

Calibration of the reference trajectory for the biopsy line

TOOLS

Following tools are needed to achieve needle calibration:

ID	Description
1	TRINITY
2	End-Fire probe
3	Needle
4	Transrectal guide
5	Bucket filled with water

MATERIAL PREPARATION

Follow the steps described below:

ID	Description
1	Turn on TRINITY and launch the PROMAP ultrasound module



Figure 1: Home page

ID	Description
2	Connect the probe to the system
3	Create a new patient
4	Select the created patient and click on 2D button to launch an ultrasound exam

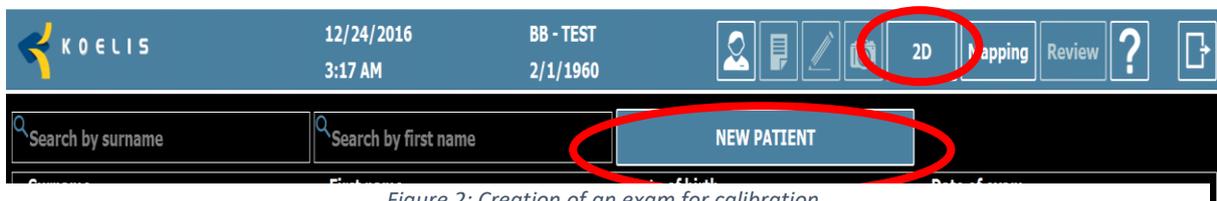


Figure 2: Creation of an exam for calibration

ID	Description
5	Place the needle guide onto the probe
6	Insert the needle in the needle guide making sure that it exceeds the probe head by a few cm



Figure 3: probe, guide and needle preparation

ID	Description
7	Immerse the probe and the needle into the bucket of water (the white needle trajectory must appear in the live ultrasound image)



Figure 4: probe and needle immersion and apparition of the white needle trajectory

ID	Description
8	Click on “Reference trajectory” to display a line showing the trajectory of the instrument relative to the guide on the live ultrasound image 
9	Click on “Instrument configuration” to display the instrument management tab 
10	Click on “Reference trajectory calibration” to unlock calibration 



Figure 5: display the instrument management tab

ID	Description
11	On the ultrasound image, adjust the grey dotted displayed on the screen using the mouse so that it is superimposed over the instrument path (see figure 6, 7 and 8)
12	Once the line is calibrated, press “Reference trajectory calibration” button to lock the position of the line. 

