

How can I avoid water waves in a TBA system

1 High precision electron scans with reduced water waves

For measurements in a TBA a detector is moved inside the water volume. The movement of the detector generates waves inside the phantom. These waves are unavoidable for both, step wise or continuous measurement.

Optimized measurements with a minimum of perturbations for all beam modalities and energies can be performed with MEPHYSTO mc² software.

MEPHYSTO mc² offers the user a comfortable setup with predefined speeds and delays at defined ranges of depths to minimize perturbation by surface waves during the scan. The predefined settings are a good compromise between measuring time and achievable accuracy. However for some special measurements the scanning speed can easily be changed and saved as a special set up. To do this go to the Water Tank Scan module in the MEPHYSTO mc² software, select -> Tools -> Steps and Speeds. For high precision electron measurements PTW recommends to work with slower speeds close to the surface than the defined default sets.

To achieve a high precision electron scanning, create a copy of the HIGHRES default set and modify the speeds settings as in the shown in Figure1 below. The delay times do not need to be changed.



Figure 1

Steps and Speeds set for high precision electron scanning

Make sure to have the electron set selected for scans with electron radiation qualities. The actual selected steps and speeds set can be seen in the status bar at the bottom. (See Figure 2)

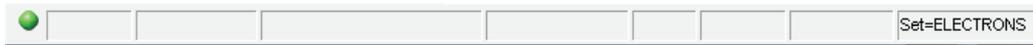


Figure 2 Selected steps and speeds set in the status bar

In addition, the new MEPHYSTO mc² 3.0 offers a new feature to minimize perturbation caused by the movement of the scanning arm to the start position. The acceleration and the deceleration of the scanning arm are reduced during the movement to the scan start position, This new feature works with all MP3 water phantoms with the use of MEPHYSTO mc² 3.0 software.