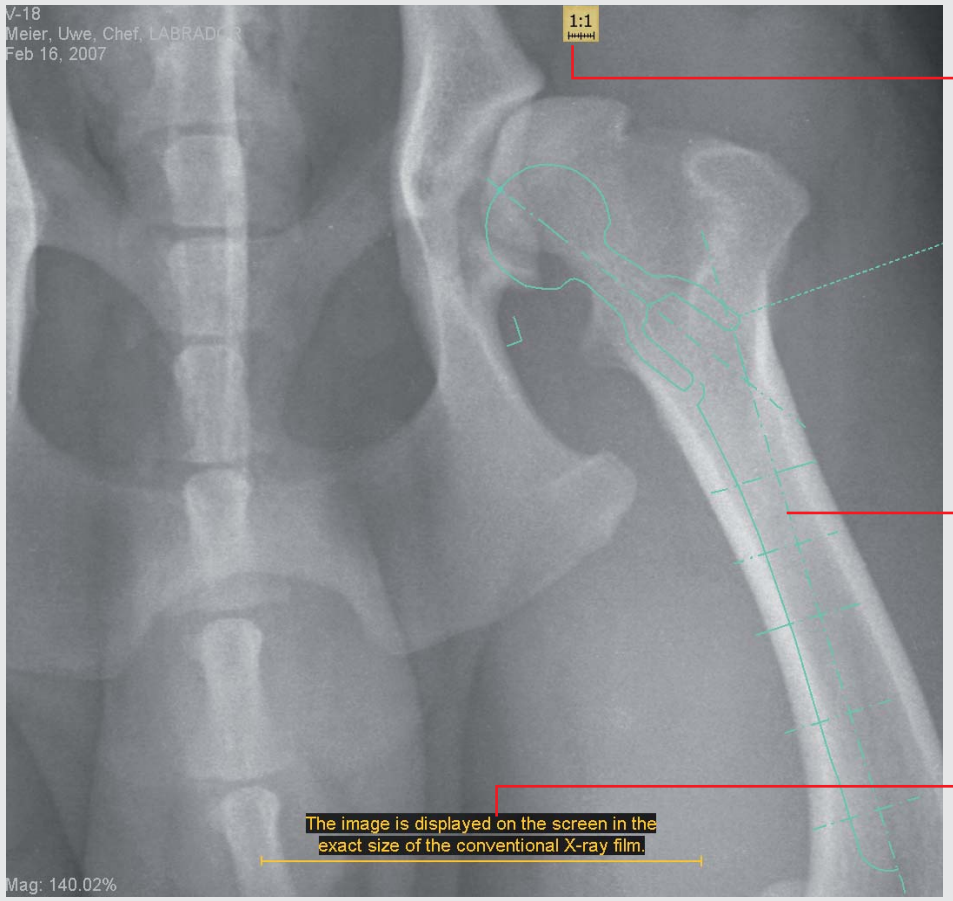
Position the control ruler

Version number of your provided control ruler

If the monitor test was successfully completed, the current image is indicated in real size display. At the next click on the 1:1 icon the current image is shown in real size display mode immediately. The image is marked with a 1:1 icon in the top margin. The lower margin displays the message that the represented image now corresponds exactly to the size of a conventional X-ray film.

Only when the image is marked with this icon, can you plan for surgery with your film templates. If the image is changed, for example by means of filter, zoom or other functions, the image is no longer displayed in real size and you will not be able to use your templates any longer. In this case the 1:1 icon is not shown.

In real size display the image is shown in the same size as a corresponding conventional X-ray image on film. After activating this function, the active image is displaying in full scale. The representation of an X-ray image is for example enlarged by a certain (known) factor. The shown objects are represented in the same size as on an X-ray image, i.e. not in



Shows the 1:1 icon on images in real size display mode

Hip prosthesis plotted with the help of the polygon-function

Confirmation that the represented image now corresponds exactly to the size on a conventional X-ray film

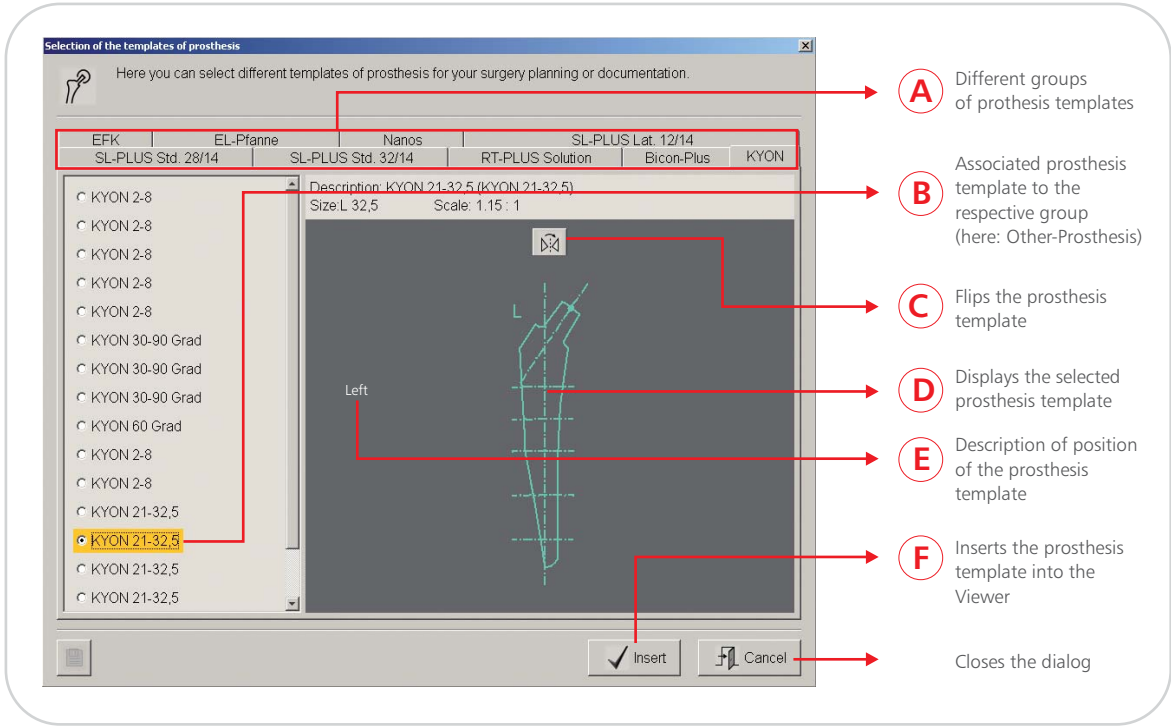
the original body size of the patient. To plan surgery, place you templates corresponding in scale to you X-ray machine on the monitor and use the polygon tool (see section 8.1.8.9. in user manual) to plot the hip prosthesis in the image. Please see the image above.

