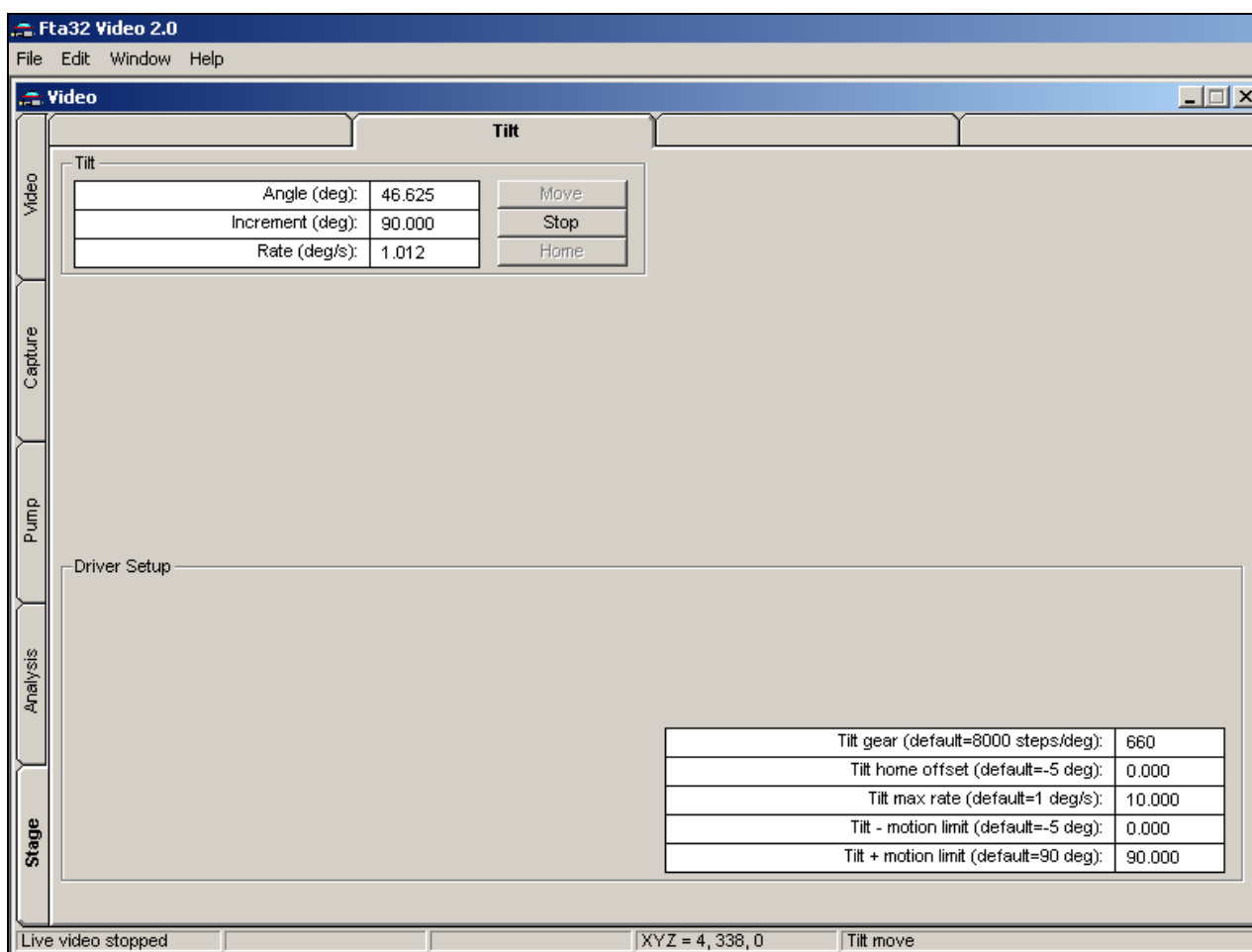


## Tilting Plate Readout

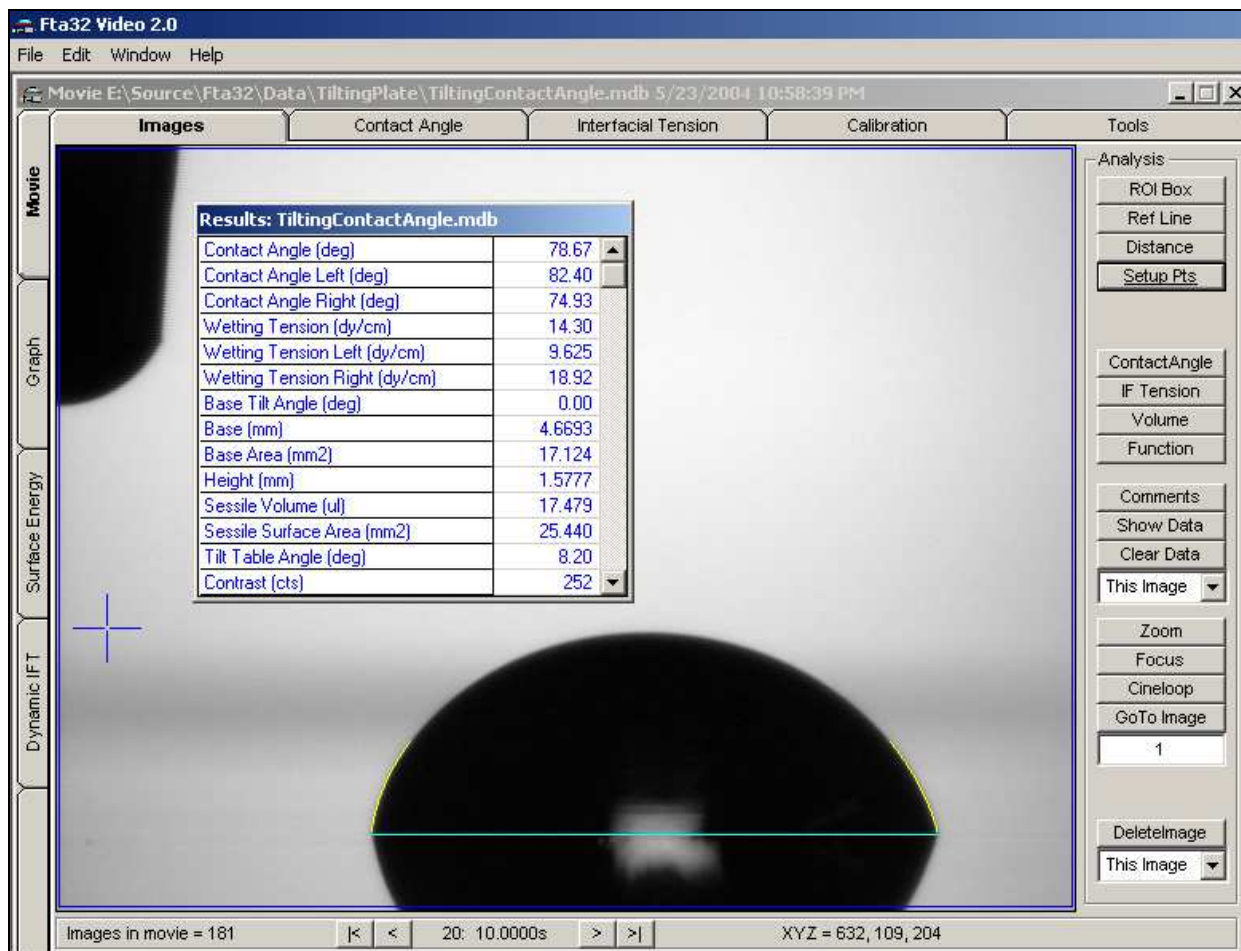
Revised November 9, 2006

The tilt angle of the Instrument Tilt Stage and the FTA2000's stage is read on a regular timed basis, slightly more than once a second. The current readout is shown on the Stage | Tilt tab.



The current tilt angle is shown here as Angle (deg): 46.625 as the stage tilts.