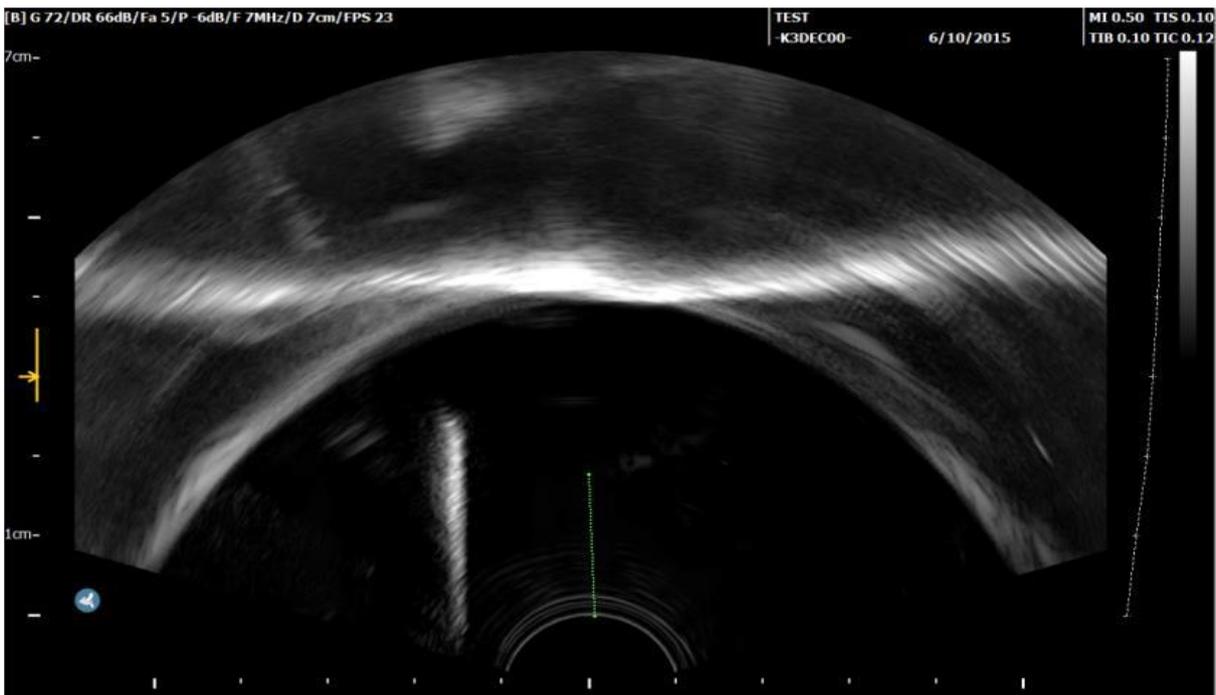


Figure 6: display the line relative to the guide

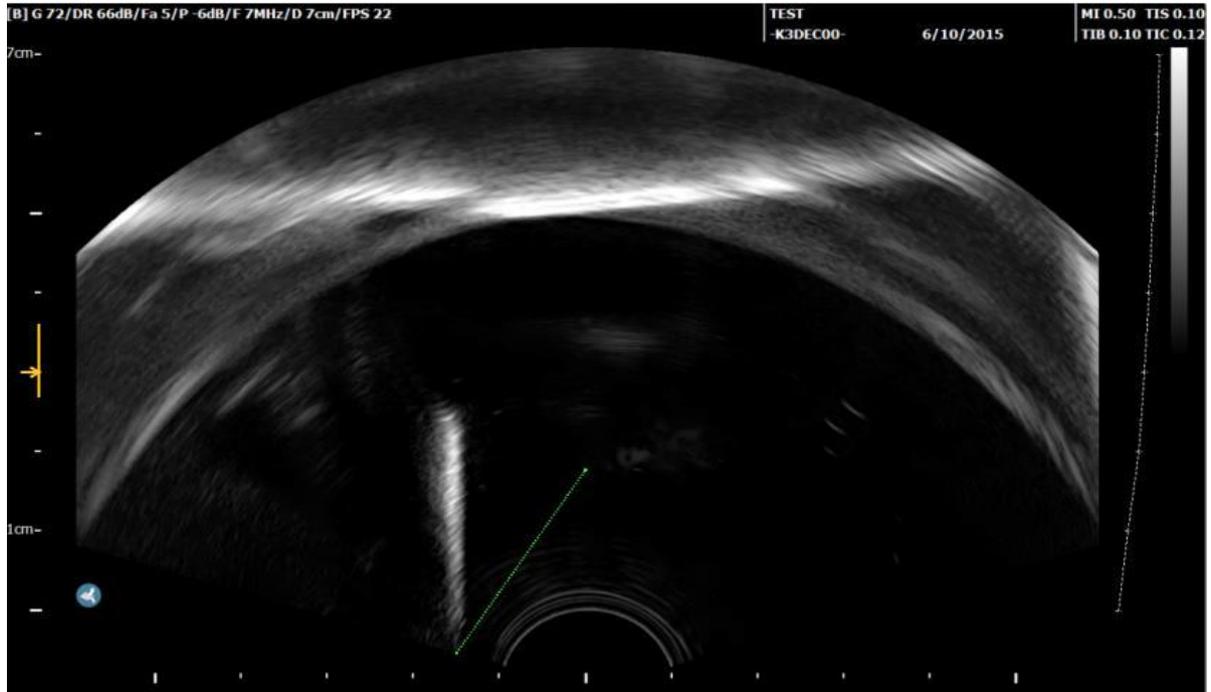


Figure 7: adjustment of the grey dotted line

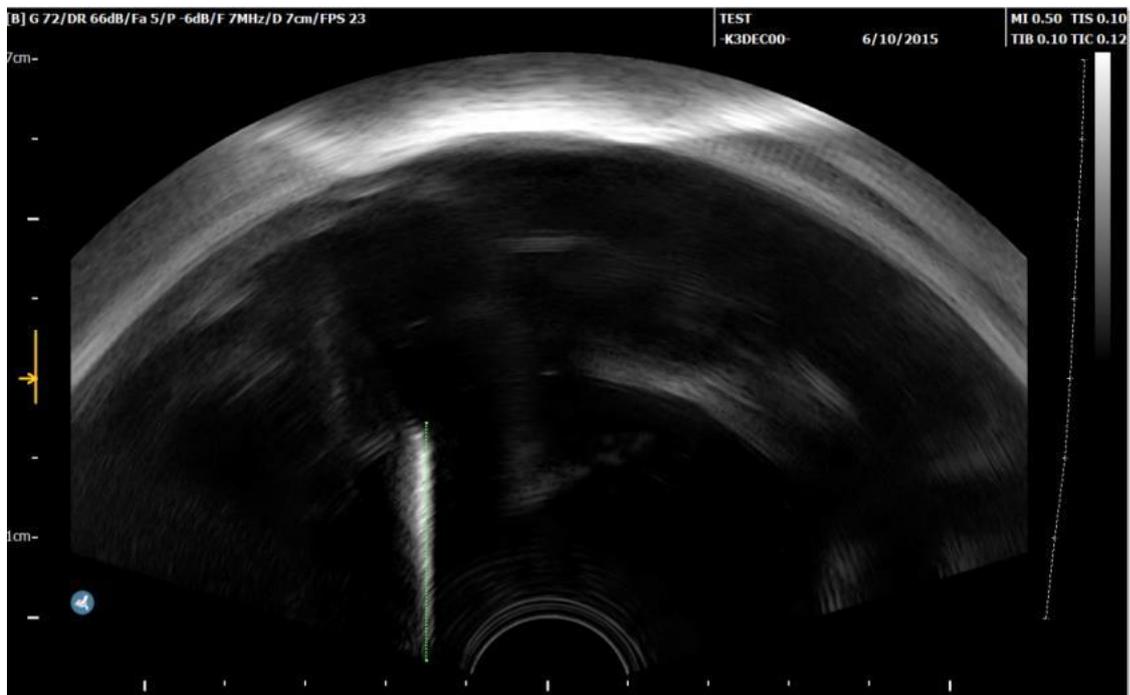


Figure 8: superimposition of the grey line over the white needle trajectory