Important! The use of real size display is only possible when you have a calibrated 17"-LCD monitor and the required image has the necessary information for a full scale representation.

The initial calibration of your monitors can be done only by an authorized ***dicom**PACS*® ***vet*** dealer. Only once calibration has been done completed can you work with this function.

Digital prosthesis templates:

The prosthesis documentation module may also be used for the planning and documentation of prosthetic surgery with the help of digital prosthesis templates. These templates are inserted as annotations into the X-ray images. When an image containing a scale is loaded in the viewer, the dialog for the insertion and positioning of prosthesis templates can be opened by clicking on the icon .



A Here you can specify from which group of prostheses the prosthesis template is to be selected. You can switch between groups by clicking on the tabs.

B All prosthesis templates in the selected group of prostheses are display. The orange prosthesis template is the currently selected prosthesis template as represented in **D** .

C By clicking on this icon the displayed prosthesis template can be flipped. The position indicated in **E** is then changed. Instead of "Left" on the left side "Right" on the right side is now

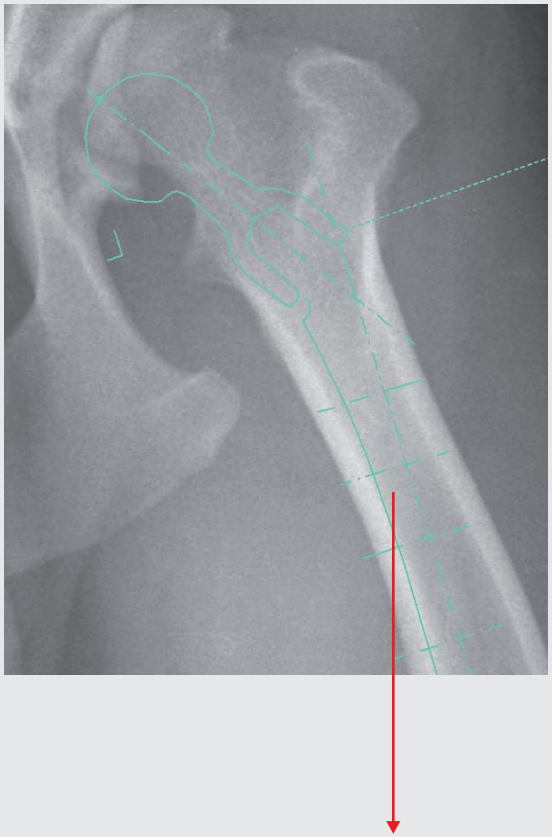
indicated. At another click on the icon, the prosthesis template flips back again and the description of position changes accordingly.

D The selected prosthesis template is shown here as a preview image. Above the icon **C** a description of this prosthesis template is given.

E Indicates the position of the prosthesis template. If the prosthesis template is flipped by clicking on **C**, the position description changes. Instead of "Left" on the left side "Right" on the right side is now indicated.
At another click on the icon, the prosthesis template flips back again and the description of position changes accordingly.

F By clicking on this button, the selected prosthesis template is inserted into the image in the viewer. The selected prosthesis template can also be inserted into the image by double clicking orange prosthesis template or pressing the Enter key.

The following image shows a template inserted from the prosthesis dialog:



A prosthesis template which was inserted from the prosthesis dialog as annotation and positioned correctly

The processing of the prosthesis templates occurs in the same way as with the annotations (e.g. line, arrow, text,…). The prosthesis templates can for instance be marked, flipped and shifted.

If the selected prosthesis template does not fit correctly, you can simply insert another prosthesis template from the same group of prostheses.

A To insert another prosthesis template of the same group of prostheses, the button  ("edit an annotation") must be activated. By double-clicking on the description of the prosthesis template a pop-up menu **B** is opened.

B The pop-up menu indicates all prosthesis templates for that group of prostheses to which the inserted prosthesis template belongs. With the help of the arrow keys and the Enter (return) key or at a mouse-click you can select another prosthesis template, for example one of another size. The changed selection in the pop-up menu is immediately visible in the Viewer.