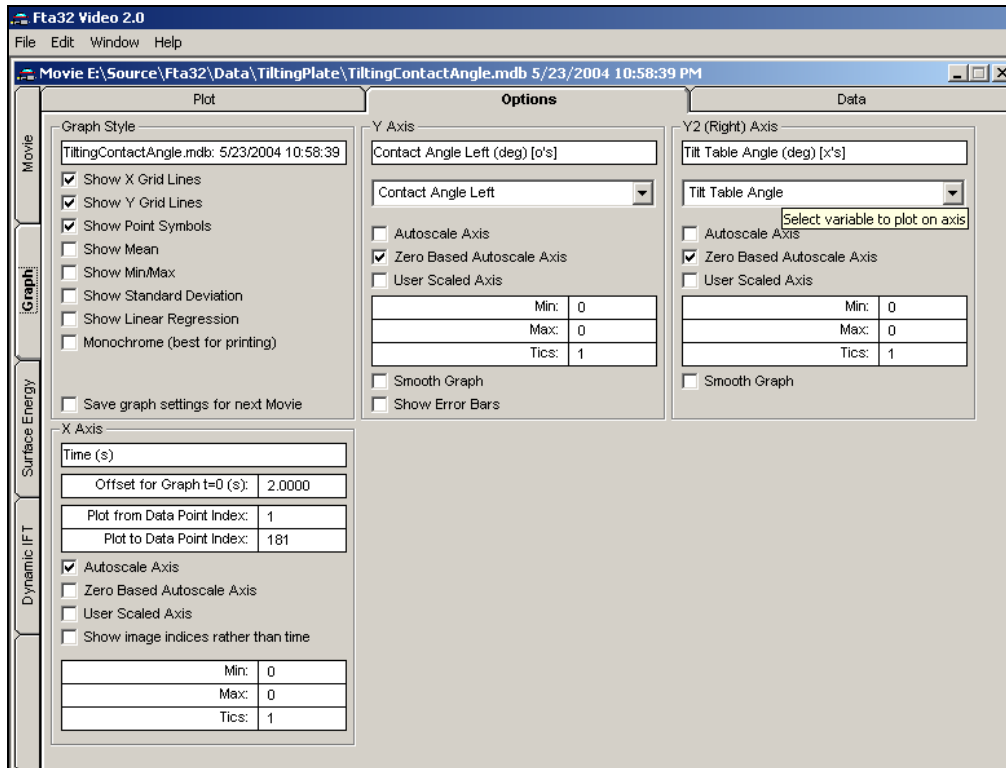
When you take a SnapShot or a Movie, the current tilt angle will be added to the measured data list. The following screen image shows tilt data on an otherwise blank image.



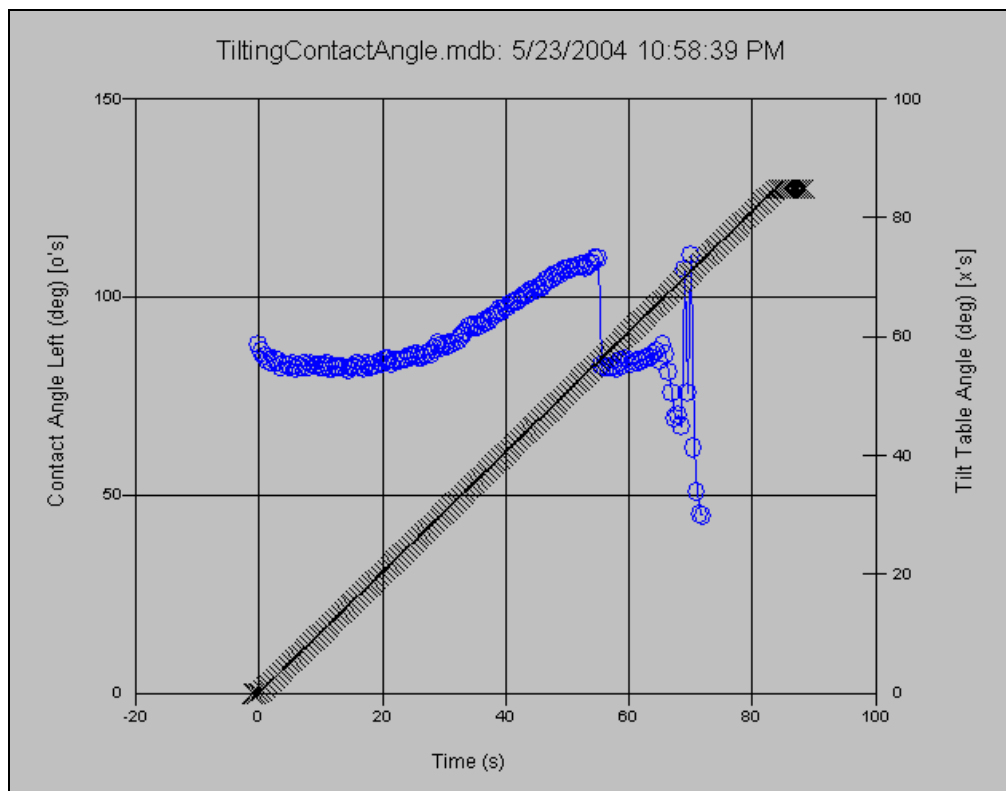
Tilt table angle captured in a tilting table measurement on an FTA2000. On this instrument, the table tilts but the needle does not. The needle is therefore tilting with respect to the table + camera and appears in the upper left hand corner (it started out in the center of the image). The left side of the table is going down and the right side up. The advancing angle is currently  $82.4^\circ$ , the downhill side, and the receding angle is  $74.9^\circ$  on the uphill side.

The current software writes the tilt table angle into the Movie whenever the tilt table is selected as present on the LogOn screen. Future versions may limit the writing to those times the table is actually moving. Notice the Tilt Table Angle is shown in the Results box, next to bottom.

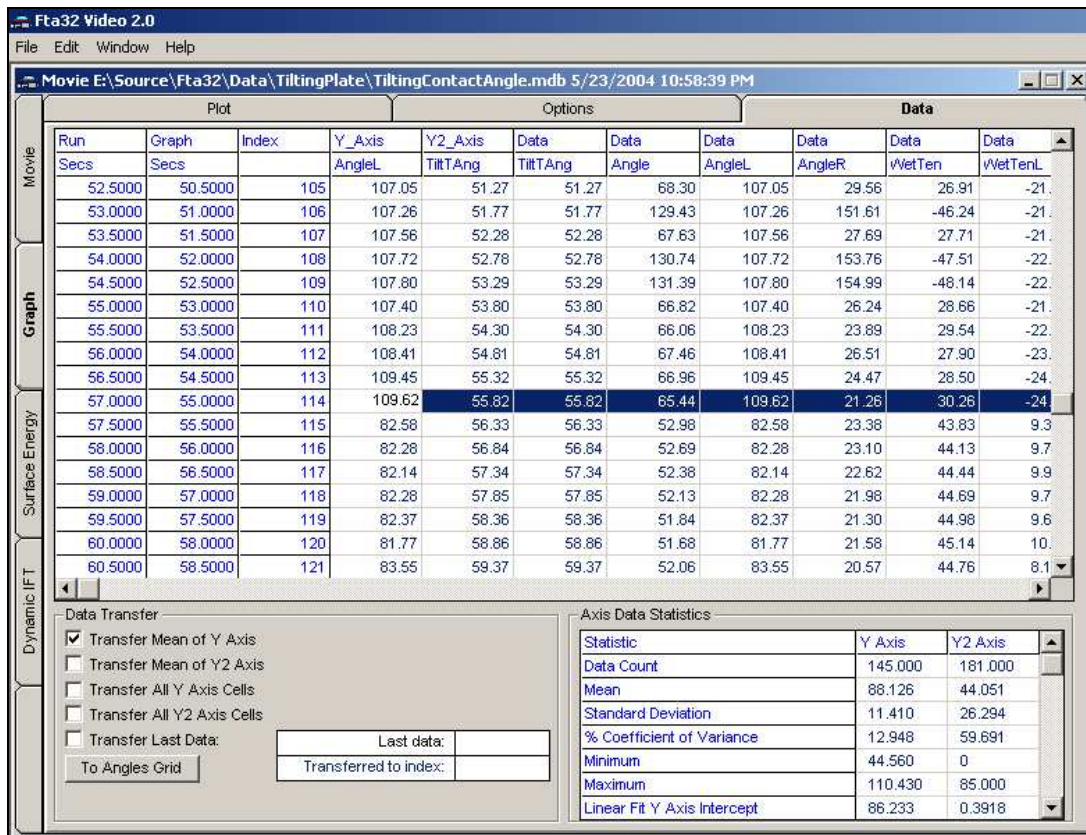
Anytime a variable, such as Tilt Table Angle, appears in the Results box, it may be graphed. The screen shots on the following page show its selection on Graph | Option and the resulting plot. The blue circles of the left hand contact angle, the advancing side, show it peaking at a tilt angle of  $55^\circ$ . This is where the downhill side of the drop starts to slip. The contact angle at this point,  $109.62^\circ$  is important but the angle of the table is of only casual interest. The precise values of maximum contact angle (the true advancing contact angle) and the tilt table angle at which it occurred can be easily read by scanning down the Graph | Data table. A screen shot of the data table for this graph is shown on the subsequent page.



Selection of Tilt Table Angle to plot on Y2 = right hand axis.



The left-hand, downhill, contact angle rises as the table tilts until it slips, after which it is unstable.



Data table showing maximum (advancing) contact angle = 109.62°  
and the tilt angle of 55.82° at which it was reached.

The Fta32 graph program only lets you plot time on the horizontal axis (there are good reasons for this). If you want to plot contact angle against tilt table angle, you should export the data to Excel, which is easy, and plot it there, which is easy.

File: TiltingPlateReadout.doc